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Founders, Females, and the Covid-19 Pandemic: Crisis Responses of Business Leaders

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FOUNDERS, FEMALES, AND THE COVID-19 PANDEMIC: CRISIS RESPONSES OF BUSINESS LEADERS

Prior research has claimed that founders and managers differ in managing organizational crisis. Based on the entrepreneurship and psychology literature, this study investigates leaders' distinct responses to the Covid-19 pandemic. Specifically, we explore potential differences between founders and managers' perception of business challenges and opportunities during a crisis, whether they differ in their crisis response actions, and whether gender plays a moderating role. Based on a unique empirical dataset analyzing 331 crisis response strategies across founders and business leaders in China, our results identify (a) that founders do respond to crises differently than managers and (b) that gender plays a critical role. These insights contribute to the literature on crisis management and extend prior literature exploring how individual characteristics can shape decision-making in organizations.

Keywords: Covid-19 pandemic; crisis management; founder; females; CEO characteristics

What initially emerged as a new coronavirus, known as Covid-19, in the city of Wuhan, China, quickly transformed into one of the worst global pandemics with major implications for the global economy. Known as a so-called “black swan event” (Taleb, 2008), the virus’ spread crippled most economies and forced multiple businesses to cease operations immediately for an extended and indefinite period of time. While estimates of the pandemic’s negative economic effects are still in its infancy, global economic growth experienced the worst fallout since the Great Depression of the 1930s and has developed into a worldwide crisis (Shalal & Lawder, 2020).

Research on how organizations respond to and manage major crises is growing (for a recent review, see Bundy, Pfarrer, Short, & Coombs, 2017). As head of the firm, a CEO’s perceptions of and response to a crisis will largely determine how the firm responds (König, Graf-Vlachy, Bundy, & Little, 2020). These perceptions are largely affected by personal characteristics. As such, examining CEOs’ characteristics will help in explaining how they perceive and respond to crises, as well as why some firms respond to crises differently than others.

A large amount of research has suggested that firm founders respond to crises in a resilient and proactive way (Abebe & Tangpong, 2018; Davidsson & Gordon, 2016; Dinger, Conger, Hekman, & Bustamante, 2019; Shepherd & Williams, 2014; Williams & Shepherd, 2016a, 2016b). The popular press has similarly noted founders’ responses to the pandemic, emphasizing their donations and investments into research for a treatment or vaccine (Laura He & Ziady, 2020; Yakowicz, 2020). According to psychology scholars (e.g. Zhao & Seibert, 2006), entrepreneurs score differently from managers on personality traits that are likely important in a crisis, such as openness to experience, contentiousness, and neuroticism. In addition,

entrepreneurs tend towards a greater propensity for risk and self-efficacy (Chen, Greene, & Crick, 1998; Stewart & Roth, 2001). From a management perspective, founders have different priorities than managers and thus take different managerial decisions (e.g. Abebe & Tangpong, 2018; Souder, Simsek, & Johnson, 2012). The consensus is that founders tend to be optimistic, highly confident, risk-taking ‘go-getters’ who sense opportunities and take initiatives. But while this may suggest that founders respond differently to a crisis than managers, it is still unclear *in which ways* their responses differ. Questions such as whether they show differences in how they perceive challenges and opportunities, and what actions they ultimately take, remain underexplored. In the midst of the Covid-19 pandemic and its effect on businesses, these questions become increasingly salient.

Building upon this, an ever-increasing body of research has noted that female leaders manage the firm differently from males (Cowen & Montgomery, 2020; Davis, Babakus, Englis, & Pett, 2010; Faccio, Marchica, & Mura, 2016; Gupta, Han, Mortal, Silveri, & Turban, 2018; Ho, Li, Tam, & Zhang, 2015; Rosette & Tost, 2010), and suggests a potential female leader advantage (e.g. Eagly & Carli, 2003). This has also been echoed by the popular press, which has highlighted the different – and arguably superior – styles used by female leaders of government in their handling of the Covid-19 pandemic (Champoux-Paillé & Croteau, 2020; Wittenberg-Cox, 2020). In addition, research shows that female founders show differences to their male counterparts in their entrepreneurial interests and managerial styles (Berger & Kuckertz, 2016; Birley, 1987; Cromie, 1987; Hechavarria et al., 2017; Jennings & Brush, 2013; Rocha & Van Praag, 2020; Shahriar, 2018). The psychology literature reveals systematic trait differences between females and males that likely affect how they respond to crises (Costa, Terracciano, & McCrae, 2001; Feingold, 1994; Weisberg, DeYoung, & Hirsh, 2011). Interestingly, females tend

toward traits that are less associated with those of entrepreneurs. This suggests that how founders respond to a crisis may be moderated by their gender. As the number of female managers and founders continues to grow (Bonet, Cappelli, & Hamori, *in press*; Rocha & Van Praag, 2020), this, too, becomes an important question during times of uncertainty and crisis.

In this study, we draw on the psychology and entrepreneurship literatures to examine the ways that founders and managers differ in their perceptions and responses to the Covid-19 pandemic, and further examine how gender may play a moderating role. Based on a unique dataset from a survey completed by Chinese founders and business leaders during the Covid-19 pandemic, we had the rare opportunity to assess business leaders' decision-making rationale for formulating crisis response strategies. Given that China was the first place to experience the dangers of the pandemic, no prior information or learning was available to the respondents the way it has been to Europeans or North Americans who could look to China for information. This avoids the confounds of learning or best practices being available to respondents and represents the very first response of business leaders to the pandemic. As such, this context enabled a unique opportunity to examine how the characteristics of business leaders affected their perceptions and responses to the crises. This study contributes to research on how the characteristics of business leaders can ultimately affect a firm's crisis response. By examining the differences in how founders and managers assess challenges and options, what actions they ultimately take, and how gender moderates these differences, this study also explicates some of the ways in which these differences manifest themselves, and especially during times of crisis.

Theory and Hypotheses

Managing an organizational crisis – defined as an ambiguous event threatening a firm’s survival with little time to respond (Ancona, 2012; Hermann, 1963) – depends on a business leader’s ability to formulate and implement a timely and effective crisis response strategy (Garcia, 2006; Lafley, 2009; Weick, 1988). As each crisis is unique (Hambrick, Finkelstein, & Mooney, 2005), leaders cannot rely on prior routines, established decision rules, or identify response patterns from industry benchmarks. Hence, crisis response strategies are strongly influenced by executives’ personal characteristics affecting their decision-making behavior (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). While there exists a variety of individual characteristics influencing crisis management (e.g. James, Wooten, & Dushek, 2011; Waldman, Ramirez, House, & Puranam, 2001), this paper focuses on the differences between founders and managers. Several studies have emphasized founders’ personal traits impacting firm decisions and performance (Lerong He, 2008; Lee, Yoon, & Boivie, 2020) but their impact in a crisis decision context remains poorly understood. Moreover, a founder’s entrepreneurial orientation and belief in his/her ability to control environmental outcomes (Chen, et al., 1998; Simon, Houghton, & Aquino, 2000) may play a particularly critical role in formulating and implementing response strategies during a crisis.

Founders, who are by definition entrepreneurs (Ahuja, Lampert, & Tandon, 2008), are strongly biased by their entrepreneurial past (Wasserman, 2003). Research into the trait differences of founders and managers has noted significant differences between both. Based on the Big Five personality framework, prior scholars have found that, in comparison to managers, founders score higher on conscientiousness and openness, are similar on extraversion, and score lower on neuroticism and agreeableness (e.g. Zhao & Seibert, 2006). This research suggests that founders’ personality traits may influence affective and behavioral outcomes during a crisis. In

addition, prior research has found that trait differences between females and males do exist, but in a more nuanced way (Costa, et al., 2001; Weisberg, et al., 2011). However, little research exists explicating the trait differences between female and male founders. This, along with the fact that females manage firms differently from how males do (Faccio, et al., 2016; Ho, et al., 2015; Jennings & Brush, 2013), suggests that gender should play a moderating role during a crisis.

To explore founders' crisis response strategies, we consider insights provided by the interpretative studies of organizational decision-making (Daft & Weick, 1984; Dutton & Jackson, 1987; Thomas & McDaniel, 1990) and crisis decision theory (Sweeny, 2008). These perspectives allow us to synthesize extant crisis management frameworks (Bundy, et al., 2017; Coombs, 2014; Mitroff & Pearson, 1993; Wooten & James, 2008) without testing a specific one. All models share the idea that crises function as triggering events (Billings, Milburn, & Schaalman, 1980) initiating cognition and sensemaking processes that try to categorize a stimulus for action (Dutton & Jackson, 1987). Owing to their chaotic nature where stages and tasks may not unfold in a strict sequence (Roux-Dufort, 2007), we focus on two critical activities generally associated with the crisis management concept. First, crisis decisions are based on a situation assessment (Sweeny, 2008) that often leads to mental frames categorizing situations as threats or opportunities (Jackson & Dutton, 1988; Thomas & McDaniel, 1990). Through an assessment of the situation, decision-makers evaluate what challenges they face and what available options they have with which to respond (Chattopadhyay, Glick, & Huber, 2001). Second, the overall crisis response strategy – the taking action stage – transforms individuals' intentions into concrete actions (Dutton & Jackson, 1987). The following sections examine the differences in how founders and managers assess these activities, and how gender plays a moderating role.

Perceptions of challenges and opportunities posed by the crisis

When processing a crisis, individuals gather information on its causes and consequences, how it is affecting others similar to themselves, and the controllability and feasibility of potential options and outcomes (Sweeny, 2008). In doing so, individuals may perceive challenges and/or opportunities emerging from the crisis (James, et al., 2011). While they will naturally perceive both, we posit that founders should perceive fewer challenges and more opportunities for several reasons. Firstly, founders tend toward lower levels of neuroticism, signifying negative emotions such as anxiety, depression, and vulnerability, among others (Costa, et al., 2001). Lower tendencies toward these emotions should result in a reduced focus on the difficulties that the crisis has created. Individuals compare negative events using prior mental schemas which aid them in determining the severity of a negative event and what response options may be controllable or feasible (Aspinwall & Taylor, 1997). What they perceive as ‘controllable’ also determines how they interpret consequences and options of a negative event (Ajzen, 2002). Founders’ tendencies towards greater openness to experiences (Zhao & Seibert, 2006), higher propensity for risk (Stewart & Roth, 2001) and greater comfort with uncertainty (McMullen & Shepherd, 2006), should result in schemas different from managers, and ones that provide for a higher tolerance of difficulties and include a wider array of plausible options. In addition, their high degree of self-efficacy (Chen, et al., 1998) and beliefs in their abilities to control outcomes in their environments (Simon, et al., 2000), may steer them towards perceiving a greater number of opportunities available. Indeed, even in times of war, those with greater self-efficacy perceive entrepreneurial opportunities (Bullough, Renko, & Myatt, 2014). Rather than dwelling on the adversity posed by a crisis, entrepreneurs respond to crises by seizing opportunities to start new

ventures as a way of responding to that adversity (Williams & Shepherd, 2016b). Indeed, founders feel a responsibility to alleviate others' adversity following a crisis and look for opportunities to do so (Williams & Shepherd, 2016a). This notion has also been exemplified during the Covid-19 pandemic, in which founders have seized opportunities to earn revenue and at the same time help the community by creating ventilators, masks, and hand sanitizer (Abrams, 2020; Bashir, 2020; McShane, 2020). Hence, we posit the following two hypotheses.

Hypothesis 1a: There will be a negative relationship between founders and perceived business challenges stemming from the Covid-19 pandemic.

Hypothesis 1b: There will be a positive relationship between founders and perceived business opportunities stemming from the Covid-19 pandemic.

We expect female founders to perceive greater challenges and opportunities. Females' proclivity toward neuroticism and orderliness (Weisberg, et al., 2011) should result in them being more sensitive to the challenges and disruption the pandemic has created for their businesses. Their tendency towards the consideration of others' needs (Feingold, 1994; Weisberg, et al., 2011) may also make them more aware of the challenges faced by their employees. At the same time, they are also more likely to look for compromises and solutions that work best for everyone (Costa, et al., 2001). This may prompt them to look for opportunities to do so. Firms led by females benefit when they are allowed greater decision latitude (Jeong & Harrison, 2017), suggesting that females leaders capitalize on opportunities when given the chance. Moreover, female founders are also more likely than male founders to pursue social missions in addition to economic ones (Jennings & Brush, 2013). As such, females may see new business opportunities that solve social issues created by the crisis. Hence:

Hypothesis 2a: The negative relationship between founders and perceived business challenges will be attenuated when the founder is a female

Hypothesis 2b: The positive relationship between founders and perceptions of business opportunities will be strengthened when the founder is a female

Taking actions in response to the crisis

Individuals will ultimately choose how to respond to a crisis by considering the resources required, as well as the direct and indirect consequences of any actions (Sweeny, 2008). Among the various response options available to business leaders, we focus on two competing ones. On one hand, business leaders can opt for externally focused responses, concentrating on what the business can do to gain new consumers or spur a growth in different markets (Dutton & Jackson, 1987). These can be represented by actions such as offering new products/services or investing in research and development (R&D), for example. On the other hand, business leaders can opt for internally focused responses, concentrating on how the firm and its employees are operating (Staw, Sandelands, & Dutton, 1981). These can be represented by actions such as improving firm tools for telecommunication/teamwork or focusing on employees' training to meet the new needs of the crisis. Naturally, in the context of a business, many types of options can be taken simultaneously to tackle the many difficulties the crisis has created. As such, they are not mutually exclusive. However, owing to their differences, we argue that founders should be more likely than managers to opt for externally focused responses and less likely to opt for internally focused responses.

When evaluating a response, minimizing the resources required is a key consideration (Edwards, 1954). Given that the founder started the venture from scratch and successfully developed it into a successful business, he or she may believe that the resources required of an

externally focused response will be relatively low, as many of the actions will be ones that he or she has done before. On the other hand, focusing internally on developing his or her employees or employing the latest telecommunication tools may be something that the founder has done less of and therefore views as requiring more resources. Indeed, the entrepreneurship literature has noted that founders focus on their strengths, which tend to be external rather than internal (e.g. Dencker & Gruber, 2015). Founders' openness to new experiences (Zhao & Seibert, 2006) and propensity toward risk (Stewart & Roth, 2001) may result in their interest, curiosity, and willingness to invest in new ideas for business growth. Indeed, founders believe in the fruits of innovation, and founder-led firms invest more into R&D than do manager-led firms (Block, 2012; Lee, Kim, & Bae, 2020). When making decisions, individuals evaluate the perceived efficacy of each response option (Edwards, 1954; Sweeny, 2008). Given founders' higher degree of self-efficacy (Chen, et al., 1998), they may prefer options that allow them to rely on themselves and their entrepreneurial instincts, rather than on their employees. Indeed, in times of resource scarcity, entrepreneurs engage in bricolage, finding novel ways to generate revenue for their businesses (Baker & Nelson, 2005). Combined, their lower tendencies toward neuroticism and agreeableness (Zhao & Seibert, 2006) also suggest that they may not be as sensitive to the negative effects that the pandemic has had on their employees and their work situations. Therefore, founders should focus less on improving them and, as a result, focus to a lesser extent on internal actions. In addition, founders may implicitly assume that others share their self-confidence and propensity for risk (Ross, Greene, & House, 1977), thus not properly considering the difficulties that their employees are experiencing. Hence, we posit:

Hypothesis 3a: There will be a positive relationship between founders and externally focused business responses to the Covid-19 pandemic

Hypothesis 3b: There will be a negative relationship between founders and internally focused business responses to the Covid-19 pandemic

Female founders, on the other hand, should opt for a more internally focused response and less for an externally focused response. Females' lower tendency towards industriousness than men and greater tendencies towards neuroticism and agreeableness – the latter including compassion as a main aspect (Costa, et al., 2001; Weisberg, et al., 2011) – suggest they may focus primarily on the internal negative effects of the pandemic and how it may be affecting the employees. Indeed, research into female entrepreneurs' styles of leadership suggest that they take a relational approach, focusing on empowerment and teamwork (Buttner, 2001). Their lower tendencies toward openness to experiences in regards to ideas and higher tendencies in regards to feelings (Weisberg, et al., 2011), may also result in them being more curious about how the pandemic is affecting their employees' work situations and well-being, and what they can do to improve it, rather than looking at externally focused responses. Prior research also found that female leaders are related to lower levels of risk and debt financing (Faccio, et al., 2016; Jennings & Brush, 2013) also suggesting that they may be less likely to respond to firm difficulties through externally focused initiatives. Rather, female leaders are related to fewer workforce reductions and greater increases in labour costs (Matsa & Miller, 2013), suggesting that maintaining employees' well-being and developing them is an important preoccupation of female leaders.

Hypothesis 4a: The positive relationship between founders and externally focused business responses to the Covid-19 pandemic will be attenuated if the founder is a female

Hypothesis 4b: The negative relationship between founders and internally focused business responses to the Covid-19 pandemic will be attenuated if the founder is a female

Method

Sample. During the lockdown in China, we distributed a survey to a sample of 500 Chinese executives who are alumni from the executive education program of a prestigious Chinese university. We collected 331 unique responses including information on the executives, their firms, and the executives' answers to questions regarding how the pandemic was affecting their businesses and how they were responding. Survey responses were collected between March 7 to March 15, 2020, which marks the beginning of the global breakout (Secon, Woodward, & Mosher, 2020). Using Brislin's (1970) approach, the survey was first translated by a research assistant into Chinese. The Chinese version was given to another research assistant to translate back into English. The translated English version was compared to the original questionnaire. When there were wording differences, a co-author of the paper who is a native Chinese speaker made sure the translation into Chinese was accurate. The final translation was re-checked again by a third research fellow to ensure consistency and accuracy. While we also pre-tested our questionnaire with 10 executives to ensure that our questions were well structured and understandable, we attempted to motivate our informants to participate by outlining the benefits of our study, promising confidentiality, specifying the time required to complete the questionnaire, an offering to share our study's results (Huber & Power, 1985).

Dependent variables. As the crisis response literature has suggested, crises present both challenges and opportunities, and these will be specific to the crisis (Bundy, et al., 2017; James, et al., 2011; Sweeny, 2008). As such, the unique nature of the Covid-19 pandemic was

considered in the questions posed to respondents. Regarding challenges, two major effects of the pandemic on businesses were a disruption to their operations/ processes, and the move toward employees working from home. Prior research has noted that a disruption or unexpected change to a firm's operations and planning can have harmful effects for a firm leading to a breakdown in the cohesion of a firm's management and stasis in decision-making (e.g. Ballinger & Marcel, 2010). Similarly, research suggests that, when employees are not co-located, challenges can arise because planning and execution of tasks can take longer, managing employees is more difficult, and because non-physical cues and rapport among employees suffer (e.g. Bonet & Salvador, 2017). Based on these literatures, respondents were asked four questions about their perceived challenges stemming from a) delayed business operations and planning, b) disruption to existing management processes, c) difficulties in managing employees through telecommunication, and d) difficulties for teamwork (each coded as 'yes' = 1; 'no' = 0). These questions were then combined into a composite measure called *composite business challenges* which had a range of 0 to 4.

Regarding their perceived opportunities, prior research suggests that crises can be perceived as presenting two types of opportunities. The first is an opportunity to mitigate the effect of current or future negative events (Brockner & James, 2008). As a way to mitigate negative outcomes, leaders can perceive a crisis as an opportunity for organizational learning to be used in future crises (James, et al., 2011) or as an opportunity to implement change to avoid further or future vulnerabilities (Brockner & James, 2008). The second type of opportunity is the chance to introduce initiatives to make positive outcomes more likely. These include the implementation of new systems or technologies or entrance into new markets that either emerge from the crisis or become easier to enter (Brockner & James, 2008). As such, respondents were

asked four questions about their perceived opportunities to a) gain crisis management expertise, b) implement organizational change, c) accelerate digitization and automation, and d) introduce new products/services (each coded as ‘yes’ = 1; ‘no’ = 0). These questions were then combined into a composite measure called *composite business opportunities* which had a range of 0 to 4.

The crisis response literature, as well as broader prior research on how organizations respond to events, suggest that organizations can respond with internally and externally focused actions (Bundy, et al., 2017; James, et al., 2011). Regarding externally focused responses, extant literature indicates that firms can respond by finding new ways to generate revenue that might have been eroded owing to the crisis. Within existing markets, popular efforts include developing new products/ services, or increasing marketing activities (Ling, Simsek, Lubatkin, & Veiga, 2008). At the same time, firms can turn their focus to R&D efforts and other ways to diversify into new markets in order to offset losses and create new revenues (Schmitt & Raisch, 2013). As such, respondents were asked four questions (each coded as ‘yes’ = 1; ‘no’ = 0) about whether they had or planned to take action to a) develop new products or services, b) increase internet marketing efforts, c) enter into new markets or consumer sectors, d) and increase investment in R&D. These questions were combined into a composite measure called *composite externally focused responses* which had a range of 0 to 4.

Regarding internally focused responses to the pandemic, previous research suggests that an important aspect of crisis management is to focus internally on efforts that ensure continued communication with and among employees (Mazzei, Kim, & Dell'Oro, 2012; Mazzei & Ravazzani, 2015), and the coordination and diffusion of expertise throughout the firm (Majchrzak, Jarvenpaa, & Hollingshead, 2007). With consideration of the context of the Covid-19 pandemic, respondents were asked four questions (each coded as ‘yes’ = 1; ‘no’ = 0) about

whether they had or planned to take action to a) create or strengthen telecommunication, b) create or strengthen tools for collaboration and teamwork, c) monitor the physical/ mental health of employees, and d) provide online training for employees. These questions were then combined into a composite measure called *composite internally focused responses* which had a range of 0 to 4.

Independent variables. Respondents were asked whether they were a founder/founding partner, a CEO, or a Vice President or another top executive. They were coded as 1 if the respondent was a founder/founding partner, and 0 otherwise. Similarly, respondents were asked to state their gender and were coded as 1 if they were female and 0 if male.

Controls. We employed several controls at the individual, firm, and industry level (Barker & Mueller, 2002; Bertrand & Schoar, 2003; Cust ódio, Ferreira, & Matos, 2019). At the individual level, we controlled for non-CEO executives, age, education, which ranged from no university degree to PhD, firm tenure, and whether the respondent had a generalist background. Regarding firm level controls, we controlled for firm age, firm size as number of employees, whether the firm was state owned, the impact intensity of the pandemic on the firm's revenues, and the industry in which the respondent's firm operates with dummy variables.

Results

We employed ordinary least squares regression (OLS) in all of our analyses and included robust standard errors. Given that all our dependent variables have upper and lower limits, we also ran Tobit analyses and results remained substantively similar. Table 1 presents the means, standard deviations, and correlations. 165 (50%) of the respondents in our survey were founders

and 106 (32%) were female. There were 44 (26%) female founders. Table 2 presents the main results of the OLS regression analyses.¹

As evident in Model 2, there was a negative relationship between founders and perceived business challenges stemming from the Covid-19 pandemic ($\beta=-0.405, p=0.044$) and this effect was weakened when the founder is a female ($\beta=0.941, p<0.001$), thus supporting hypotheses 1a and 2a. As evident in Model 4, results did not support hypotheses 1b, that there will be a positive relationship between founders and perceived business opportunities stemming from the Covid-19 pandemic. In fact, there appears to be a negative relationship ($\beta=-0.466, p<0.017$). However, the results did support hypothesis 2b, that female founders will to a greater extent perceive business opportunities stemming from the pandemic ($\beta=0.583, p=0.031$). Model 6 found no support for hypothesis 3a, that there will be a positive relationship between founders and externally focused business responses. Similarly, Model 6 presents a positive interaction coefficient, suggesting that that female founders are related to even greater levels of externally focused responses ($\beta=0.507, p=0.052$). As such, hypothesis 4a is also not supported. Finally, Model 8 found support for hypothesis 3b, that there will be a negative relationship between founders and internally focused responses ($\beta=-0.443, p=0.017$), as well as hypothesis 4b, that this effect will be attenuated when the founder is female ($\beta=0.753, p=0.004$).

Discussion and Conclusion

How do business leaders respond during a major crisis like the Covid-19 pandemic? Our findings shed light on important characteristics in how leaders assess challenges and

¹ For each dependent variable, a first model without the interaction term is presented. The next model adds the interaction term and is therefore the full model to be interpreted. For each dependent variable, the model including the interaction term has an R-squared that is materially greater than that of the model without the interaction term indicating a greater amount of explained variance in the dependent variable. Hence, we report all findings from the models that include the interaction terms.

opportunities, and ultimately what crisis response actions they take. While founders are related to perceptions of fewer challenges and a tendency not to take internally focused actions, it appears to be their gender that plays the most important role. Interestingly, female founders were related to a greater perception of both challenges and opportunities and took both internally and externally focused actions. As such, these results support notions presented by the popular press that female leaders may have qualities that make for better leaders during crises (Champoux-Paillé & Croteau, 2020). Female leaders appear to be more sensitive to the environment and situation, and thus more sensitive to both challenges and opportunities presented to them, especially during crisis situations.

From a theoretical point of view, our research contributes to the literature on crisis management. Past scholars have often emphasized organizational characteristics and the crisis context as contingencies for crisis response strategies (Kahn, Barton, & Fellows, 2013; Pearson & Clair, 1998), but few have emphasized that CEO's personal characteristics matter (e.g. Baumeister, et al., 2001; Cowen & Montgomery, 2020). Based on our results, we support prior claims (e.g. Hutzschenreuter, Pedersen, & Volberda, 2007) for more micro-foundational attention to deeply engrained cognitive processes of managerial perception and interpretation during a crisis and answer a recent call for a wider consideration of leaders' crisis responses (James, et al., 2011). In addition, we contribute to research on how entrepreneurs respond to crises (Shepherd & Williams, 2014; Williams & Shepherd, 2016a, 2016b) by demonstrating that gender plays an important moderating role. While entrepreneurs have been more likely to focus on innovative and profitable business solutions to crises (Grilli, 2011), our study's results emphasize that founders and managers not only differ in their crisis responses but also in their perceptions of the crisis. This is a fine-grained but important distinction, as perception may play

an important role in the overall crisis response strategy (Dutton & Jackson, 1987; Sweeny, 2008). While underexplored in past work, evident in this study is that female founders have a crisis management style different from other founders and other managers. As such, this paper also contributes to the prior academic literature on the female leadership advantage (Eagly & Carli, 2003; Rosette & Tost, 2010) by demonstrating that their founder status may be a key driver of the advantage. Combining these two contributions, this study suggests that the notion of ‘think crisis – think female’ may have some credence (Ryan, Haslam, Hersby, & Bongiorno, 2011), specifically in the case of founders. With all of the above in mind, this study motivates further research into the unique managerial styles that female founders have in times of crises (Christianson, Farkas, Sutcliffe, & Weick, 2009), and in managing firms more broadly (e.g. Davis, et al., 2010; Faccio, et al., 2016; Ho, et al., 2015; Matsa & Miller, 2013), suggesting that this is an important and fruitful line of research with further theoretical development needed.

This study is not without its limitations. While it strives to examine aspects of how business leaders respond to crises, owing to data limitations, it could not examine the process through which the leaders go. Rather, this study focuses on how leaders assess and take action in response to a crisis. Future research, such as experimental research or multiple wave surveys, might better tackle how leaders go through a crisis response process (Sweeny, 2008). In addition, this study focused only on participants in China which may limit its generalizability. While the advantage in the context of the Covid-19 pandemic is that we were able to access responses from business leaders who were the first in the world to experience the effects of the Covid-19 pandemic, we were unable to compare their responses to other cultures or to business leaders who had more information from how the pandemic progressed, as did those from Europe or North America. This may also be an opportunity for future research and a way to better

understand the role that information, learning, and comparison with others has in leaders' crisis responses (Sweeny, 2008). Nevertheless, we believe that this study offers an important contribution to research on business leaders' crisis responses, and specifically to much needed research on the responses of business leaders to the Covid-19 pandemic.

In short, examining the characteristics of a business' leader can offer important insights into how a business ultimately responds to a crisis. As we demonstrate, two important characteristics of a leader are the founder status and gender. As such, we contribute to a further understanding of crisis responses and hope that this will spur future research in this area.

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Table 1. Means, Standard Deviations, and Correlations of Variables

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Composite business challenges	1.69	1.08	1														
2. Composite business opportunities	2.29	1.5	0.24	1													
3. Composite externally focused response	1.97	1.16	0.15	0.44	1												
4. Composite internally focused response	2.26	1.13	0.24	0.52	0.25	1											
5. Founder	0.5	0.5	-0.1	-0.11	0.11	-0.14	1										
6. Female	0.32	0.47	0.01	0.08	-0.01	0.12	-0.11	1									
7. Non-CEO executive	0.32	0.47	0.09	-0.03	-0.17	0.07	-0.68	0.14	1								
8. Age	2.73	0.77	-0.06	0.03	-0.05	0.06	0.1	-0.24	-0.16	1							
9. Education	1.56	0.7	-0.03	0.15	0.08	0.18	-0.01	-0.1	-0.04	0.31	1						
10. Firm tenure	2.97	1.12	-0.06	0.13	0.07	0.12	0.05	-0.07	-0.07	0.29	0.14	1					
11. Generalist	0.54	0.5	-0.02	0.05	0.03	0.02	0.19	-0.13	-0.31	0.17	0.09	0.16	1				
12. State owned firm	0.06	0.24	0.02	0.06	0.02	0.07	-0.25	-0.04	0.18	0.15	0.12	0.13	-0.07	1			
13. Firm age	3.26	1.05	0.01	0.23	0.09	0.17	-0.23	-0.02	0.14	0.26	0.24	0.6	0.06	0.15	1		
14. Firm size	2.99	1.58	-0.02	0.28	0.08	0.26	-0.38	-0.05	0.3	0.16	0.32	0.36	0	0.25	0.62	1	
15. Impact intensity on revenue	1.4	0.64	0.13	-0.02	-0.03	0.03	0.02	-0.01	-0.02	-0.04	-0.13	-0.12	-0.09	-0.1	-0.1	-0.08	1

N=331

Correlations > |0.11| have a p-value of 0.05 or less

Table 2. OLS estimates of various responses to the Covid-19 pandemic

	<u>Model 1</u> Composite business challenges	<u>Model 2</u> Composite business challenges	<u>Model 3</u> Composite business opportunities	<u>Model 4</u> Composite business opportunities	<u>Model 5</u> Composite externally focused response	<u>Model 6</u> Composite externally focused response	<u>Model 7</u> Composite internally focused response	<u>Model 8</u> Composite internally focused response
Non-CEO executive	0.146 (0.201)	0.201 (0.198)	-0.429* (0.172)	-0.394* (0.173)	-0.433* (0.185)	-0.403* (0.188)	-0.127 (0.184)	-0.082 (0.182)
Age	-0.054 (0.094)	-0.061 (0.093)	-0.050 (0.100)	-0.054 (0.100)	-0.185+ (0.095)	-0.188+ (0.096)	0.016 (0.096)	0.011 (0.097)
Education	0.052 (0.101)	0.029 (0.102)	0.094 (0.112)	0.080 (0.112)	0.155 (0.102)	0.143 (0.102)	0.165 (0.108)	0.147 (0.105)
Firm tenure	-0.058 (0.066)	-0.060 (0.062)	0.003 (0.078)	0.001 (0.076)	-0.045 (0.072)	-0.047 (0.070)	0.078 (0.080)	0.076 (0.076)
Generalist	0.063 (0.125)	0.083 (0.123)	0.063 (0.132)	0.075 (0.132)	0.001 (0.136)	0.012 (0.136)	0.056 (0.125)	0.072 (0.125)
State owned firm	0.091 (0.237)	0.060 (0.235)	0.010 (0.266)	-0.009 (0.272)	0.266 (0.254)	0.249 (0.257)	0.030 (0.278)	0.005 (0.283)
Firm age	0.070 (0.087)	0.077 (0.085)	0.096 (0.098)	0.100 (0.096)	0.085 (0.091)	0.088 (0.090)	-0.040 (0.098)	-0.035 (0.096)
Firm size	-0.052 (0.050)	-0.064 (0.051)	0.195*** (0.055)	0.187*** (0.055)	0.102+ (0.052)	0.095+ (0.053)	0.165** (0.051)	0.155** (0.050)
Impact intensity on revenue	0.255** (0.096)	0.232* (0.095)	-0.003 (0.106)	-0.017 (0.106)	0.018 (0.108)	0.006 (0.106)	0.083 (0.098)	0.064 (0.096)
Female	-0.000 (0.138)	-0.442* (0.172)	0.232+ (0.139)	-0.042 (0.172)	0.033 (0.135)	-0.205 (0.191)	0.321* (0.139)	-0.033 (0.184)
Founder	-0.130 (0.187)	-0.405* (0.200)	-0.296+ (0.171)	-0.466* (0.194)	0.144 (0.179)	-0.004 (0.198)	-0.224 (0.173)	-0.443* (0.185)
Founder x Female		0.941*** (0.259)		0.583* (0.269)		0.507+ (0.260)		0.753** (0.259)
Constant	1.475*** (0.412)	1.735*** (0.407)	1.444*** (0.405)	1.605*** (0.413)	1.975*** (0.440)	2.115*** (0.440)	1.447*** (0.415)	1.655*** (0.412)
Industry dummies	Included	Included	Included	Included	Included	Included	Included	Included
Observations	331	331	331	331	331	331	331	331
R-squared	0.063	0.102	0.160	0.172	0.132	0.142	0.136	0.158

Robust standard errors in parentheses
 *** p<0.001, ** p<0.01, * p<0.05, + p<0.1