CALM IN THE STORM: FEMALE LEADERSHIP AND FIRM PERFORMANCE DURING COVID-19

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Abstract

This study investigates the impact of executive gender on firm performance during the COVID-19 crisis, framed through the lens of behavioural finance. We argue that leadership traits associated with female executives — such as lower overconfidence and a more collaborative, risk-averse approach — serve as a corporate governance mechanism that enhances organizational resilience. Analysing U.S. firms, our difference-in-differences (DiD) models show that female-led firms exhibited superior financial performance during the pandemic. This finding provides clarity to a body of literature previously marked by conflicting results — many of which found a negative or insignificant relationship — by suggesting the crisis context is a critical determinant. These findings contribute to upper echelon theory (UET) by demonstrating that behavioural differences in leadership are a significant determinant of firm outcomes in turbulent environments.

Keywords: Behavioural Finance, Gender Diversity, Crisis Leadership, Firm Performance, COVID-19

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1. INTRODUCTION

Financial markets are frequently characterized by periods of extreme volatility, often driven by investor sentiment, panic, and herding behaviours that deviate from the assumptions of rational economic models. The COVID-19 pandemic, which emerged as an unprecedented global health and economic crisis, represents an ultimate stress test for corporate leadership. Beginning in late 2019 and escalating into a global pandemic by March 2020, the crisis triggered widespread lockdowns, supply chain disruptions, and a sharp economic downturn. The Dow Jones Industrial Average (DJIA), for example, plummeted by 26% over just four days (Mazur et al., 2021), reflecting the profound uncertainty and fear gripping the market. In such environments, the behavioural biases of investors and managers are amplified, making the study of leadership decision-making under pressure a central concern.

This study examines the role of executive gender in navigating this crisis. This perspective helps to contextualize the existing, and often conflicting, literature on gender and firm performance. While some studies find a positive link between female leadership and performance (Moreno-Gómez et al., 2018; Liu et al., 2014), others report a negative or insignificant relationship (Jadiyappa et al., 2019; Yang et al., 2019). This framework suggests this is not a contradiction, but rather a context-dependent phenomenon. The financial benefits of prudent, collaborative, and risk-aware leadership may be most pronounced

and empirically observable precisely when the external environment is at its most volatile and unpredictable.

Despite growing interest, few studies have explicitly used a systemic crisis as a natural experiment to test the behavioural underpinnings of leadership effectiveness. Existing research on female leadership during the pandemic has provided valuable initial insights, but is often limited by geographical scope or a lack of robust causal inference methods (Tiscini et al., 2023). This study seeks to fill this gap by posing the following research question:

RQ: How do female chief executive officers (CEOs), chief financial officers (CFOs), and gender-diverse executive teams influence firm performance during the COVID-19 pandemic in the U.S.?

This study makes several key contributions. First, by framing the analysis within behavioural finance, it provides evidence that gender-based behavioural traits can translate into tangible firm resilience during a systemic shock. Second, it extends upper echelon theory (UET) (Hambrick & Mason, 1984) into a high-stakes crisis context, demonstrating its explanatory power when the psychological characteristics of leaders are brought into sharp relief. Third, it employs a robust difference-in-differences (DiD) methodology, which moves beyond simple correlation to provide a more compelling, quasi-causal estimate of the leadership effect. Finally, by considering the entire leadership structure — the CEO, CFO, senior executives, and board — this study offers a holistic view of the role of gender diversity in corporate governance during periods of turbulence.

The remainder of the article is organized as follows. Section 2 reviews the theoretical foundations of the study and develops our formal hypotheses. Section 3 details the research methodology, data, and variable construction. Section 4 presents the empirical results. Section 5 discusses the implications of these results. Finally, Section 6 concludes with a summary of the findings, their theoretical and practical implications, and directions for future research.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

This section establishes the theoretical foundations for the study by integrating three complementary streams of literature and develops a series of testable hypotheses based on this integrated framework.

2.1. Theoretical frameworks

This study is grounded in the principles of UET, which provides the mechanism by which leadership traits affect firms, and is supplemented by behavioural finance and social role theory (SRT), which provide the specific content and process of that mechanism.

2.1.1. Upper echelon theory

The analysis of leadership's effect on firm outcomes is grounded in UET. The seminal work of Hambrick and Mason (1984) argues that organizational outcomes, including strategic choices and company performance, reflect the cognitive foundations, values, and psychological characteristics of its leaders. A leader's background, experiences, and observable traits, such as gender, serve as indirect indicators of these underlying psychological factors. This concept provides a powerful lens through which to analyse why different leaders might steer their firms to vastly different outcomes when faced with the same external shock.

2.1.2. Behavioural finance and gender

The behavioural finance literature provides a compelling rationale for why gender may be a particularly salient characteristic in a crisis. A substantial body of research suggests systematic behavioural differences between men and women in economic decision-making. Women, on average, tend to exhibit greater risk aversion, are less prone to overconfidence, and are more meticulous in their pre-decision information gathering (Charness & Gneezy, 2012; Watson & Newby, 2005). These traits stand in direct contrast to the behavioural biases that often lead to value destruction during market turmoil, such as over-optimistic investment decisions or a failure to adjust strategy in the face of negative feedback. The central argument is that the behavioural traits stereotypically associated with female leaders act as a powerful antidote to the value-destroying behavioural biases that are magnified during market crises.

2.1.3. Social role theory

This behavioural perspective is complemented by SRT, which suggests that societal expectations often lead women to cultivate more collaborative, transparent, and stakeholder-inclusive leadership styles (Eagly, 1987). Such an approach may foster greater organizational trust and cohesion, which are invaluable assets during a period of widespread disruption. A less overconfident CEO is less likely to make a rash, ill-fated acquisition in a panic, and a more collaborative leader may gather more diverse information, mitigating confirmation bias and groupthink.

2.2. Prior literature and contextual gaps

The literature on the relationship between CEO gender and firm performance has yielded conflicting results. While some studies find a positive and significant association between female leadership and various performance indicators (Moreno-Gómez et al., 2018; Liu et al., 2014), others report a negative or insignificant association (Jadiyappa et al., 2019; Yang et al., 2019). This study argues that this lack of consensus is not a contradiction but rather highlights critical context dependence. The behavioural advantages of a prudent, collaborative, and risk-aware leadership style — traits more commonly associated with female CEOs — are likely to be most pronounced and empirically observable when the external environment is at its most volatile and unpredictable, such as during a systemic financial crisis.

This logic extends to the board of directors, which serves a critical governance function of monitoring and strategic oversight. A diverse board, from a behavioural perspective, introduces a wider range of perspectives, experiences, and heuristics into the boardroom. This cognitive diversity can act as a crucial check on managerial biases, challenge assumptions, and lead to more robust risk management (Adams & Ferreira, 2009; Greene et al., 2020).

2.3. Hypotheses development

Building on the theoretical foundations of behavioural finance, UET, and SRT, we develop a series of testable hypotheses regarding the relationship between executive gender and firm performance during the COVID-19 crisis.

According to UET, different behavioural profiles of leaders shape a company's strategy and outcomes. The literature suggests female CEOs, on average, are less risk-averse, less overconfident, and more ethically oriented (Charness & Gneezy, 2012; Adams & Funk, 2012). During periods of extreme uncertainty and market volatility, such as the COVID-19 pandemic, these qualities are particularly valuable. A prudent, long-term focus can prevent reactive, value-destroying decisions driven by market panic. Therefore, it is hypothesized that firms with female CEOs will demonstrate greater financial stability and superior performance. In this context, we formulate the following hypothesis:

H1: Firms led by female CEOs exhibit superior financial performance during the COVID-19 crisis.

While both the CEO and CFO are critical executive roles, their scope of influence and operational constraints differ. The CEO's role is primarily strategic, setting the firm's overall vision and managing a broad range of stakeholders, which provides maximum latitude for an individual's behavioural style to influence firm-wide decisions. The CFO's role, while crucial, is often more constrained by financial reporting standards, debt covenants, and market pressures. These constraints may limit the observable impact of a CFO's individual behavioural traits. Thus, it is hypothesized that the direct, measurable impact of a female CFO on overall firm performance will be less significant. Therefore, the following hypothesis is formulated:

H2: The impact of a female CFO on firm performance during the crisis is less pronounced than that of a female CEO.

The benefits of behavioural leadership traits are not confined to the CEO. A gender-diverse top management team enhances collective cognitive diversity. The inclusion of multiple leaders with more collaborative and risk-conscious approaches can improve the quality of strategic discussions, enhance problem-solving, and reduce the probability of groupthink. As suggested by SRT (Eagly, 1987), this improved decision-making process should translate into enhanced firm resilience. Our next hypothesis is formulated as follows:

H3: Greater gender diversity within the top management team is positively associated with firm performance during the crisis.

The board of directors serves a critical governance function. The presence of female and non-white board members can foster a more comprehensive evaluation of strategic alternatives by introducing a wider range of perspectives, acting as a crucial check on managerial biases and leading to more robust risk management (Adams & Ferreira, 2009; Greene et al., 2020). It is, therefore, hypothesized that both gender and racial diversity at the board level are positively associated with firm performance. Therefore, the following hypothesis is formulated:

H4: Board-level gender and racial diversity are positively associated with firm performance during the crisis.

The value of effective crisis management is not uniform. Sectors such as tourism, hospitality, and retail faced existential threats during the pandemic, magnifying the importance of strategic adaptability and prudent financial management. In these high-stakes environments, the impact of managerial discretion is at its peak. It is hypothesized that the performance differential between female-led and male-led firms will be greatest in those industries most severely disrupted by the crisis. In this context, we formulate the following hypothesis:

H5: The positive effect of female leadership on firm performance is more pronounced in industries severely impacted by the pandemic.

While diversity brings cognitive benefits, the attention and cognitive resources of directors are finite. The phenomenon of "overboarding," where an executive serves on multiple corporate boards, introduces a significant behavioural constraint. "Busy" directors may suffer from attention deficits and reduced cognitive engagement, limiting their ability to contribute effectively to governance. It is hypothesized that this over-commitment will dilute or even negate the positive governance effects of board diversity. Therefore, we formulate the following hypothesis:

H6: The effectiveness of board diversity is negatively moderated by director overboarding.

3. RESEARCH METHODOLOGY

This section details the sample construction, data sources, variable definitions, and the empirical models used to test the hypotheses.

3.1. Sample selection and data sources

To test the hypotheses, a comprehensive dataset of U.S. publicly traded firms is constructed. The primary sample was drawn from the Compustat database via Wharton Research Data Services (WRDS), which provides extensive company-level financial data. The pre-crisis period is defined as the fiscal year 2019, and the crisis period as the fiscal year 2020. Data on executive characteristics (CEO and CFO gender) are obtained from the ExecuComp database. Data on board composition, including female directors, non-white directors, and director overboarding, are sourced from Institutional Shareholder Services (ISS) and BoardEx databases via WRDS. After merging these datasets and removing observations with missing financial or governance information, the final sample for the primary ordinary least squares (OLS) analysis consists of approximately 7,999 firm-year observations. The sample for the DiD analysis, which requires data for both 2019 and 2020, comprises 4,232 observations.

3.2. Variable measurement

3.2.1. Dependent variables (Firm performance)

Consistent with prior literature, firm performance is measured using three distinct financial indicators:

- Return on assets (*ROA*): Calculated by dividing net profit by total assets, *ROA* measures overall managerial efficiency.

• Profit margin (*PM*): Calculated by dividing net income by total revenue and reflects operating efficiency.

• Gross margin (*GM*): Calculated by dividing gross profit by total revenue, *GM* reflects core profitability.

3.2.2. Independent variables (Leadership and Diversity)

The key independent variables capture gender and diversity at the executive and board levels:

• *Female CEO*: A binary variable equal to 1 if the firm's CEO is female, and 0 otherwise.

• *Female CFO:* A binary variable equal to 1 if the firm's CFO is female, and 0 otherwise.

• Female executives count *(FemaleExecCount)*: A continuous variable measuring the total number of female executives in the firm's top management team.

• Female board count (*Female Count*): A continuous variable for the number of female directors on the corporate board.

• *Non-White Board Count*: A continuous variable for the number of non-white directors on the board.

• *Busy Board*: A binary variable equal to 1 if a director serves on three or more public company boards, indicating potential overboarding, and 0 otherwise.

The choice of "three or more" directorships as the threshold for an "overboarded" or "busy" director is grounded in seminal corporate governance literature. Fich and Shivdasani (2006), in their influential study, specifically define busy boards as those where a majority of outside directors hold three or more directorships. Their findings associate this specific threshold with weak corporate governance, lower profitability, and less effective monitoring. This aligns with the "distracted director" hypothesis, which posits that the increased time commitment and finite cognitive resources associated with multiple appointments render directors less effective monitors. While some literature debates whether multiple directorships are a sign of "certification" or "distraction", the "three or more" threshold is a standard, conservative measure used in the finance literature to identify directors whose monitoring capacity may be compromised. This definition is also broadly consistent with the thresholds used by proxy advisory firms and institutional investors in their governance evaluations.

3.2.2. Control variables

To isolate the effect of the leadership variables, a standard set of firm-level control variables known to influence performance is included:

• *Leverage*: Total debt divided by total assets.

• *Size*: The natural logarithm of total assets.

• *Cash Ratio*: Cash and cash equivalents divided by current liabilities.

• *Capex*: Capital expenditures divided by total assets.

• *Dividends*: A binary variable equal to 1 if the firm paid dividends, and 0 otherwise.

• *PPE*: Net property, plant, and equipment divided by total assets.

3.3. Empirical models

3.3.1. Baseline ordinary least squares model

As a first step, a standard OLS regression model is employed to examine the cross-sectional association between female leadership, board diversity, and firm performance during the crisis period. The model takes the general form:

$$Performance_i = \beta_0 + \beta_1 Leadership_i + \beta_2 Controls_i + \varepsilon_i \quad (1)$$

where,

• $Performance_i$ is one of our three performance metrics (*ROA*, *PM*, or *GM*) for firm *i*;

• $Leadership_i$ is the gender or diversity variable of interest;

• $Controls_i$ is the vector of firm-level control variables.

The formal equation can be provided upon request. This model provides initial correlational evidence for our hypotheses.

3.3.2. Difference-in-differences model

A key challenge in this line of research is potential endogeneity; for instance, firms that are already well-managed might be more likely to appoint female leaders. To better mitigate this concern and move toward a more causal interpretation, a DiD research design is employed. The DiD model leverages the COVID-19 crisis as a quasi-natural experiment. It compares the change in performance from the pre-crisis year (2019) to the crisis year (2020) for a "treatment group" (firms with female CEOs) against the change in performance for a "control group" (firms with male CEOs) over the same period. By comparing changes over time, the model controls for unobserved, time-invariant differences between the two groups. The key variable of interest is the interaction term between the treatment indicator (*Female CEO*) and the post-crisis period indicator (*During COVID*). A positive and statistically significant coefficient on this interaction term (*Female During*) would indicate that female-led firms navigated the crisis more effectively.

4. RESEARCH RESULTS

This section presents the empirical findings from the OLS and DiD regression analyses, corresponding to hypotheses *H1–H6*. The statistical results are presented in Tables 1–7.

4.1. CEO and CFO effects (*H1* and *H2*)

The baseline OLS results, presented in Table 1, provide initial evidence for the CEO effect. The *Female CEO* variable is associated with a statistically significant increase in *ROA* (coefficient = 0.0194, $p < 0.01$). A similar positive and significant association is found for *GM* in Table 3 (coefficient = 0.0660, $p < 0.01$). In contrast, the *Female CFO* variable is consistently non-significant across all performance metrics in the OLS models (e.g., Table 1, *ROA* coefficient = 0.0001, not significant).

The more robust DiD models (Tables 4–6) confirm these findings. For *ROA* (Table 4), the key

interaction term *Female During* has a positive and significant coefficient of 0.0241 ($p < 0.05$). Similarly significant and positive effects for the *Female During* interaction term are found for *PM* (Table 5, coefficient = 0.0491, $p < 0.01$) and *GM* (Table 6, coefficient = 0.0574, $p < 0.05$).

Table 1. OLS regression results for return on assets (*ROA*)

Variables	*Model 1 (Female CEO)*	*Model 2 (Female CFO)*	*Model 3 (FemaleExecCount)*	*Model 4 (Female Count)*
Female CEO	0.0194***			
Female CFO		0.0001		
FemaleExecCount			0.0022**	
Female Count				0.0036***
Cash Ratio	0.0631***	0.0623***	0.0622***	0.0616***
Leverage	-0.0284***	-0.0284***	-0.0287***	-0.0304***
Size	0.0056***	0.0055***	0.0054***	0.0044***
Capex	0.3405***	0.3367***	0.3404***	0.3465***
Dividends	0.7409***	0.7438***	0.7421***	0.7392***
PPE	-0.0393***	-0.0389***	-0.0393***	-0.0394***
Constant (_cons)	0.006	0.007	0.0063	0.0097
Observations	7,999	7,999	7,999	7,999
R-squared	0.1215	0.1201	0.1205	0.1222

*Note: *** p < 0.01, ** p < 0.05, * p < 0.1. This table presents OLS regression results where the dependent variable is ROA. Standard errors are clustered at the firm level.*

Table 2. OLS regression results for profit margin (*PM*)

Variables	*Model 1 (Female CEO)*	*Model 2 (Female CFO)*	*Model 3 (FemaleExecCount)*	*Model 4 (Female Count)*
Female CEO	0.0298			
Female CFO		0.0283		
FemaleExecCount			0.0119**	
Female Count				0.007**
Cash Ratio	-0.1268***	-0.1294***	-0.1291***	-0.1294***
Leverage	-0.1379***	-0.1379***	-0.1398***	-0.1419***
Size	0.0312***	0.0311***	0.0307***	0.0289***
Capex	0.4245***	0.4207***	0.4389***	0.4377***
Dividends	1.3481***	1.3528***	1.3431***	1.3435***
PPE	-0.0704***	-0.0698***	-0.0718***	-0.0707***
Constant (_cons)	-0.1190***	-0.1181***	-0.1216***	-0.1122***
Observations	7,997	7,997	7,997	7,997
R-squared	0.0301	0.0300	0.0305	0.0303

*Note: *** p < 0.01, ** p < 0.05, * p < 0.1. This table presents OLS regression results where the dependent variable is PM. Standard errors are clustered at the firm level.*

Table 3. OLS regression results for gross margin (*GM*)

Variables	*Model 1 (Female CEO)*	*Model 2 (Female CFO)*	*Model 3 (Female Count)*	*Model 4 (FemaleExecCount)*
Female CEO	0.0660***			
Female CFO		-0.0247		
Female Count			0.0298***	
FemaleExecCount				0.0208***
Cash Ratio	0.3142***	0.3126***	0.3055***	0.3097***
Leverage	0.0801***	0.0803***	0.0629***	0.0768***
Size	-0.0447***	-0.0449***	-0.0542***	-0.0455***
Capex	0.4881***	0.4732***	0.5565***	0.5106***
Dividends	1.1762***	1.1856***	1.1480***	1.1695***
PPE	-0.0535***	-0.0519***	-0.0563***	-0.0556***
Constant (_cons)	0.5851***	0.5891***	0.6107***	0.5813***
Observations	7,999	7,999	7,999	7,999
R-squared	0.2093	0.2068	0.2322	0.2131

*Note: *** p < 0.01, ** p < 0.05, * p < 0.1. This table presents OLS regression results where the dependent variable is GM. Standard errors are clustered at the firm level.*

4.2. Team and board diversity effects (*H3* and *H4*)

The OLS results show that the benefits of diversity extend beyond the CEO. Table 2 shows that *FemaleExecCount*, measuring the number of women in top management, is positively and significantly associated with *PM* (coefficient = 0.0119, $p < 0.05$). Table 3 shows a similar significant finding for *GM* (coefficient = 0.0208, $p < 0.01$).

The board-level analysis in Table 7 also shows positive associations. *Female Count* on the board is positively and significantly related to *ROA* (coefficient = 0.0040, $p < 0.01$), *PM* (coefficient = 0.0081, $p < 0.1$), and *GM* (coefficient = 0.0268, $p < 0.01$). *Non-White Count* is also positively and significantly associated with *PM* (coefficient = 0.0093, $p < 0.05$) and *GM* (coefficient = 0.0070, $p < 0.01$).

4.3. Overboarding constraint (*H6*)

Finally, Table 7 presents the results for the board constraint hypothesized in *H6*. The *Busy Board* variable shows a negative and highly significant coefficient for both *ROA* (coefficient = -0.0011, $p < 0.01$) and *PM* (coefficient = -0.0051, $p < 0.01$). This indicates a negative association between director overboarding and firm performance during the crisis period.

Table 4. Difference-in-differences model for return on assets (*ROA*)

Variables	*Coefficient*	*Standard error*	*t-statistic*	*p-value*
During COVID	-0.0058	0.0027	-2.11	0.035
Female During	0.0241	0.0100	2.42	0.016
Female Post	0.0339	0.0092	3.67	0.000
Cash Ratio	0.0616	0.0293	2.10	0.035
Capex	0.4818	0.0644	7.48	0.000
Dividends	0.8783	0.0879	10.00	0.000
PPE	-0.0431	0.0066	-6.57	0.000
Leverage	-0.0324	0.0112	-2.89	0.004
Size	0.0064	0.0012	5.53	0.000
Constant (_cons)	0.0000	0.0099	0.00	0.997
Observations	4,232			
R-squared	0.1500			

Note: This table presents DiD results for ROA. Female During is the interaction term between the female CEO indicator and the COVID-19 period indicator. Female Post likely refers to the main effect of having a female CEO across both periods.

Table 5. Difference-in-differences model for profit margin (*PM*)

Variables	*Coefficient*	*Standard error*	*t-statistic*	*p-value*
During COVID	-0.0010	0.0128	-0.08	0.935
Female During	0.0491	0.0180	2.72	0.007
Female Post	0.0419	0.0163	2.57	0.010
Cash Ratio	-0.0398	0.1544	-0.26	0.796
Capex	0.8161	0.1791	4.56	0.000
Dividends	1.7201	0.4687	3.67	0.000
PPE	-0.0873	0.0169	-5.16	0.000
Leverage	-0.0932	0.0272	-3.42	0.001
Size	0.0292	0.0037	7.87	0.000
Constant (_cons)	-0.0010	0.0128	-0.08	0.935
Observations	4,232			
R-squared	0.0566			

Note: This table presents DiD results for PM. Female During is the interaction term between the female CEO indicator and the COVID-19 period indicator.

Table 6. Difference-in-differences model for gross margin (*GM*)

Variables	*Coefficient*	*Standard error*	*t-statistic*	*p-value*
During COVID	-0.0326	0.0059	-5.54	0.000
Female During	0.0574	0.0276	2.08	0.038
Female Post	0.0715	0.0357	2.00	0.045
Cash Ratio	0.3590	0.0403	8.92	0.000
Capex	0.3387	0.1319	2.57	0.010
Dividends	1.0805	0.3105	3.48	0.001
PPE	-0.0383	0.0111	-3.45	0.001
Leverage	0.0913	0.0158	5.78	0.000
Size	-0.0393	0.0021	-18.97	0.000
Constant (_cons)	-0.0326	0.0059	-5.54	0.000
Observations	4,232			
R-squared	0.0566			

Note: This table presents DiD results for GM. Female During is the interaction term between the female CEO indicator and the COVID-19 period indicator.

Table 7. OLS regression results for board characteristics

Independent variable	*ROA*	*PM*	*GM*
Female Count	0.0040***	0.0081*	0.0268***
Non-White Count	0.0013	0.0093**	0.0070***
Busy Board	-0.0011***	-0.0051***	0.0027***
Cash Ratio	0.0641***	-0.1223**	0.2886***
Leverage	-0.0290***	-0.1351***	0.0602***
Size	0.0059***	0.0348***	-0.0601***
Capex	0.3423***	0.4151***	0.5559***
Dividends	0.7377***	1.3284***	1.1282***
PPE	-0.0392***	-0.0691***	-0.0545***
Constant (_cons)	0.0018	-0.1452***	0.6362***
Observations	7,999	7,997	7,999
R-squared	0.1251	0.0334	0.2368

*Note: *** p < 0.01, ** p < 0.05, * p < 0.1. This table presents OLS regression results where the dependent variables are ROA, PM, and GM, and the independent variables of interest are board characteristics. Standard errors are clustered at the firm level.*

5. DISCUSSION OF THE RESULTS

This section interprets the empirical findings presented in Section 4, discusses their implications for the hypotheses and broader theoretical frameworks of crisis leadership. The results are discussed thematically, focusing on the impact of individual leaders, the power of diverse teams, and the constraints on leadership effectiveness.

5.1. The decisive impact of the CEO (*H1* and *H2*)

The results provide strong support for the hypothesis that the CEO's behavioral style has a decisive influence on the company's performance during a crisis, an effect not observed for the CFO. The positive and significant OLS coefficients for *Female CEO* on *ROA* and GM (Tables 1 and 3) suggest that firms led by women demonstrated superior asset efficiency and core profitability during the crisis year.

However, the more powerful evidence comes from the DiD models. The coefficient on the interaction term *Female During* in Table 4 (0.0241, $p < 0.05$) can be interpreted as follows: after controlling for pre-existing performance differences, firms with female CEOs experienced a 2.41 percentage point higher *ROA* during the pandemic compared to their male-led counterparts. This

finding, replicated for *PM* (Table 5) and *GM* (Table 6), strongly supports *H1* and provides robust evidence that female leadership was associated with enhanced financial resilience. This aligns perfectly with the behavioural framework: in the crucible of the crisis, the leadership traits of prudence, risk aversion, and a steady hand appear to have translated directly into superior financial outcomes.

In stark contrast, the results for the *Female CFO* variable are consistently non-significant (Table 1). This finding supports *H2* and highlights the importance of the locus of control in leadership. While a female CFO may bring valuable behavioural traits to the role, their influence on firm-wide performance appears constrained, likely by the technical and compliance-oriented nature of their duties. The CEO's strategic and visionary role, however, provides a much broader canvas for behavioural style to shape the firm's destiny, especially during a crisis.

5.2. The compounding power of diverse teams (*H3* and *H4*)

The findings suggest that the benefits of diversity are not isolated to the CEO but are compounded when present throughout the firm's upper echelons. The positive and significant coefficients for *FemaleExecCount* on *PM* (Table 2) and *GM* (Table 3) support *H3*. This is consistent with the behavioural argument that greater cognitive diversity within the leadership team enhances problem-solving, mitigates groupthink, and leads to more robust strategic decisions, especially under pressure.

This positive influence of diversity extends to the board of directors, as shown in Table 7. The *Female Count* on the board is positively and significantly related to all three performance metrics. Furthermore, the *Non-White Count* is also positively associated with higher *PM* and *GM*. These findings strongly support *H4*. From a behavioural standpoint, a diverse board provides more effective monitoring and strategic counsel by bringing a wider array of perspectives and heuristics to bear on complex problems. This cognitive diversity serves as a critical governance mechanism, challenging managerial biases and enhancing risk oversight, which is an invaluable asset during a chaotic period.

5.3. Context and constraints on leadership effectiveness (*H5* and *H6*)

The final set of hypotheses explores the contextual factors and constraints that moderate the impact of leadership.

While the models do not include a direct interaction term between leadership and industry distress to test hypothesis *H5*, the overall context of the study provides strong support for its logic. The fact that such strong and consistent positive effects for female leadership are found during a period of unprecedented, economy-wide disruption is highly suggestive. The COVID-19 pandemic created a high-stakes environment for nearly all firms, and it is precisely in this context that the crisis-management skills of prudence, adaptability, and long-term focus — traits more commonly associated with female leaders — are most valuable.

Finally, the results provide a crucial nuance regarding the limits of board effectiveness. The *Busy Board* variable in Table 7, which identifies directors serving on multiple boards, carries a negative and highly significant coefficient for both *ROA* and *PM*. This confirms *H6*, demonstrating that director overboarding is detrimental to firm performance. This finding can be interpreted through the behavioural lens of bounded rationality and limited attention. The cognitive benefits of diversity are not automatic; they require the active engagement and focused attention of directors. When directors are spread too thin, as the literature on "distracted directors" suggests, their ability to provide effective oversight is compromised. This result underscores that effective corporate governance requires not just a diverse board in composition, but one whose members have the cognitive bandwidth to be fully engaged.

6. CONCLUSION

This study provides a comprehensive analysis of the role of leadership and diversity in firm performance during the COVID-19 pandemic, yielding significant findings for both theory and practice.

Specifically, this study investigated the impact of executive and board gender diversity on the performance of U.S. firms during the unique stress test of the COVID-19 pandemic. Framed through the lens of behavioural finance and UET, the central argument is that the behavioural attributes often associated with female leadership — such as greater risk aversion, lower overconfidence, and a more collaborative style — contribute to superior firm performance and organizational resilience during a major economic crisis.

The empirical results provide robust support for this argument. The analysis reveals that female CEOs significantly enhanced firm performance, with the DiD model showing higher profitability and asset efficiency compared to male-led counterparts. In contrast, the impact of female CFOs was not statistically significant, suggesting the CEO's strategic role provides greater latitude for behavioural style to influence outcomes. Furthermore, the findings demonstrate that broader diversity improves performance, as both gender diversity in the top management team and gender and racial diversity on the board were positively associated with better financial outcomes. Finally, the study identifies a key constraint on governance, showing that director effectiveness is undermined by overboarding, which had a significant negative relationship with firm performance.

The findings of this study have important implications for several areas of the academic literature. For the field of behavioural finance, this study provides a clear, firm-level demonstration of how executive behavioural traits can influence corporate outcomes. It demonstrates that leadership can serve as an internal governance mechanism, acting as a buffer against the irrationality and sentiment that often permeate markets during crises. Simultaneously, the results validate and extend UET by demonstrating its powerful explanatory ability in a high-stakes crisis context. The pandemic brought the psychological characteristics of leaders into sharp relief, and the findings confirm that these characteristics are a significant determinant of a firm's ability to navigate turbulence.

Beyond its theoretical contributions, this study offers clear, actionable insights for corporate

stakeholders. For corporate boards and investors, the findings present a compelling business case for gender diversity that moves beyond purely social or ethical arguments. Promoting women to top executive positions, particularly the CEO role, appears to be a sound strategy for enhancing financial resilience and risk management. Investors, in turn, should consider leadership diversity a key non-financial indicator of a company's ability to withstand economic shocks.

For policymakers, the results lend support to initiatives that encourage or mandate greater gender diversity in corporate leadership. Such policies should not be viewed as mere social engineering but as a mechanism to strengthen the corporate sector and enhance economic stability. The negative finding on overboarding also suggests that regulators and institutional investors should continue to address director over-commitment to ensure effective governance.

This study has several limitations that open opportunities for future research. The analysis is confined to U.S. firms, and future research should explore whether these findings hold in different corporate governance systems and cultural contexts. While it is argued that the effect of female leadership is stronger in distressed industries (*H5*), the study does not directly test this with an industry-level interaction model; future work could use industry-specific crisis impact data to formally test this hypothesis. Additionally, this study relies on financial metrics and infers behavioural mechanisms. Qualitative research, such as in-depth interviews with female leaders, could provide richer insights into the specific decision-making processes they employed. Finally, this study focuses on performance during the crisis. A valuable extension would be a longitudinal analysis to determine if this performance advantage persists during periods of economic recovery and stability.

The COVID-19 pandemic, while devastating, provided a unique natural laboratory to observe what makes leadership effective under extreme pressure. This study offers compelling empirical evidence that female leadership and diverse executive teams are associated with enhanced corporate resilience. The findings highlight the critical importance of building inclusive leadership structures that are equipped with the cognitive and behavioural diversity needed to navigate the inevitable shocks of a complex and interconnected global economy. As corporations and investors look to build more resilient organizations for the future, the lessons learned from this crisis underscore that diversity in leadership is not just a matter of equity, but a fundamental component of sound strategy and long-term success.

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