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Women Executives, Crisis Strategies, and Firm Outcomes in Turkish SMEs During COVID-19

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Abstract

Gendered leadership theories suggest that women executives may adopt distinct crisis management approaches, yet evidence from private-sector small- and medium-sized enterprises (SMEs) remains limited. This study examines associations between women's executive presence, crisis strategies, and firm outcomes during COVID-19. Using survey data from 207 SMEs across 12 sectors in Istanbul, Türkiye, we apply non-parametric tests and regression models controlling for firm age, size, and sector. Firms with women executives reported stronger cash-flow sustainability and cost management outcomes but no significant differences in revenue generation or overall performance. They also scored higher on a composite defensive strategy index, although measurable outcome differences were limited to the cost-related dimension. These findings suggest that the association between women's executive presence and crisis outcomes is domain-specific rather than uniform across performance dimensions. Because the indicator captures executive presence rather than decision-making authority, these associations may also reflect organizational characteristics with which women's executive presence coincides.

Keywords: women's leadership; crisis management; COVID-19; business strategies; SMEs; cost management; revenue management; ambidextrous strategy

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1. Introduction

A crisis threatens an organization's high-level goals, endangers its survival, and requires immediate response, often creating tensions where anticipation and prevention mechanisms are insufficient [1–3]. Crisis management, therefore, requires rapid and effective decision making and the timely correction of deviations [3–5]. Crises challenge both the existence of organizations and their ability to respond effectively to adverse conditions [3,6,7]. Outcomes depend critically on how organizations are managed during such periods.

In this context, effective leadership contributes not only to ethical outcomes but also to organizational stability, learning, employee commitment, and the ability to navigate rapid change, ultimately improving firm performance and long-term sustainability [8].

This raises an important question regarding whether leadership effectiveness during a crisis differs systematically across genders.

This paper explores crisis management in Turkish SMEs through a gender lens. The COVID-19 pandemic created an unprecedented crisis environment for Turkish SMEs, characterized by demand shocks, supply disruptions, and operational uncertainty. Existing research suggests that crisis management is not gender-neutral but is shaped by gendered expectations, norms, and leadership styles [9–11]. Crisis leadership has traditionally been associated with masculine-coded traits such as control, risk taking, and decisiveness [12,13]. However, studies also suggest that leadership styles more commonly associated with women—such as transformational, relational, and collaborative approaches—may be particularly effective in crisis contexts [11,14–16]. At the same time, broader evidence indicates that firms with greater representation of women in leadership positions tend to exhibit stronger organizational performance, higher social responsibility, and improved stakeholder relations [17]. Women's leadership is often characterized as more interactive, relationship-oriented, and transformational [18,19], although empirical findings on performance outcomes remain mixed.

The COVID-19 pandemic has provided a unique context to examine these dynamics. Studies focusing on political leadership report mixed evidence regarding the effectiveness of women leaders. Some studies find no significant gender differences in pandemic outcomes [20–22], while others document more favorable outcomes under women's leadership, often linked to earlier or more decisive interventions [23–25]. These mixed findings suggest that the impact of gender on crisis leadership may be context-dependent and domain-specific.

Within the Turkish context, studies also highlight persistent structural challenges faced by women in leadership. For example, Atay and Gürgen [26] found that perceptions of the glass ceiling among Turkish academic women remained largely unchanged during the pandemic, while pressures related to leadership and work–life balance increased. Similarly, Atay et al. [14] found that gender diversity on boards is positively associated with firm performance, particularly through education and learning effects. These findings suggest that while women's leadership potential is recognized, structural constraints continue to shape leadership opportunities and outcomes.

Despite this growing body of research, limited attention has been given to how women executives influence crisis management at the firm level, particularly in SMEs and emerging market contexts. SMEs are especially vulnerable during crises due to limited financial buffers, making leadership decisions regarding cost control, operational adaptation, and strategic orientation critical for survival.

This study addresses this gap by examining how the presence of women in executive positions was associated with crisis management strategies and firm outcomes among Turkish SMEs during the COVID-19 pandemic. Using survey data from 207 SMEs across 12 sectors, it addresses three research questions: (RQ1) whether firms with women executives exhibit more favorable internally controllable outcomes (cash flow and cost) but not externally dependent ones (revenue and performance); (RQ2) whether women executives were associated with the adoption of defensive crisis response strategies; and (RQ3) whether they were more likely to pursue ambidextrous strategies combining cost control and revenue generation.

This study makes four contributions. First, it extends the COVID-19 literature on women's leadership, which has concentrated on public-sector and political leadership, to private-sector SMEs, where decisions on cost, liquidity, and operational adaptation may be critical for firm survival. Second, relative to the SME crisis management literature, which often treats crisis response as undifferentiated, it identifies which strategic responses are associated with women executives, separating defensive, internally

controllable actions from growth-oriented ones. Third, and as its central theoretical contribution, it moves beyond the gender diversity and performance literature, which reports mixed aggregate effects, by theorizing and showing that women's executive presence is associated with domain-specific outcomes: positive for internally controllable outcomes (cash flow and cost) but absent for externally market-dependent outcomes (revenue and performance). This controllability distinction also reframes the strategy–outcome gap, whereby women executives adopt balanced strategies but only the defensive component converts into measurable outcomes. Fourth, by focusing on Turkish SMEs, it adds emerging-market evidence to the literature dominated by developed-economy and public-sector settings while resting its contribution on the theoretical mechanism rather than the national setting alone.

The remainder of the paper is organized as follows: Section 2 reviews the literature and develops hypotheses. Section 3 describes the data and methodology. Section 4 presents empirical results. Section 5 discusses the findings, and Section 6 concludes with implications, limitations, and future research directions.

2. Literature Review and Hypothesis Development

Research demonstrates that good leadership is associated with enhanced organizational harmony, stability, and learning capacity, as well as greater employee commitment, empowerment, and performance. Organizations with strong leadership also demonstrate an improved ability to navigate change. These organizational attributes translate into tangible business outcomes including higher customer satisfaction, stronger growth and retention rates, and improved financial performance [8].

Over many years, crisis management research consistently shows that what happens in a crisis is shaped less by the shock itself and more by how leaders interpret it, prioritize threats, and mobilize limited resources under time pressure [1,7,27]. This is particularly true for SMEs, where thin liquidity buffers and limited overall resources make survival highly sensitive to day-to-day, managerial decisions. Evidence from the COVID-19 period illustrates how quickly small businesses can experience severe disruptions to operations and expectations, reinforcing why internal control responses such as cost discipline and operational continuity can matter more than growth-oriented moves in the short run [6,28,29]. In this context, crisis response often becomes a process of stabilizing the organization before pursuing recovery and innovation.

Given the central role of leadership in crisis settings, an important question is whether leadership effectiveness differs by gender. The literature suggests that crisis leadership is not gender-neutral, as leadership is evaluated and enacted through social expectations about how leaders “should” behave, especially under threat [30]. Meta-analytic evidence indicates that women, on average, display more transformational leadership behaviors, which are often linked to communication, coordination, and team motivation during uncertain environments [31].

At the same time, crisis contexts may trigger role congruity dynamics: when the crisis is framed in ways that value relational or communal responses, women may be perceived as more suitable or may adopt approaches that emphasize stability, cohesion, and collective coordination [10,32]. Building on this perspective, Bruckmüller & Branscombe [15] further refine when and why women are selected in crisis contexts, emphasizing how stereotypes about women as “communal fliers” can influence leadership appointment decisions. However, crisis research also cautions that through these appointment decisions women can be disproportionately placed into fragile leadership situations (i.e., the “glass cliff”), which can help explain why measurable advantages may show up first in controllable internal domains rather than market outcomes. Evidence in research focusing on Financial Times Stock Exchange (FTSE) 100 firms supports that women are more likely to

be placed in risky leadership positions, complicating causal interpretations of leader gender and performance [33].

Empirical evidence from the COVID-19 pandemic provides mixed findings regarding the effectiveness of women's leadership. Some studies report that women leaders performed as well as or better than men in managing crisis outcomes. Bruce et al. [23] examined the impact of women's leadership during COVID-19. The findings reveal that municipalities led by women mayors experienced substantially better pandemic outcomes. Importantly, these results could not be attributed to pre-pandemic policy differences or other observable mayoral characteristics such as education level or political orientation. The study provides causal evidence that gender of leadership directly influenced crisis management effectiveness and public health outcomes during COVID-19 [23]. Similarly, Sergeant and Stajkovic [25] showed that U.S. states led by women adopted earlier stay-at-home policies and recorded fewer pandemic fatalities.

Wilson and Newstead [8] examined how women heads of state led their countries during the first wave of COVID-19. Their study found that virtues-based leadership contributes to positive organizational outcomes including stability, employee commitment, and improved performance, benefits that extend to customer satisfaction and financial returns. The authors argue that this creates a strong business case for ethical leadership beyond its moral value. Their analysis demonstrated that leadership virtues play an important role in effective crisis management. The Lowy Institute's January 2021 ranking of 98 countries' pandemic performance supported their findings, showing that women heads of state achieved above-average results on average. However, the authors note that sustaining crisis response over time proved challenging for all leaders, with many countries experiencing subsequent outbreaks, health system strain, and economic disruption. While these studies demonstrate that women's leadership improved public health outcomes at the municipal government level, our study extends this inquiry to the private sector, examining whether women in executive positions similarly influenced SME crisis management and firm-level outcomes during COVID-19.

There are also studies that report weaker or more context-dependent effects. Aldrich and Lotito [20] examined government responses to COVID-19 and their relationship to leader gender, focusing on the timing of policy implementation. Their analysis found limited statistical evidence that women leaders made systematically different choices than men regarding stay-at-home orders or public information campaigns. However, they identified one area of potential difference: decisions related to school closures appeared to vary based on leader gender. The authors note that while their findings do not support broad claims of women's leadership superiority during the pandemic, they highlight the importance of examining specific policy domains rather than assuming uniform gender effects across all crisis responses.

Recent research highlights the importance of task-oriented leadership behaviors during crisis conditions. Aroussi et al. [34] examined differences between women's and men's leadership practices during COVID-19 in the United Arab Emirates. The study assessed employees' perceptions of their leaders across four meta-categories: task-oriented, relations-oriented, change-oriented, and external leadership practices. Using t-tests, ANOVA, correlation analysis, and multiple regression, the authors found significant differences in leadership behaviors between genders. Notably, women demonstrated higher task-oriented management practices than men during the pandemic. This finding suggests that women leaders may emphasize structured, goal-focused approaches during crisis conditions.

Similarly, Cartwright et al. [35] argue that women leaders often demonstrate adaptive and connective leadership behaviors during crisis situations. Their Connective Leadership framework emphasizes authenticity, awareness, alignment, and adaptability as key

attributes that allow leaders to respond effectively to complex and rapidly changing environments.

Research demonstrates that companies with greater representation of women in leadership positions tend to achieve higher profitability, exhibit stronger social responsibility, and deliver superior customer experiences. Studies also indicate that women exhibit different leadership and managerial styles than men, particularly during crisis conditions. According to a UN Women report, the pandemic had severe social and economic consequences for women. Although the pandemic period represented challenges for everyone, it is argued to have had even more challenging aspects for women [36]. In particular, it is useful to consider the ways a crisis influences women's experiences and how they make sense of them.

The literature characterizes women's leadership as more interactive, relationship-oriented, and transformational, whereas male leadership is typically described as more directive, task-oriented, and transactional. However, empirical findings on performance outcomes present a more layered picture. Multiple studies have found that companies with more women in leadership positions achieve better overall financial performance [37]. Regarding crisis leadership specifically, Aroussi et al. [34] examined leadership behaviors and effectiveness during COVID-19, finding that while men exhibited higher levels of leadership behaviors overall and in certain categories, women performed better in task-oriented behavior, which is a dimension positively related to leadership effectiveness.

This domain-specific pattern also fits what ambidexterity theory would predict under extreme corporate situations. Prior research suggests that women's representation in top decision-making roles and gender-diverse leadership structures can support organizational ambidexterity, especially in balancing competing strategic priorities (e.g., efficiency vs. innovation) [38,39]. Additional foundational work on exploration and exploitation argues that firms try to balance efficiency-focused actions with experimentation and growth, but the two compete for scarce attention and resources [40,41]. Even when leaders adopt a genuinely balanced posture, the outcomes that move first in a crisis are often those tied to exploitation and internal execution because they can be implemented quickly and measured directly, whereas revenue recovery depends heavily on external conditions and may lag even when the strategic intent is present [42].

A specific key case that is in scope of this paper was carried out by Tang et al. [43] on Chinese high-tech SMEs, which aims to explain why and when gender diversity in leadership positions translates into a more ambidextrous strategic orientation. They build their argument on social role theory, which suggests men and women are socialized into somewhat different role-based behavioral tendencies that shape interaction patterns in teams [44,45]. Their results indicate that the indirect effect of gender diversity on ambidextrous strategic orientation is stronger when resources are lower rather than higher, implying that gender-diverse leadership can be especially valuable in resource-constrained SME settings, where strategic trade-offs are sharper and teams must coordinate tightly to pursue both alignment and adaptability. This study fits within the broader ambidexterity view that suggests sustained performance as dependent on balancing the two ends of stability and growth [27,40–42]. More recent work builds on this leadership-centric view of ambidexterity by continuing to unpack the foundations of how top management teams enable dual strategies, often by focusing on integration and coordination mechanisms like open information sharing, constructive conflict, and joint decision making, which are closely attributed to women in leadership positions.

Technology-based crisis responses depend not only on access but also on managers' perceptions of usefulness, usability, and risk. Bonfanti et al. [46] found that perceived usefulness and favorable attitudes strongly predicted micro-entrepreneurs' intention to use

social networking sites, whereas perceived risk reduced adoption intentions. Similarly, Ferri et al. [47] identified perceived usefulness and risk as key determinants of cloud-computing adoption among Italian SME executives. Thus, SME digitalization is filtered through managerial assessments rather than driven automatically by environmental pressure.

This perspective is also relevant to women's entrepreneurship. Crittenden et al. [48] found that perceived usefulness and ease of use encouraged information and communication technology use among South African women micro-entrepreneurs, strengthening self-efficacy, social capital, and empowerment. These mechanisms may help explain firms' differing adoption of telecommuting, online marketing, and technological investment during crises, alongside differences in available resources.

Whereas role congruity and glass-cliff perspectives [10,15,30,32,33] primarily explain how women are selected into and evaluated within crisis leadership, our interest lies in the strategies and outcomes that follow. We therefore ground our framework in social role theory [44,45], which holds that gendered socialization produces differing behavioral tendencies: for women, a more coordinative, relational, and prudent orientation. We argue that these tendencies operate through two channels under acute crisis conditions. The first is task-oriented leadership [34,35], which translates them into controllable internal execution such as liquidity preservation and cost discipline. The second is organizational ambidexterity [38,40–42], through which leaders attempt to balance cost cutting with revenue generation. Because internally controllable levers can be enacted quickly and measured directly, whereas revenue recovery depends on external demand that no leadership style can summon during a systemic shock [3,6,42], we expect women executives to be associated with stronger internally controllable outcomes but not with externally dependent ones. This asymmetry anticipates the strategy–outcome gap that organizes our findings.

Building on the above discussion, this study examines whether firms with women in executive positions experienced different crisis-related outcomes, adopted different crisis response strategies, and pursued more balanced strategic orientations during the COVID-19 pandemic. Specifically, we distinguish internally controllable outcomes (cash flow and cost) from externally dependent ones (revenue and performance). Accordingly, the following hypotheses are proposed:

H1: *Firms with women in executive positions reported more favorable internally controllable crisis outcomes, namely cash-flow sustainability and cost management, than firms without women executives, whereas no comparable difference is expected for externally dependent outcomes (revenue and overall performance).*

H2: *Firms with women in executive positions are more likely than firms without women executives to adopt defensive, internally controllable crisis response strategies, such as operational cost reduction, telecommuting, and staff expense management.*

H3: *Firms with women in executive positions are more likely than firms without women executives to implement balanced (ambidextrous) strategies, combining cost control and revenue generation.*

Theoretical grounding and predicted relationships for H1–H3 are given in Table 1.

Table 1. Theoretical grounding and predicted relationships for H1–H3.

Hypothesis	Theoretical Grounding	Mechanism: Why Women Executives	Predicted Relationship
H1—internally controllable outcomes	Social role theory [44,45]; task-oriented leadership [34,35]	Gendered socialization toward prudent, coordinative conduct, enacted under crisis as disciplined internal execution	Positive association with cash-flow sustainability and cost management; no association expected for revenue or overall performance
H2—defensive crisis strategies	Task-oriented leadership [34,35]; social role theory [44,45]	Structured, goal-focused execution favors controllable operational responses	Positive association with defensive strategies (cost reduction, telecommuting, and staff expense management)
H3—ambidextrous strategy	Organizational ambidexterity [38,40–42]; social role theory [44,45]	Coordination and integration capacity supports balancing exploitation (cost) and exploration (revenue)	Positive association with adopting balanced strategies combining cost control and revenue generation

Note: The controllability logic [42] explains why, of the two arms in H3, only the exploitation (cost) side converts into measured outcomes: the strategy–outcome gap.

3. Materials and Methods

Our data are drawn from a survey conducted in 2021 among Turkish SMEs in the manufacturing and service sectors in Istanbul, affiliated with the Union of Chambers and Commodity Exchanges of Türkiye and the Istanbul Chamber of Commerce. As approximately 25% of Turkish firms are in Istanbul, the sample captures an economically important and highly concentrated segment of the SME population in Türkiye. However, some sectoral and regional differences may still remain. Sectoral classification is based on 2021 Social Security Institution data, with support from a professional survey firm. A simple random sampling approach was employed to invite 500 firms, resulting in 207 usable responses (41.4% response rate) across 12 sectors. Respondents were predominantly high and mid-level managers with in-depth knowledge of their firms' digitalization and technology processes. Demographic questions about companies and participant profiles were included in the questionnaire. Because firm-level data were unavailable for non-respondents, we could not formally assess non-response bias. Participating firms may therefore differ systematically from non-participants, limiting the representativeness and generalizability of the findings.

Our primary interest is to examine the association between the presence of women in executive positions and firms' crisis management strategies and perceived outcomes among Turkish SMEs during COVID-19. Throughout, we use "women executives" and "firms with women in executive positions" to refer to this study's construct: the presence of at least one woman in an executive role within an SME. Where we discuss prior research on political and public-sector leadership, we retain the broader terms "women leaders" and "women's leadership," which refer to a different population and are not interchangeable with our firm-level measure.

To account for structural differences among firms, the models include several control variables:

- Year—number of years the firm has been operating;
- Emp—number of employees in the firm;
- Sector—categorical variable covering 12 sectors: Education, Finance, Other Services, Law, Construction, Technology, Marketing, Retail, Restaurant, Health, Industry, and Transportation.

Both the year and emp variables are transformed using the $\log(1 + x)$ and $\log(x)$ transformations, respectively. This transformation is applied because both variables are non-negative and may include zero values. Adding 1 allows zero observations to be retained, while the logarithmic transformation reduces skewness and limits the influence of extreme values.

While we control firm age, firm size, and sector fixed effects, the survey data do not include information on several characteristics that may also shape firms' crisis responses, such as ownership structure, export orientation, or access to credit. The inclusion of sector fixed effects helps account for sector-specific conditions, including differences in pandemic exposure, demand shocks, and operating constraints across industries. Nevertheless, unobserved firm-level heterogeneity may remain.

A further limitation concerns the possibility of common method bias. Since the survey relies on responses from the same respondent to measure leadership composition, crisis management strategies, and reported firm outcomes, the estimated associations may partly reflect common method variance. This may inflate the strength of the observed relationships. Therefore, the results should be interpreted with caution as associational evidence rather than causal effects.

The descriptive statistics are presented in Tables 2. In total, 73% of the firms have at least one woman in an executive position. The average firm age is 13.6 years, and the average firm size is 10.8 employees. Most of the firms in our sample are in Retail (38%), followed by Industry (15%) and Restaurant (13%).

The independent variable (Woman) is a binary indicator equal to 1 if the firm has at least one woman in an executive position and 0 otherwise. It therefore captures the *presence* of at least one woman executive rather than the number, share, rank, tenure, functional area, or decision-making authority of women in the firm. Accordingly, our estimates should be read as associations between this presence indicator and firm outcomes, not as evidence that women directly determined crisis decisions.

To avoid small cell sizes and provide parsimonious sector controls, the 12 original sectors were combined into three broader groups. Consumer-facing commerce and hospitality accounted for 50.7% of the sample ($N = 105$); production, construction, and logistics for 25.1% ($n = 52$); and professional, knowledge, and other services for 24.2% ($n = 50$).

Table 2. Descriptive statistics.

Variables				
Variable	Average	Std Dev.	Min	Max
% of firms with women in executive position	0.734	0.443	0	1
Number of years the firm has been operating	13.628	12.494	0	94
Number of employees in the firm	10.834	14.606	2	90
Sectoral Composition				
Sector			n	%
Education			1	0.48
Finance			5	2.42
Consumer services			17	8.21
Legal services			11	5.31
Construction			15	7.25
Internet and information technology			4	1.93
Marketing and advertising			7	3.38
Retail and trade			79	38.16
Restaurants and food services			26	12.56
Health services			5	2.42
Industry and manufacturing			32	15.46

Transportation and logistics	5	2.42
Total	207	100.00

As a preliminary step, we address univariate association among the key variables. Given that several variables are measured on ordinal scales and the distribution of responses violates normality assumptions, we rely on non-parametric methods. Specifically, Wilcoxon rank-sum (Mann–Whitney U) tests are employed to assess differences in the distribution of outcomes between firms with and without women in executive positions. This approach is appropriate in the present context, as it does not impose distributional assumptions and is robust to skewness and outliers [49].

To move beyond bivariate associations and account for potential confounding factors, we estimate ordered logit models. This framework is well suited to our setting, as the dependent variables are ordinal measures capturing firm outcomes (e.g., improvement, no change, or deterioration relative to the pre-COVID period). The ordered logit model assumes an underlying latent variable structure and estimates parameters that map the latent outcome into observed ordinal categories. Our specification includes the key variable of interest, the presence of women in executive positions, and firm-level controls such as age, size, and sector-group indicators. This multivariate approach enables us to estimate the conditional association between women’s executive presence and crisis outcomes, holding other firm characteristics constant. Standard errors are estimated in a robust form to account for potential heteroskedasticity.

The following section presents the empirical results for the proposed hypotheses.

4. Results

H1: *Firms with women in executive positions reported more favorable internally controllable crisis outcomes, namely cash-flow sustainability and cost management, than firms without women executives, whereas no comparable difference is expected for externally dependent outcomes (revenue and overall performance).*

To test H1, which proposes that businesses with women in executive positions are associated with different crisis-related outcomes during COVID-19, we examined four crisis-related outcomes:

- Perceived Performance (Performance): overall performance of the firm compared to pre-COVID-19 (Survey question: “Compared to 2019, how will your firm’s performance change in the future?”).
- Perceived Revenue (Revenue): revenue generation compared to pre-COVID-19 (Survey question: “Compared to 2019, how will your revenues change in the future in real terms?”).
- Perceived Cash-Flow Adequacy (Cash Flow): cash-flow adequacy during COVID-19 (Survey question: “How long could you maintain the cash flow of your firm during the pandemic?”).
- Cost Control: costs incurred compared to pre-COVID-19 (Survey question: “Compared to 2019, how will your costs change in the future in real terms?”).

Perceived performance and revenue are measured by asking managers how their firm’s performance and revenues will change in the future relative to 2019. These items therefore capture managers’ forward-looking, perceptual assessments rather than realized, audited outcomes, and we interpret them accordingly as self-reported expectations rather than objective firm performance.

We interpret the cost-control result with caution. Lower costs may reflect deliberate, strategic cost discipline, but they may also reflect involuntary contraction, reduced

activity, forced layoffs, or constrained operations. Therefore, the association between women executives and cost outcomes should be read as consistent with disciplined cost management rather than as unambiguous proof of it.

Table 3 presents the distribution of firms' self-reported crisis-related outcomes. Adverse outcomes—defined as “worse,” “much worse,” or “worst”—were reported by 52.1% of firms for overall performance, 64.7% for cash flow, 73.4% for revenue, and 60.8% for cost control. Revenue was therefore the most adversely affected dimension, followed by cash flow and cost control. Overall, the descriptive evidence indicates broad deterioration during the pandemic, although its severity varied across outcomes.

Table 3. Descriptive statistics on crisis-related outcomes.

Variable	<i>Better</i>	<i>Same</i>	<i>Worse</i>	<i>Much worse</i>	<i>Worst</i>
Performance	0.208	0.271	0.188	0.164	0.169
Cash flow	0.188	0.164	0.164	0.169	0.314
Revenue	0.077	0.188	0.116	0.314	0.304
Cost control	0.179	0.213	0.087	0.101	0.420

Responses were scored from 1 (“better”) to −3 (“worst”), with 0 representing no change (“same”). Thus, higher scores indicate more favorable crisis-related outcomes. The score is used for descriptive presentation, while group differences are evaluated using the Wilcoxon rank-sum test because the response categories are ordinal.

Wilcoxon rank-sum tests reported in Table 4 revealed significant differences between firms with and without women executives in cash-flow sustainability ($z = 3.624$, $p < 0.001$) and cost control ($z = 3.872$, $p < 0.001$). Because higher scores indicate more favorable outcomes, firms with at least one woman executive exhibited higher ranks on both measures.

Table 4. Mean of crisis-related outcome scores by women's executive participation.

Outcome	No Women Executives Mean (SD)	Women Executives Mean (SD)	Wilcoxon z Statistic	p
Performance	−0.691 (1.332)	−0.862 (1.405)	0.996	0.417
Cash flow	−1.891 (1.356)	−1.027 (1.504)	3.624	<0.001
Revenue	−1.728 (1.254)	−1.526 (1.322)	0.850	0.397
Cost control	−2.073 (1.386)	−1.118 (1.611)	3.872	<0.001

Note: Higher scores indicate better outcomes. Means and standard deviations (in parentheses) are reported for descriptive purposes. Wilcoxon rank-sum tests assess differences in ranked outcome distributions rather than equality of means. Reported p -values are two-sided. $N = 207$.

The ordered-logit estimates are reported in Table 5. The results are consistent with the unadjusted comparisons. The presence of at least one woman executive was positively associated with cash-flow sustainability ($\beta = 1.037$, $p < 0.001$) and cost control ($\beta = 1.263$, $p < 0.001$), conditional on firm age, employment, and sector. Exponentiating these coefficients gives proportional-odds ratios of approximately 2.82 and 3.54, respectively. This indicates that women-executive presence was associated with 2.82 times higher proportional odds of being in a more favorable cash-flow-sustainability category and 3.54 times higher proportional odds of being in a more favorable cost-control category, holding the other covariates constant. The global Brant tests were statistically insignificant for all four models, providing no evidence against the proportional-odds assumption. Panel B shows that women-executive presence was associated with a 23.4-percentage-point lower probability of reporting the worst cash-flow outcome and a 30.2-percentage-point lower probability of reporting the worst cost-control outcome. Panel C shows a 13.0-percentage-point higher probability of reporting the best cash-flow outcome and 14.4-percentage-point

higher probability of reporting the best cost-control outcome. No statistically significant association was found for revenue or overall performance. Panel D reports the model statistics. Overall model fit is modest, although all models are statistically significant at the 5% level, except Model 3, which is significant at the 10% level. Accordingly, the results should not be interpreted as evidence that the models provide comprehensive explanations or strong predictions of firm behavior.

Table 5. Ordered-logit estimates and adjusted predicted probabilities for crisis-related outcomes.

<i>Variable</i>	<i>Performance (1)</i>	<i>Cash flow (2)</i>	<i>Revenue (3)</i>	<i>Cost control (4)</i>
<i>Panel A: Ordered-logit estimates</i>				
<i>Woman executive present</i>	−0.257 (0.283)	1.037 *** (0.297)	0.220 (0.283)	1.263 *** (0.335)
<i>Firm age (log)</i>	−0.039 (0.134)	−0.091 (0.150)	−0.160 (0.136)	−0.243 (0.222)
<i>Number of employees (log)</i>	0.421 *** (0.138)	0.064 (0.152)	0.202 (0.161)	−0.082 (0.149)
<i>Panel B: The effect of women's executive presence on the probability of worst outcome</i>				
<i>Probability given Woman = 0</i>	0.146	0.484	0.333	0.641
<i>Probability given Woman = 1</i>	0.179	0.250	0.287	0.340
<i>AME 0→1</i>	0.034 (0.037)	−0.234 *** (0.069)	−0.046 (0.060)	−0.302 *** (0.075)
<i>Panel C: The effect of women's executive presence on the probability of best outcome</i>				
<i>Probability given Woman = 0</i>	0.244	0.092	0.067	0.074
<i>Probability given Woman = 1</i>	0.202	0.222	0.082	0.218
<i>AME 0→1</i>	−0.042 (0.048)	0.130 *** (0.033)	0.015 (0.018)	0.144 *** (0.033)
<i>Panel D: Model statistics</i>				
<i>Wald χ^2</i>	16.95	14.07	9.46	16.65
<i>Model p-value</i>	0.005	0.015	0.092	0.005
<i>Pseudo-R^2</i>	0.028	0.022	0.014	0.033
<i>N</i>	207	207	207	207

Note: Panel A reports ordered-logit coefficients; higher outcome categories indicate more favorable outcomes. The implied odds ratios for women's executive presence are 0.77 for performance, 2.82 for cash flow, 1.25 for revenue, and 3.54 for cost control. Only the cash-flow and cost-control effects are statistically significant. Panels B and C report average covariate-adjusted predicted probabilities. AME denotes the average discrete change in predicted probability when the women-executive indicator changes from zero to one. All models include dummy-variable controls for three broad sector groups. Huber–White robust standard errors are reported in parentheses. Cut points and sector coefficients are omitted for brevity. *** $p < 0.01$.

These results suggest that firms with women in executive positions report more favorable outcomes in areas related to defensive crisis management, such as preserving liquidity and controlling costs, but this positive association is not observed for revenue generation or growth-oriented outcomes. During acute crisis conditions like COVID-19, internally controllable areas, such as costs and liquidity, may be more directly reflected in reported outcomes than revenue growth during a systemic crisis. We emphasize that our data do not measure managerial intentions, risk preferences, or survival priorities directly; the psychological or strategic motivation behind the observed pattern is therefore inferred, not established. What the data support is the association between the presence of women executives and stronger internally controllable outcomes.

The findings align with research suggesting women leaders tend toward more risk-aware financial management. In crisis contexts, this “conservative” orientation may represent superior strategic judgment, such as prioritizing firm survival over performance metrics that may be unattainable during severe external shocks.

Rather than pursuing revenue maintenance—which may have required risk taking during extreme uncertainty, firms with women in executive positions showed a positive association with cash-flow management and cost control during COVID-19. We interpret this pattern, cautiously, and as one reading among possible others, as gender-diverse leadership teams may be associated with more favorable reported outcomes in some crisis management domains, not because women pursue growth more effectively but because firms with women executives may have placed greater emphasis on liquidity and cost control, although managerial intentions are not directly observed. In the context of Turkish SMEs, where access to emergency credit was limited, this conservative approach may have been the difference between survival and failure.

H2: *Firms with women in executive positions are more likely than firms without women executives to adopt defensive, internally controllable crisis response strategies, such as operational cost reduction, telecommuting, and staff expense management.*

The dependent variables are based on a survey question asking firms which strategies they employed during the pandemic crisis. Respondents could indicate each of the eleven strategies independently, choosing among yes/partial yes, no/partial no, or not sure. Therefore, firms could report adopting multiple strategies simultaneously rather than selecting a single response.

The relevant survey question was “Which strategies has your firm employed during the pandemic?” The listed strategies were as follows:

1. Reduce production and operating costs;
2. Divest loss-making/less profitable business units;
3. Adopt online telecommuting;
4. Decrease in salaries;
5. Decrease or stop investment;
6. Following strategies for lowering indirect staff expenses (unpaid leave, part-time work, short-term work ...etc.);
7. Optimize business models to capture new customer needs;
8. Develop marketing channels and remove dependence on offline transactions;
9. Actively invest in technological innovation;
10. Diversify into new business areas;
11. Integrate supply chain.

Respondents selected “no,” “partial no,” “partial yes,” “yes,” or “neutral” for each strategy. The descriptive statistics reported in Table 6 show that the most commonly adopted strategies were (7) optimize business models to capture new customer needs, (8) develop marketing channels and remove dependence on offline transactions, and (1) reduce production and operating costs. The least commonly adopted strategies were (5) decrease or stop investment, (6) lower indirect staff expenses, and (4) decrease salaries.

Table 6. Descriptive statistics on strategies employed during the crisis.

<i>Strategies Employed During the Crisis</i>		<i>Yes/ Partial Yes</i>	<i>No/ Partial No</i>
1.	<i>Reduce production and operating costs</i>	0.633	0.193
2.	<i>Divest loss-making/less profitable business units</i>	0.522	0.242
3.	<i>Adopt online telecommuting</i>	0.623	0.193

4.	<i>Reduce salaries</i>	0.415	0.391
5.	<i>Reduce or suspend investment</i>	0.473	0.280
6.	<i>Lower indirect staff expenses</i>	0.459	0.338
7.	<i>New customer needs</i>	0.657	0.164
8.	<i>Develop marketing channels</i>	0.643	0.179
9.	<i>Invest in technological innovation</i>	0.628	0.169
10.	<i>Diversify into new business areas</i>	0.580	0.203
11.	<i>Integrate supply chain</i>	0.599	0.150

Note: Remaining responses are “neutral”.

Responses are coded as 1 (“yes”), 0.5 (“partially yes”), 0 (“neutral”), −0.5 (“partially no”), and −1 (“no”). Higher scores indicate greater use of the strategy during the crisis. We first conducted Wilcoxon rank-sum tests to examine whether the adoption of each strategy differed between firms with and without women in executive positions. The results are reported in Table 7. Firms with at least one woman executive reported significantly greater adoption of production and operating cost reductions ($z = 2.255$, $p = 0.024$), online telecommuting ($z = 2.189$, $p = 0.029$), and reductions in indirect staff expenses ($z = 2.706$, $p = 0.007$). No statistically significant differences were found for the remaining eight strategies.

Table 7. Non-parametric tests on the link between strategy choice during the crisis and women in executive positions.

<i>Outcome</i>	<i>No Women Executives Mean (SD)</i>	<i>Women Executives Mean (SD)</i>	<i>Wilcoxon z Statistic</i>	<i>p</i>
<i>Reduce production costs</i>	0.136 (0.729)	0.405 (0.586)	2.255	0.024
<i>Divest less profitable business</i>	0.164 (0.639)	0.250 (0.617)	0.926	0.354
<i>Adopt online telecommuting</i>	0.155 (0.716)	0.408 (0.574)	2.189	0.029
<i>Decrease in salaries</i>	−0.064 (0.694)	0.023 (0.696)	0.794	0.427
<i>Decrease or stop the investment</i>	0.009 (0.670)	0.174 (0.636)	1.646	0.100
<i>Lower indirect staff expenses</i>	−0.155 (0.645)	0.135 (0.700)	2.706	0.007
<i>New customer needs</i>	0.300 (0.582)	0.405 (0.608)	1.405	0.160
<i>Develop marketing channels</i>	0.264 (0.637)	0.326 (0.593)	0.531	0.595
<i>Invest in technological innovation</i>	0.355 (0.575)	0.339 (0.613)	−0.030	0.976
<i>Diversify into new business areas</i>	0.236 (0.630)	0.303 (0.649)	0.808	0.419
<i>Integrate supply chain</i>	0.264 (0.584)	0.355 (0.566)	1.170	0.242

Note. Higher scores indicate greater adoption. Means and standard deviations (in parentheses) are reported for descriptive purposes. Wilcoxon rank-sum tests assess differences in ranked outcome distributions rather than equality of means. Reported p -values are two-sided. $N = 207$.

Given the number of item-level comparisons, these bivariate results are interpreted cautiously and treated as exploratory rather than confirmatory. In fact, none remained significant at the 5% level after applying the Holm correction for multiple testing. The subsequent multivariate analyses, which examine broader strategy dimensions while controlling for firm characteristics, provide the principal basis for evaluating the hypotheses.

To obtain more parsimonious measures of strategic orientation, we constructed two composite indices based on the conceptual content of the eleven strategy items. Strategies 1–6 were classified as defensive strategies, while Strategies 7–11 were classified as adaptive or innovative strategies. Both the defensive-strategy items and the adaptive/innovative items demonstrate acceptable internal consistency (standardized Cronbach’s $\alpha = 0.747$ and $\alpha = 0.838$, respectively). The items in each category were therefore averaged to construct the two composite indices.

The robust OLS estimates in Table 8, Panel A and Panel B, indicate that the presence of at least one woman executive was positively associated with the defensive strategy index. Conditional on firm age, employment, and sector, firms with a woman executive scored 0.209 points higher on the −1 to 1 index (robust SE = 0.074, $p = 0.005$; 95% CI [0.064, 0.354]). The covariate-adjusted means were 0.028 and 0.237 for firms without and with a woman executive, respectively. No statistically significant association was found for the adaptive/innovative index ($\beta = 0.067$, $p = 0.387$). Panel C summarizes the model-level diagnostics. The defensive strategy specification reaches joint significance at the 10% threshold (F-statistic = 1.97, $p = 0.085$) but accounts for only 5.4% of the variation in the index. For the adaptive/innovative strategy specification, the regressors are not jointly significant (F-statistic = 1.76, $p = 0.122$), and the model accounts for 3.6% of the variation. The estimated coefficients should therefore be viewed as conditional associations, not as evidence of broad explanatory or predictive performance.

Table 8. Robust OLS estimates for defensive and adaptive/innovative strategy indices.

<i>Variable</i>	<i>Defensive Strategies (1)</i>	<i>Adaptive/Innovative Strategies (2)</i>
<i>Panel A: Robust OLS estimates</i>		
<i>Woman executive present</i>	0.209 *** (0.074)	0.067 (0.077)
<i>Firm age (log)</i>	−0.001 (0.033)	0.023 (0.038)
<i>Number of employees (log)</i>	−0.018 (0.035)	0.029 (0.039)
<i>Panel B: The effect of women's executive presence on the conditional mean of crisis-response strategy scores</i>		
<i>Adjusted mean: Woman = 0</i>	0.028 (0.065)	0.280 (0.066)
<i>Adjusted mean: Woman = 1</i>	0.237 (0.033)	0.347 (0.038)
<i>Adjusted difference</i>	0.209 *** (0.074)	0.067 (0.077)
<i>Panel C: Model statistics</i>		
<i>Standardized Cronbach's α</i>	0.747	0.838
<i>F statistic</i>	1.97	1.76
<i>Model p-value</i>	0.085	0.122
<i>R²</i>	0.054	0.036
<i>N</i>	207	207

Notes: The dependent variables are mean indices ranging from −1 to 1, with higher values indicating greater adoption of the corresponding strategy orientation. The model controls for sector group using two indicator variables; consumer-facing commerce and hospitality is the reference category. Huber–White robust standard errors are reported in parentheses. Adjusted predictions are averaged across the estimation sample. Cronbach's alpha coefficients range from 0 to 1, measuring internal consistency of indices. The F-statistics jointly test whether all slope coefficients are zero. Significance stars are based on unadjusted two-sided p -values. *** $p < 0.01$.

Overall, H2 receives partial support. Firms with at least one woman executive scored significantly higher on the composite defensive strategy index, whereas no statistically significant association was found for the adaptive/innovative strategy index. This does not indicate that firms with women executives avoided innovation-oriented responses; rather, their adoption of such strategies did not differ significantly from that of firms without women executives. This pattern is consistent with the proposed controllability

argument: during an acute crisis, firms may prioritize measures that can be implemented internally, such as reducing costs and managing staff-related expenses. However, managerial motivations and the perceived controllability of these strategies were not measured directly; this interpretation should therefore be regarded as suggestive rather than established.

H3: *Firms with women in executive positions are more likely than firms without women executives to implement balanced (ambidextrous) strategies, combining cost control and revenue generation.*

To examine H3, we used the following survey question: “During the pandemic, which of the following strategies did your firm undertake to resume production?” Respondents selected one of three strategy categories: cost-cutting strategies, revenue-generating strategies, or both cost-cutting and revenue-generating strategies. The third category is interpreted as a balanced, or ambidextrous, crisis response strategy.

Table 9 shows that firms with women executives were more likely to adopt a balanced strategy than firms without women executives (65.1% versus 45.5%) and were less likely to rely exclusively on cost cutting (7.9% versus 23.6%). The association between women’s executive presence and strategy type was statistically significant: $\chi^2(2) = 10.212$, $p = 0.006$, and Cramér’s $V = 0.223$ indicated a small-to-moderate association. This suggests a meaningful, although not large, difference in the distribution of crisis strategies between the two groups.

Table 9. Descriptive statistics on strategy choice during the crisis (ambidextrous vs. unidimensional strategies).

Strategy	No Women Executives, n(%)	Women Executives, n(%)	Total, n(%)
Cost cutting only	13 (23.6%)	12 (7.9%)	25 (12.1%)
Revenue generating only	16 (29.1%)	42 (27.6%)	58 (28.0%)
Balanced	26 (47.3%)	98 (64.5%)	124 (59.9%)
Total	55 (100.0%)	152 (100.0%)	207 (100.0%)

Note: Percentages are calculated within women’s executive presence groups. Pearson’s $\chi^2(2) = 10.212$, $p = 0.006$; Fisher’s exact $p = 0.005$; Cramér’s $V = 0.223$.

The multinomial-logit estimates are reported in Table 10, Panel A, followed by the corresponding relative risk ratios in Panel B. Firms with at least one woman executive had approximately 3.46 times the relative risk of selecting a revenue-generating-only strategy rather than a cost-cutting-only strategy (RRR = 3.455, $p = 0.019$). They also had approximately 4.36 times the relative risk of selecting a balanced rather than a cost-cutting-only strategy (RRR = 4.362, $p = 0.003$).

Panel C reports covariate-adjusted predicted probabilities and average marginal effects. The presence of at least one woman executive was associated with a 17.2-percentage-point lower probability of selecting a cost-cutting-only strategy (AME = -0.172 , $p < 0.01$) and a 15.9-percentage-point higher probability of selecting a balanced strategy (AME = 0.159 , $p < 0.05$). Its marginal effect on the probability of selecting a revenue-generating-only strategy was small and statistically insignificant (AME = 0.014). The two women-executive coefficients were jointly significant, $\chi^2(2) = 8.97$, $p = 0.011$, indicating that women-executive presence was associated with the overall distribution of crisis-strategy choices.

Table 10. Multinomial-logit estimates for strategy choice (balanced vs. unidimensional strategies).

<i>Variable</i>	<i>Revenue Generating vs. Cost Cutting (1)</i>	<i>Balanced vs. Cost Cutting (2)</i>	
<i>Panel A: Multinomial-logit estimates</i>			
<i>Woman executive present</i>	1.240 ** (0.528)	1.473 *** (0.494)	
<i>Firm age (log)</i>	0.090 (0.246)	0.037 (0.224)	
<i>Number of employees (log)</i>	−0.577 * (0.296)	−0.098 (0.272)	
<i>Panel B: Relative risk ratios</i>			
<i>Woman executive present</i>	3.455 ** (1.822)	4.362 *** (2.155)	
<i>Panel C: The effect of women's executive probability of selecting strategy</i>			
	<i>Cost only</i>	<i>Revenue only</i>	<i>Balanced</i>
<i>Probability given Woman = 0</i>	0.250 (0.062)	0.270 (0.057)	0.481 (0.069)
<i>Probability given Woman = 1</i>	0.077 (0.022)	0.284 (0.037)	0.639 (0.039)
<i>AME 0→1</i>	−0.172 *** (0.067)	0.014 (0.068)	0.159 ** (0.080)
<i>Panel D: Model statistics</i>			
<i>Wald $\chi^2(10)$</i>		20.15	
<i>Model p-value</i>		0.028	
<i>Pseudo-R²</i>		0.048	
<i>N</i>		207	

Notes: The cost-cutting-only strategy is the base outcome. Panel A reports multinomial-logit coefficients with Huber–White robust standard errors in parentheses. Panel B reports the corresponding relative risk ratios, with delta-method standard errors in parentheses. Panel C reports average co-variate-adjusted predicted probabilities and average marginal effects. AME denotes the average discrete change when the women-executive indicator changes from zero to one. All models control sector group using two indicator variables; consumer-facing commerce and hospitality is the reference category. A joint Wald test of the null hypothesis that the two women-executive coefficients equal zero gives $\chi^2(2) = 8.97$; * $p < 0.10$, ** $p < 0.05$ and *** $p < 0.01$.

In summary, H3 is supported: women-executive presence was associated with a higher relative risk and adjusted probability of selecting a balanced rather than cost-cutting-only strategy. Because this measure is a single categorical classification, it indicates a balanced crisis response consistent with ambidextrous behavior, not organizational ambidexterity itself.

Taken together, the three hypotheses provide a nuanced interpretation of crisis management by firms with women in executive positions. These firms are not simply “cost cutters. The findings suggest that firms with women executives combined cost control with revenue-oriented responses (H3) while adopting more defensive, internally controllable measures (H2). However, significant outcome differences were limited to cash-flow sustainability and cost control, with no differences in revenue generation or overall performance (H1). Thus, the defensive component was more clearly associated with measurable outcomes than the revenue-oriented component, although this difference was not formally tested.

In summary, firms with women in executive positions:

- Were more likely to pursue ambidextrous strategies that combine cost control with revenue generation efforts (H3).
- More actively adopted defensive, internally controllable measures, including operational cost reduction, telecommuting, and staff expense management (H2).

- Did not differ significantly from other firms in the adoption of innovative or growth-focused strategies (H2).

5. Discussion

This study examines how the presence of women in executive positions is associated with crisis management strategies and firm outcomes among Turkish SMEs during the COVID-19 pandemic. The findings provide a nuanced understanding of the role of gender-diverse leadership under conditions of extreme uncertainty.

First, the results show that firms with women in executive positions are associated with significantly better cash-flow sustainability and cost management, while no significant differences were observed in revenue generation or overall performance. This suggests that firms with women in executive positions reported stronger outcomes in internally controllable areas of firm operations during crisis conditions. This finding aligns with prior research emphasizing the importance of disciplined financial management and risk awareness in leadership during periods of uncertainty [18,19], as well as studies highlighting the role of leadership in enhancing organizational stability and resilience [8]. This refines the behavioral premise of social role theory [44,45]: socialized tendencies toward prudent, coordinative conduct did not translate into advantages uniformly, but only where firms could act on controllable levers.

Second, the analysis of crisis strategy adoption indicates that firms with women in executive positions were more likely to implement cost-cutting and operational adjustment strategies, including reducing operational costs, adopting telecommuting, and managing staff expenses. These findings are consistent with evidence suggesting that women leaders may demonstrate stronger task-oriented and adaptive leadership behaviors during crisis [34]. Rather than pursuing aggressive expansion or innovation, firms with women in executive positions appear to focus on stabilizing firm operations through practical and immediately actionable measures. The pattern supports task-oriented leadership as the channel through which these tendencies operate [34,35], since the advantages lie precisely in structured, executable domains, though our data capture the outcomes of such execution rather than leadership behaviors directly.

Third, the results reveal a selective pattern of digital adoption. Telecommuting was the only explicitly digital strategy that differed significantly according to the presence of women executives, whereas no differences emerged for new marketing channels or technological innovation. This selectivity is consistent with technology-adoption research emphasizing the balance between perceived usefulness and perceived risk [46,47]: telecommuting offered an immediate, visible benefit, whereas investment in new technologies or channels involved greater uncertainty and resource commitment. Notably, this greater use of telecommuting was not accompanied by a revenue advantage, consistent with evidence that information and communication technologies first strengthen enabling capabilities such as self-efficacy and social capital rather than producing direct financial returns [48]. The findings therefore indicate not resistance to digitalization but selective adoption of technologies whose outcomes were more directly controllable. This interpretation remains tentative, as the survey did not measure perceived usefulness, risk, self-efficacy, or social capital.

Fourth, the results reveal that firms with women in executive positions were more likely to adopt ambidextrous strategies, balancing cost control with revenue generation efforts. This finding is consistent with the literature on strategic ambidexterity, which emphasizes the importance of simultaneously pursuing efficiency and opportunity-seeking strategies during periods of environmental turbulence [50]. However, when considered together with the outcome variables, an important pattern emerges: while firms with women in executive positions attempted to balance both strategic dimensions, only the

cost-control component was associated with measurable outcome differences. This extends organizational ambidexterity theory to acute crisis [38,40–42], indicating that ambidextrous adoption and realization diverge when the exploration arm depends on external demand.

This pattern highlights a strategy–outcome gap. Firms with women in executive positions did not rely solely on defensive strategies; instead, they pursued balanced approaches combining cost management with revenue-oriented efforts. However, under the severe demand contraction and uncertainty created by the COVID-19 pandemic, the revenue-generating component of these strategies was not associated with significant outcome differences. This suggests that the observed association between ambidextrous strategies and outcomes during a crisis may be constrained by external market conditions beyond managerial control. This pattern is consistent with ambidexterity research: even when leaders adopt a genuinely balanced posture, the outcomes that move first in a crisis are often those tied to exploitation and internal execution because they can be implemented quickly and measured directly, whereas revenue recovery depends heavily on external conditions and may lag even when the strategic intent is present [42].

Two conditions widen this gap in our setting. First, the source of the divergence lies in the distinction between strategic adoption, which is within managerial control, and strategic realization, which is not: defensive actions operate on internally controllable levers—liquidity, cost, and staffing—that can be executed unilaterally, whereas growth-oriented actions require external demand that no firm-level decision can restore during a systemic shock. Second, SMEs' resource vulnerability sharpens the asymmetry: thin liquidity buffers and limited access to emergency finance, both pronounced among Turkish SMEs during COVID-19, raise the premium on the controllable arm while constraining the resources needed to realize growth strategies. The gap is therefore not evidence that the growth strategies of firms with women executives failed but a structural feature of pursuing ambidexterity under external constraint.

Our finding that women's executive presence is associated with outcomes only in internally controllable domains speaks to an unresolved debate in the pandemic leadership literature, where the evidence remains divided. Several studies report no gender differences in aggregate outcomes such as mortality [20–22], whereas others report clear advantages in the timing and adoption of interventions [23–25].

The controllability logic offers a way to reconcile them: advantages surface where leaders acted on levers they directly controlled and disappear for aggregate outcomes shaped by health system capacity and demographic conditions. The same boundary appears in our firm-level setting, where associations emerge for cash flow and cost but not for revenue and performance. Women's leadership therefore appears not uniformly superior across outcomes but particularly consequential where disciplined internal execution is decisive, consistent with Aldrich and Lotito's [20] argument that gender differences in crisis leadership are domain-specific rather than universal.

Alternative explanations warrant consideration, and they bear on how the central variable should be interpreted. Because our indicator records only whether a firm has at least one woman in an executive position, it may capture not only executive composition but also the broader organizational conditions under which women attain senior positions. Firms with women executives may differ systematically in governance quality, professionalization, recruitment and promotion practices, decision-making routines, openness to heterogeneous perspectives, sector exposure, pre-pandemic performance, or access to finance, and these characteristics could independently contribute to liquidity management and cost discipline.

This reading is consistent with contemporary diversity research, which cautions against treating demographic characteristics as having direct and uniform effects on

organizational performance. Observed effects may arise from information processing and social categorization processes rather than demographic heterogeneity itself [51] or from the interaction of organizational context and group processes shaping the relationship [52,53]. Evidence further indicates that the climate for inclusion conditions whether gender diversity translates into beneficial group processes [54], suggesting that representation and organizational context are not interchangeable.

Our findings should therefore not be read as evidence that women possess inherently superior crisis management capabilities. Kaufmann and Derry [55] instead emphasize how identities are embedded in organizational power structures and institutional practices. Relatedly, demographic categories acquire organizational meaning through their interaction with cultural, economic, legal, and institutional conditions [56,57]. The Turkish SME setting during COVID-19 combined severe resource constraints with a particular institutional and gender context; the associations documented here should accordingly be understood as context-dependent rather than as universal effects of executive gender composition.

We note, however, that these considerations do not render the observed pattern uninformative. A general organizational quality confound would be expected to lift all outcomes uniformly, whereas the association documented here is confined to internally controllable outcomes and absent for externally dependent ones. What the pattern is consistent with is not undifferentiated firm quality but organizational characteristics that specifically strengthen internal execution capacity—governance discipline, decision-making routines, and coordination—of which executive gender composition may be one observable correlate. The contribution of the present analysis is therefore not to establish that appointing women executives improves crisis performance but to identify systematic differences in crisis strategies and outcomes between Turkish SMEs with and without women in executive positions and to mark these associations as phenomena requiring further investigation.

6. Conclusions

This study examined how the presence of women in executive positions is associated with crisis management strategies and firm outcomes among Turkish SMEs during the COVID-19 pandemic. Firms with women in executive roles showed a positive association with cash-flow sustainability and cost management. However, no significant differences were observed in revenue generation or overall performance. These findings suggest that the association between women's executive presence and crisis outcomes is not uniform across performance dimensions but is concentrated where firms can act on internally controllable levers.

Importantly, the analysis reveals that firms with women executives did not rely solely on defensive strategies. Instead, they pursued ambidextrous approaches, attempting to balance cost control with revenue generation. They actively implemented cost-cutting measures such as operational cost reduction, telecommuting, and staff expense management. However, the benefits of these strategies were realized primarily through the defensive dimension, as the revenue-generating component was not associated with measurable performance differences. This highlights a strategy–outcome gap, suggesting that while women executives adopted balanced crisis strategies, external market conditions limited the effectiveness of growth-oriented actions. This pattern should not be read as evidence of an intrinsic gender-based managerial advantage. Because our measure records executive presence rather than authority or influence, the observed differences may equally reflect the organizational conditions under which women attain senior positions. Establishing whether they originate in executive gender composition, in those organizational conditions, or in their interaction is a question for future research.

6.1. Theoretical Implications

This study contributes to the literature on gender and leadership by offering a more refined understanding of how women's representation in executive positions is associated with firm outcomes during crisis. Leadership theory has largely debated whether women's leadership confers a general performance advantage; our results suggest that leadership effects should instead be theorized with a scope condition. Firms with women executives report more favorable outcomes in internally controllable areas, such as cost structures and liquidity, while no statistically significant association is observed for externally driven outcomes such as revenue. This reframes mixed findings in the gender and leadership literature as a predictable consequence of outcome type rather than as contradictory evidence. For crisis management theory, the results support the view that crisis response proceeds in sequence, stabilizing internally controllable functions before pursuing recovery, and add that leadership characteristics are most consequential in the stabilization phase, where discretion is highest, rather than in the recovery phase, where external demand governs outcomes. We note that this scope condition concerns where leadership characteristics can be enacted, not which demographic group holds them; the same logic would apply to any executive attribute whose effects depend on managerial discretion. These contributions build on, rather than stand apart from, existing research on women entrepreneurs, female managers, and gender diversity in SMEs; our addition is not the SME setting itself but the controllability-based account of when women's executive presence is, and is not, associated with crisis outcomes.

6.2. Practical and Managerial Implications

The findings offer important insights for SME managers and business owners. First, they highlight the value of leadership approaches that emphasize financial discipline, liquidity management, and operational efficiency during crisis periods. Firms that prioritize these dimensions may be better positioned to withstand external shocks.

Second, the results indicate that firms with women in executive positions reported stronger preparedness in managing financial risks and operational adjustments. As discussed above, these differences cannot be attributed to executive gender composition alone and may reflect organizational characteristics, inclusive decision-making routines, governance discipline, and professionalized management, with which such a composition is associated. For managers, the actionable implication concerns these organizational conditions rather than demographic composition, such as building decision-making structures that draw on diverse perspectives and ensuring participation in strategic decisions is substantive rather than nominal.

Third, while ambidextrous strategies are widely recommended in the management literature, the findings indicate that during severe crises, firms may need to prioritize defensive strategies over growth-oriented initiatives, as external conditions may constrain the effectiveness of revenue-generating efforts.

6.3. Policy Implications

From a policy perspective, the findings should be interpreted with care. They indicate that Turkish SMEs with women in executive positions reported stronger outcomes in liquidity management, cost control, and operational adjustment during the pandemic. They do not establish that increasing the number of women executives will, by itself, improve SME crisis performance: the cross-sectional design does not permit such an inference, and the presence of women executives may coexist with broader organizational characteristics that themselves support resilience.

The policy relevance of these findings therefore lies less in appointment targets than in the organizational conditions with which such appointments are associated. Measures

that reduce structural barriers to women's advancement, such as improving access to professional networks and leadership opportunities and providing work–life balance support, remain valuable, as do measures that strengthen inclusive governance practices and ensure substantive rather than symbolic participation in strategic decision making. The latter may matter independently of executive composition, and our findings suggest that the organizational environments associated with more inclusive leadership warrant further investigation as potential sources of crisis resilience.

Importantly, the case for women's participation in leadership need not rest on demonstrating superior financial performance. Equitable access to meaningful leadership and decision-making opportunities is a legitimate objective independent of its measured business performance effects [55]. Finally, we note that this study tests neither policy interventions nor structural barriers directly; the implications above should be read as directions suggested by the associations we document rather than as evaluated policy effects.

6.4. Limitations

This study has several limitations. The design is cross-sectional, which precludes causal identification and leaves open the possibility of omitted-variable bias from firm characteristics not captured in the survey. Women's leadership is measured as the presence of at least one woman executive, a binary indicator that cannot distinguish substantive decision-making authority from mere presence, nor capture the number, rank, or functional role of women executives. The outcome and strategy measures are self-reported and, for the outcome items, perceptual rather than drawn from objective financial records such as accounting statements, sales, or tax data; they may therefore be subject to recall bias and, because leadership, strategy, and outcomes are reported by the same respondent, to common method bias. The control set is limited to firm age, size, and sector, and several potentially relevant firm characteristics are unobserved. Finally, the evidence comes from SMEs in a single country and a single crisis episode, which bounds its generalizability.

Most fundamentally, the design cannot separate executive gender composition from the organizational characteristics with which it may be associated. Because firms in which women reach executive positions may differ in governance quality, professionalization, inclusion climate, recruitment and promotion practices, and decision-making routines, the associations documented here cannot be attributed to gender diversity as distinct from these characteristics, nor from the legal, economic, and institutional conditions in which both are embedded. Establishing whether the observed differences originate in executive gender composition, in these organizational conditions, or in their interaction remains an open question.

6.5. Future Research Directions

Future research could extend this analysis in several important directions. Longitudinal studies would enable a more systematic examination of how leadership strategies and firm outcomes evolve over time, particularly during the post-crisis recovery phase. More detailed measures of gender diversity—such as the proportion of women in leadership or their specific roles—could provide deeper insights into the mechanisms underlying observed associations.

Comparative studies across countries and institutional contexts would also help determine whether the observed patterns are specific to Turkish SMEs or reflect broader trends in emerging and developed economies. A particularly important direction is to disentangle demographic composition from organizational context. Studies that jointly measure executive gender composition and organizational characteristics—governance

structures, inclusion climate, decision-making authority, and professionalization—could test whether these operate as competing or complementary explanations and whether gender diversity retains an association once such characteristics are controlled. Within-firm designs tracking changes in executive composition over time would be especially informative, as would comparative work examining how legal, regulatory, and socio-cultural conditions moderate the relationship. Finally, future research could explore the interaction between leadership characteristics and external support mechanisms, examining how public policies and firm-level strategies are jointly associated with resilience during crisis periods.

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Abbreviations

The following abbreviations are used in this manuscript:

SMEs	Small- and Medium-Sized Enterprises
FTSE	Financial Times Stock Exchange

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