Board attributes and corporate philanthropy behavior during COVID-19: A case from China

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Abstract
This study examines the relationship between board attributes and corporate philanthropic behavior for combating the COVID-19 epidemic and stock price fluctuations. The results show that the philanthropic behavior has a positive effect on the stock prices; that companies with female leaders are more likely to engage in philanthropic behavior; and that the proportion of female directors is positively correlated with philanthropic behavior. Additionally, the results show that board size is negatively correlated with philanthropic behavior.

KEYWORDS
COVID-19, female director, board structure, philanthropy, gender diversity, corporate governance, firm performance

JEL CLASSIFICATION
G3, I3

INTRODUCTION

Corporate philanthropic disaster response (CPDR) is a specific form and important means to through which corporations show their corporate citizenship. Corporations played an important role in the development of corporate philanthropy in China such as in 2008 Sichuan earthquake, Severe acute respiratory syndrome (SARS) in 2003 and recently Coronavirus disease (COVID-19) in 2019. Scholars pay great attention to the Corporate philanthropy and firm value (Cuypers et al., 2016; Patten, 2008). The results of their research show positive relationship between corporate philanthropy and firm performance. Although the corporate responsiveness in the times of need is not new but recent decent corporation contributions to disaster make the philanthropic disaster response as part of business.

Executives play a crucial role in the decision-making process of corporate philanthropy. This study focuses on the board characteristics such as female CEO, board size and board overall diversity which can influence a corporation’s decision to engage in philanthropy. According to the International Business Survey 2016, average proportion of female executives in China of 30% is higher than the international average of 25% internationally. Women are under-represented in decision-making positions worldwide. Undoubtedly, gender equality and gender diversity are considered beneficial for organizations, institutions, and overall economy. This article attempts to shed light on the importance of the women at decision making positions that may produce not only more gender equality and diversity but also substantial effects on society and organizations performance during Corona virus COVID-19. The study aims to investigate how board attributes, board size, board diversity and females’ leaders influence the corporate philanthropy decisions and how corporate philanthropy influence the company’s stock prices.

Coronavirus disease 2019 (COVID-19) is defined as illness caused by a novel coronavirus now called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2; formerly called 2019-nCoV). It started in Wuhan City Hubei Province, China in late December 2019 and initially reported to World Health Organization (WHO) on 31st December 2019. Within days it spread around the world and on January 30th 2020, WHO declared COVID-19
outbreak a global health emergency and global pandemic on March 11, 2020.

2 | THEORY AND HYPOTHESIS

Why do corporations engage in behavior that benefits other at the cost of owners is puzzling because it creates the agency conflict between owners and managers. A strand of literature argues that at specific, clearly identifiable social behaviors like corporate philanthropic disaster response are the strategic investments that benefit both society and firms (Godfrey, 2004). Porter & Kramer (2002) argue that strategic philanthropic is good means to increase the synergies between corporate philanthropic efforts and future profits. Such synergies are beneficial for company strategic position and recipient (Sen et al., 2006; Hess et al., 2002; Porter & Kramer, 2002). We should not uncritically praise corporations for their giving, but neither should we regard with a cynical eye all corporate reputations for goodness or all corporation donations (Koehn and Ueng 2010). Corporate charitable donations can share local government’s pressure, help to establish and strengthen government-business relations, provide company loans, and financing convenience, and have advertising effects (Zhang et al., 2010) for communicating that the company’s operation is in a strong state (Chang et al., 2018). In the same line corporate charitable donations are optimistic signals for the future, with significant signal effects (Lys et al., 2015). Godfrey (2004) tag philanthropy as “moral capital” or “relational wealth” that translate future higher expectations. In the light of above literature, there may be business-strategic reasons for firms to engage in CPDR, and that stock markets may respond positively to that donation behavior.

H1: Corporate philanthropic behavior will be associated with positive abnormal stock returns.

Gender gap in the economic opportunities is still open for the world although 59% has been closed as per World Economic Forum in 2016. As per current pace it needs another 170 years to close Schwab et al. (2015). In developed countries women are more educated then men and plays critical role for the economic development. When moving from labor market to women’s representation in decision-making positions this gap becomes bigger. Gilligan argued that females are more likely to concerning for others during decision making due to their natural maternal characteristics. Willer et al. (2015) document that males are less willing to donate to philanthropy. According to Adams (2017) Females are active to take proposal acceptance to meet subsequent giving commitments. Moreover, females donate more and behave more risk averse manner than men. Andreoni et al. (2003) and Emrich and Pierdzioch (2015) document that females are more likely to engage in Philintopy behavior than males. Marquis and Lee (2013), Williams (2003) concluded that females’ directors on the board is the most important predictor of the level of corporate philanthropy. Williams (2003) utilized the data of Fortune 500 companies from 1991 to 1994 and concluded that higher gender diversity is positively related to the corporate philanthropic behavior. X. Xu et al. (2015) document that firms with female CEO contribute more in the corporate philanthropic as compared to men CEO’s. Empirically found that in the case of female CEO, the promotion of corporate philanthropic behavior is high. In the light of above debate this study proposes that

H2: A Female CEO positively influences corporate philanthropic behavior

H3: The presence of female executives in the board room positively influences the scale of corporate philanthropy

The board of directors plays key role in control mechanism in overseeing proper management of the conduct of business by their agents (Said et al., 2009). The debate of board size and firm’s corporate social responsibly is inconclusive. Argue that having more directors on the board resulted in the reduction of discretionary power of managers. Meanwhile having more directors on board resulted in lack of communication and coordination, slow decision making and risk of excessive managers control (Said et al., 2009; Rao et al., 2012). Moreover, larger board will affect quality of financial disclosure because of ineffective and inefficient roles (Said et al., 2009). In the same line Siregar and Bachtiar (2010) document that board size has positive relationship with corporate social responsibility but very large board size has inverse relationship. Thus the study asserts that board size have important role in the philanthropic behavior of firms as larger board cause slow decision making and coordination, therefore

H4: Board Size have negative effect on the philanthropic behavior

3 | DATA AND METHODOLOGY

We collected the donations data online from the companies websites and news agencies websites. Information on stock price fluctuations for corresponding companies was obtained through east money (http://data.eastmoney.com/gzfx/). Data on the structure of companies’ board of directors was derived from the Tianyancha website (https://www.tianyancha.com/).

This paper has adopted a multi-criteria decision-making method to analyze companies’ stock price fluctuations.

The research methods for multi-criteria decision-making issues have numerous variations, but most of them are aimed at static issues. For dynamic data, such
as stocks, traditional evaluation methods mainly adopt regression analysis, fuzzy set multi-criteria, and other similar methods, but they still measure in a static way during their analysis.

In the mathematical order theory, the Hasse diagram is a type of mathematical diagram used to represent the finite partially ordered set, a simplified graphical form. Specifically, for the partially ordered set of \((S, \leq)\), each element in \(S\) represents a vertex on the surface. Draw a line or an arc from \(x\) to \(y\), as long as \(y\) covers \(x\) (i.e., as long as \(x < y\) and no \(z\) makes \(x < z < y\)). These arcs can cross each other, but cannot touch any vertices that are not their endpoints. This graph, with labeled vertices, uniquely determines the partial order of this set.

The full order of stock fluctuations can be easily determined, if only 1 day is examined. However, if the comprehensive situation during a period of time is examined, the result is often in a partial order and unlikely to have an absolute full order. Therefore, a Hasse diagram is used to show stronger results, which will also be in a hierarchical structure and more suitable for observation.

In multi-criteria decision-making, if indicators’ weightings are required for consideration, there are multiple methods, such as AHP or expert scoring. However, they are not needed here as this study was conducted from a single perspective by examining stock price fluctuations. As most indicators for evaluating stocks extract static data, they cannot fully reflect the disturbed situation of stocks. To observe fluctuations over a period of many days, we used date as the weighting vector due to the evolving nature of time. The closer the date is to today, the greater the weighting. Using this reasoning, the stock price fluctuation weighting on March 30 is greater than that of March 29. The stock price change rate from January 15, 2020 to March 30, 2020 is taken as the evaluation indicator. We can see that the weighting of the latest date, on March 30, is the largest, followed by the weighting of the prior date, where January 15 has the smallest weighting.

There are two evaluation methods, one being the absolute indicator evaluation, and the other is a relative indicator evaluation. The absolute indicator keeps the mathematical symbols of the change rate for each stock price and keeps the plus-minus sign when adding up the change rate. The relative indicator refers to the absolute value of all change rates and sums them. The former can indicate the stock price increase order, and the latter shows the stock price fluctuation order. Here, we took the absolute indicator for evaluation, namely keeping the plus-minus sign.

When testing the hypotheses, based on the connotation of the indicators, the weighting ranks of the required indicators were redeveloped.

4 | EMPIRICAL ANALYSIS

From January 15, 2020 to March 30, 2020 we observed the share price fluctuations of some donor and non-donor companies during the epidemic period, mainly in Shanghai and Shenzhen stock exchanges. To ensure the reliability of the data, only price fluctuations were considered. The date fluctuations were in percentages. With dimensions being the same and not considering the normalization issue, the calculation was simple and intuitive. The chosen time frame was selected because many companies announced donations in late January. Analysis of stock price fluctuations, since January 15, can better reflect the actual situation before and after the donations were made. Due to possible delays of stock price fluctuations and delivery of donations, the observation continued until March 30. The testing program was written in Python.

We adopted a hierarchical comparison method to prove the hypotheses, due to the consideration of human cognitive practices. However, parameters where subjective settings or adjustments are given are too subjective and prone to result deviations. Therefore, we approached this with objective phenomena. For example, we may conclude that quantum is made of particles, but real-life phenomenon tells us that quantum may be waves. Thus, to examine stock volatility, we can also consider relevant phenomena, rather than only considering the formula structure. Hence, we compared companies’ stock price fluctuations based on level changes in the Hasse diagrams, and then analyzed factors, such as companies’ board attributes as board size, board diversity.

We adopted the Hasse diagram, rather than traditional curve graphs, histograms, and pie charts, because the Hasse diagram has a hierarchical structure and can integrate multi-criteria decision-making. Traditional graphs cannot show the hierarchical relationship between nodes or provide comparisons between the two points concerned. By leveraging the hierarchical relationship of the diagram, we can examine companies’ stock price fluctuations in a way that can better demonstrate the differences. This tests the hypotheses, based on reliable information obtained by combining the Hasse diagram of stock price fluctuations and donation data. This reasoning logic justifies the method chosen in our paper.

4.1 | Hasse diagrams of stock price volatility and philanthropic behavior

We used time as the weighting rank, and the more recent the date, the greater the weighting. We performed multi-criteria ordering and drew three Hasse diagrams. The first
The Hasse diagram examines stock price fluctuation rankings in January, the second figure examines fluctuation rankings in February-March, and the third examines fluctuation rankings from January 15 to March 30 and fourth figure showed the amount of COVID-19 donations.

Above diagrams clearly showed the relationship of COVID-19 donations and stock prices. By comparing the Hasse Figure 1, 2, 3, and 4 it can be concluded that the high-level nodes in the figures are companies with large increases, and the lower-level nodes are companies with small increases. Simply, we use numbers to represent companies, such as S35 and S52, which are companies that had not donated prior to our calculation period. These companies stock prices showed worst fluctuations such as S35 was at top in Figure 1 before COVID-19 and went to bottom node in Figure 2. This implies that companies without donations either (in cash or in kind) had adverse effect and negative reaction. On the other hand, companies such as S42, S47 jumped from lower nodes to upper nodes (evident from Figure 1 and Figure 2) as these companies do corporate Philanthropy during covid-19. This Hasse diagram relationship support our first hypothesis that companies that do the Philanthropy during COVID-19 had positive stock returns in the Chinese market.

4.2 Hasse diagrams of board attributes and philanthropic behavior

To study the relationship between different board attributes and donation behaviors, we have approached
the issue from different focuses, as number of board members, females representation in the board and female leaders may all have an impact on donation behaviors.

As shown in Figure 5, there are generally female leaders in high-level nodes. Hence, the more female leaders, the larger the amount of corporate donations, such as in s30, s33, and s15 as evident in Figure 4 same as existing studies such as. The female leader’s position also determines the efficiency of corporate donation behavior. For example, in s32 and s35, the company either did not make any donation or postponed the donation, which may be because the company’s female leader has a relatively low position. By comparison, companies with female leaders in higher level positions make more and faster donations. This positive relationship support our Hypothesis 2 that was A female CEO’s is more likely to donate more as compared to men CEO’s. In summary, it can be concluded that the positions and number of female leaders in the company are positively correlated to donation behavior.

The structure of the board of directors is diverse, and the greater the proportion of females directors, the higher the level of nodes. By looking at the more diverse companies such as S33, S40, and S30 showing the higher diversity in Figure 6 made the higher level of donations during COVID-19 shown in Figure 4. The findings confirm Gilligan findings that females are more concerned with others due to their natural maternal characteristics. This relationship supports our third hypothesis that the presence of female executives in the board room positively influences the scale of corporate philanthropy. Compared with the size of the board, companies with a greater proportion of female leaders are more likely to make donations.

As indicated from Figure 7, the more members in a board, the higher level of node hierarchy such as s29, s43, s32, s39, and s48. However, the corresponding donation amount was not large or even zero shown in Figure 4. This showed that companies with larger board size either donate very less or not engaged in the Philanthropy during COVID-19. So, the results revealed inverse relationship between board size and Philanthropy behavior. Therefore, we accept our hypothesis 4, there is negative relationship between board size and Philanthropy behavior This suggests that corporate governance structure can affect the donation strategy, and they are negatively correlated. Therefore, the more members in a board, the more likely there will be opinion inconsistencies, where it is more difficult to reach a consensus on donation-related decisions. Thus, they made few or no donations.

5 | DISCUSSION

Looking at the comprehensive picture of Figures 1–7 some nodes have been very stable and stay in the middle position, such as s9 and s46, with reasonable sizes, structures, corporate governances, and numbers of female leaders of their board of directors. Therefore, when confronting challenging obstacles, they will not be influenced too much, as
suggested by the saying, “Regardless of wind from the east, west, north, or south, I will not move.” Thus, a reasonable arrangement of a company’s board structure and leadership structure can be a great benefit to the company.

Some companies have maintained a steady price fluctuation, as they are in the business of selling living necessities. No matter if they make donations or not, they maintain a stable stock fluctuation, such as s29. Some companies, such as s11, despite noticeable donations, did not see too much change in their stock price, due to possible influences from supply and demand. Other companies, such as s52, did not see great stock price increases due to no donations.

By contrast, we found that significant company stock increases, such as s42, s44, and s47, may not only be due to a small board size, but due to higher donations in case and in goods. They donated medical necessities to hospitals and epidemic prevention departments. They even sent medical personnel to support Hubei. They were recognized by society because they meet the current needs.

In summary, to fight the epidemic and help society overcome similar disasters, companies can proactively make donations and gain social recognition. It is best to donate goods necessary for disaster relief. Timely help can have similar effects to sending presents of firewood during cold weather! This shows that when companies make donations, what they donate is of strategic significance, which coincides with the ancient saying of “the wise man moves with the time.”

### 6 CONCLUSIONS

Since the outbreak of COVID-19, the global economy has been on a downward spiral, and the global stock market has experienced great shocks. Many companies have donated money and material resources. These donations have shown positive responses on the stock market. Through a time-series analysis and a partially ordered set, we illustrated companies’ stock price fluctuations using Hasse diagrams. We used the hierarchical relationship between nodes to clearly demonstrate different companies’ stock price fluctuations. Chinese stock markets showed positive reaction to the firms donations, Moreover the study concludes that the Female CEO’s and females participation in the board room are more likely to engage in philanthropic behavior while companies with the larger board size were found less active in the philanthropic behavior during COVID-19 in the Chinese context.

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**How to cite this article:** Zhu, X., Ahmad, M. I., Ueng, J., & Ramaswamy, V. (2021). Board attributes and corporate philanthropy behavior during COVID-19. A case from China. Journal of Corporate Accounting & Finance, 32, 61–67. https://doi.org/10.1002/jcaf.22499