COMPARATIVE ANALYSIS OF CSR ACTIVITIES OF FORBES GLOBAL FIRMS DURING COVID-19 AND PRE COVID-19 USING SOCIAL MEDIA ANALYTICS

Shivani Thakur

Assistant Professor, Department of Commerce, Janki Devi Memorial College, University of Delhi

Manoj Kumar

Assistant Professor, Department of Economics, Satyawati College (Evening), University of Delhi

Corresponding Author: Shivani Thakur

Corresponding Author Email ID: sheevani.thakur@gmail.com

Abstract: This research looked into how the Covid-19 pandemic might affect the company's CSR efforts. According to the analysis, the COVID-19 pandemic provides a great chance for corporations to adopt genuine and meaningful CSR practises. In this study, top 100 Forbes global Firms' Twitter data was extracted from their Twitter profiles, and topic modelling was performed to identify CSR activities carried out by the firm during the COVID 19 pandemic. Using social media data, this study compared the firm's CSR activities during the COVID 19 and pre-COVID 19 periods. The findings revealed that this pandemic presents great opportunities for organizations to actively participate in various CSR programs during the crisis, possibly initiating a new era of CSR advancement. Fortunately, the study found that many companies have not only overlooked socially responsible business practises during this crisis, but have also actively participated in various socially responsible activities, especially those that can provide prompt help and support in the virus's fight. This paper presents some exploratory thoughts on how the pandemic might affect CSR performance of the Forbes global firms. In terms of CSR, the study discussed about how it affects CSR opportunities and patterns.

Key words: CSR, Twitter, Social media, COVID 19

1. Introduction

At the time of writing this study, the novel coronavirus was still spreading, with no way of knowing when it would stop. Probably one of the most essential ways of dealing with this lockdown and minimise any worsening of mental and physical health is to use the opportunity to reflect on an aspect of our research that we value most, in our case corporate social responsibility (CSR). Other global events that have had a profound effect on the entire planet, Covid-19 fundamentally altered our perspective on the world, our way of thinking,

and how we live our lives. Regardless of the humanitarian calamity of lost lives, family disintegration, scarred towns, a pandemic included lockdown will create a cultural legacy that will on in our and future generations consciousness. Pain is experienced on a personal, emotional, psychological, sociocultural, financial, and global level, and it leaves scars. We discuss some initial ideas in this paper about how this pandemic might affect the fields of CSR. We discuss some initial ideas in this paper about how this pandemic might affect the fields of CSR. In this study, top 100 Fortune Firms' Twitter data was extracted from their Twitter profiles, and topic modelling was performed to identify CSR activities carried out by the firm during the COVID 19 pandemic. Using social media data, this study compared the firm's CSR activities during the during COVID 19 and pre-COVID 19 periods. Corporate social responsibility communication is becoming increasingly important for brands and businesses. Social media platforms such as Twitter with their potential to a stimulate dialogue and content diffusion, may be particularly well adapted to this topic. According to the findings of (Grover & Kar, 2019) social influencer CEOs posted 5.97 times more CSR messages on Twitter than Fortune CEOs, which could have resulted in a higher corporate reputation.

2. Literature Review

2.1.Firm usage of social media for CSR disclosure

For brands and corporations, communication about CSR is becoming highly relevant.Twitter and other social media platforms may be particularly well suited to this topic because of their capacity to promote dialogue and content dissemination.Greater visibility in the media for CEOs will result in greater commitment to CSR. Furthermore, it was discovered that CEO's tenure and previous political experience may have an effect on this relationship (Godos-Díez et al., 2020). (Okazaki et al., 2019)According to the available literature, Companies with Twitter accounts exceed their competitors in terms of CSR ranking.The results of Garner causality tests showed that having a corporate Twitter presence increases CSR performance; however, CSR outcomes do not inspire companies to have a social media presence on Twitter. Companies with more Twitter experience (number of years) and those with more followers, posts or Twitter profiles have better CSR outcomes (Balasubramanian et al., 2020). To accomplish dialogic and interactive transmission of information with their stakeholders, organisation must employ proactively managed corporate social responsibility communication. CSR-related tweets and comments in the product/economic & ethical category have a greater influence on customer purchasing intent than those in the product/purely economic & ethical category have a greater influence on customer purchasing intent than those in the product/purely economic category, and messages in the economic & ethical category have a greater influence on consumer interaction than those in the purely ethical category (Uzunoğlu et al., 2017).

2.2. Companies usage of social media for developing interaction levels

Literature demonstrates a beneficial association between social media usage and firm performance. However, marketing competencies, particularly branding and innovation, considerably and positively moderate the relationship between social media use and corporate

performance (Tajvidi & Karami, 2017).(Tsai & Men, 2017) in their research identified that CEOs' responsive and emphatic communications cause their followers to see them as friendly role models and caring friends, increasing their trust in the firm and increasing their advocacy for it.They also discovered that CEOs play a critical role as chief engagement officer in cultivating effective interpersonal relationship with today's digitally aware audiences. Media transmission and media seeking attention indices used by CEOs have a considerable favourable impact on corporate performance. The media sentiment and user seeking attention indices have considerable negative effects on company performance; however, media coverage does not have the same effect (Bai et al., 2019). (Wang & Chen, 2020) captured linguistic cues CEOs leave on social media, identified their personality by text mining, and evaluated the effect of CEO personality on operational and financial performance.

(Kelton & Pennington, 2020) found that social media disclosure channel led to shareholders perceiving greater sentiments of connectedness (i.e., social capital) with CEO, leading in more favourable CEO evaluations.(Men & Tsai, 2016) explored how and why the public interacts with corporate CEOs on social media and why this is important. CEO public interaction had a major positive impact on perceived CEO authenticity and approachability, which affected public confidence and satisfaction positively. The consistency of organization – public partnerships was also directly affected by public contact with CEOs on social media. (Yue et al., 2019) measured CEOs public engagement on Twitter by total number of likes, retweets and comments associated with CEOs tweets.

2.3. Research gaps and major contributions

Our review of literature on firms' social media usage reveals the following major contributions and gaps which we attempted to address:

- This study is one of the first to examine and compare the social media activities of Forbes global firms – during COVID19 duration and post COVID19 duration.
- Specifically, current study compares CSR related tweets posted during COVID 19 and Pre-COVID 19 durations. There is no study to compare the tweets posted during COVID 19 and Pre-COVID 19 durations. In this way, current study is the first that examined social media activities of Forbes Global firms during COVID 19 and Pre-COVID 19 durations.

3. Theoretical basis and hypothesis development

Literature demonstrates that consumer involvement with CSR disclosure via social media is much higher among Chinese participants than among American participants due to peer communication and opinion leadership traits (Chu et al., 2020). (Saxton et al., 2019) believed that influencing credibility though carefully designed communicative activities is a core aim of corporate social responsibility (CSR) efforts. With emergence of social media platforms like Twitter and Facebook, which are basically public messaging networks that organizations use to communicate with interested audiences, this trend has intensified. Ethical CSR had the greatest effect on corporate reputation, followed by economic and philanthropic CSR, according to the findings of (Kim et al., 2017).

(Vincent Dutot et al., 2016) reveals that CSR communication tactics and e-reputation are related. A corporation can enhance its e-reputation more effectively with a corporate ability strategy, than with a standard CSR communication strategy(Etter, 2013) did comparison (t-test) between CSR tweets and common tweets and between highly specialised CSR Twitter accounts and common accounts shows that the low levels of engagement are the result of a reactive interaction strategy and a lack of expertise. In the business world, corporate social responsibility (CSR) has become a popular topic. The internet has evolved into one of the most important resources for CSR knowledge disclosure, enabling businesses to publish more information at a lower cost and quicker than ever before (Soares et al., 2008). CSR practices have a positive effect on corporate credibility, according to the results, which indicate that CSR allows businesses to boost their reputation with a wide range of stakeholders including employees (Esen, 2013).

Therefore, hypothesis H1(a), H1(b), H1(c) and H1(d) tries to compares CSR activities of Forbes global firms during COVID19 and pre COVID19 duration.

H1(a): There is no statistically significant difference in disclosing post related to economic dimension of CSR on Twitter during COVID19 and pre-COVID19 period.

H1(b): There is no statistically significant difference in disclosing post related to discretionary dimension of CSR on Twitter during COVID19 and pre-COVID19 period

H1(c): There is no statistically significant difference in disclosing post related to ethical dimension of CSR on Twitter during COVID19 and pre-COVID19 period.

H1(d): There is no statistically significant difference in disclosing post related to legal dimension of CSR on Twitter during COVID19 and pre-COVID19 period.

Literature indicates because of influential role in engendering the public positive attitudes, public engagement has become a focal construct of public relations. The amount of time and effort that members of the public are willing to spend voluntarily in engaging with entity or person has served as a measure of social media engagement. Researchers use a variety of behavioural metrics to determine public participation levels, ranging from passive content consumption (e.g. reading, posts) to active contribution (e.g., enjoying, commenting and sharing posts.) (Capriotti & Ruesja, 2018; Godos-Díezet al., 2020; Yue et al., 2020). The public has come to demand greater access to business leaders' perspectives and vision in more open dialogues. To put it another way, CEOs are critical to a company's social media communications (Godos-Díez et al., 2020; Grover, Kar, & Ilavarasan, 2019; Ingenhoff & Sommer, 2010; Kelton & Pennington, 2020;Malhotra Kubowicz & Malhotra, 2016;Men, 2012;Men & Tsai, 2016; Tsai & Men, 2017;Yue et al.,2019). Therefore, we developed the following hypothesis to compare the social media interaction levels of two duration i.e., Pre COVID-19 and during COVID-19:

H2 (a) There is no statistically significant difference in mean liking of tweets posted by Forbes global firms during COVID 19 and Pre-COVID 19 period.

H2 (b) There is no statistically significant difference in mean sharing of tweets posted by Forbes global firms during COVID 19 and Pre-COVID 19 durations.

H2 (c) There is no statistically significant difference in follower-following ratio of Forbes global firms tweets posted during COVID 19 and Pre-COVID 19 durations.

4. Research Approach

4.1. Data Collection

The general objective of the study is to compare the during COVID and pre COVID CSR activities of firms. Therefore, Firstly, Twitter accounts of top 100 Forbes Global Firms were identified from

For all those firms Twitter profiles present on Twitter. The Tweets present on their Twitter profiles were extracted using python codes and application programming interface (API) and stored in CSV files. For each profile, the script collected information such as Tweets ID, Profile URL, Twitter ID, Username, Tweet, Date and Time, Tweet Type (whether it was tweet, a reply to or retweet of another user). Number of retweets each tweet received, number of followers, number of following and like count. Even if a firm have published more than 3200 tweets, Twitter API allows only 3200 of the most recent tweets to be extracted (Araujo & Kollat, 2018 ; Grover et al., 2019).

4.2. Data Analysis

A mixed analysis approach is used in this study. To derive the necessary insights, the paper combined selected methods from the computer science discipline of social media analytics with traditional data. analysis approaches from social science methodologies (Grover & Kar, 2020; Kar, 2020).The majority of described procedures are based on the data science techniques outlined in studies of social media analytics, big data analytics and another machine learning-based methods(Kar, 2020; Rathore et al., 2017).

A tweet consists of text, images, hyperlinks, hashtags and other components. Therefore, cleaning is required before relevant information can be extracted from tweets. Tweets with only links or photos and text less than five words were also omitted because they lack significant information about the user experience that can be used for further study. Stop words, irrelevant characters such as HTML tags, punctuation, numbers and emotions were deleted from the extracted data using stemming.

Topic modelling was applied on extracted tweets. Topic modelling differs from rule-based text mining techniques that utilise regular expressions or dictionary – based keyword searching. Latent Dirichlet Allocation (LDA) was applied in this research, as previous research on social media has done (Grover, Kar, & Ilavarasan, 2019; Grover, Kar, Dwivedi, et al., 2019; Grover & Kar, 2020).

Further, based on the topic we classified the tweets related to CSR from the topic models based on the topics that emerged. After the topic models were used to identify tweets into their relevant categories such as CSR. We went back to the methodology of content analysis

in consumer research (Kassarjian, 1977). Coders would look at a background of text and map scores to specific themes from literature or data in the content analysis approach. Content analysis methods have been recently been adopted in many studies of information management literature (Kar, 2020; Kassarjian, 1977).

Further, the reliability of categories and inter-judge reliability were ensured by assembling three coders. All of the topic models were analysed, and were given scores on 5-point Likert scale. Each of the topics was given scores based on themes of topic whether it was related to CSR (economic, ethical, discretionary and legal). Due to the fact that the variables computed were neither totally normal nor homogenous, the Mann-Whitney test was used to examine the statistical significance of the CSR related tweets posted during two difference time frames i.e., before COVID-19 and during COVID-19. Therefore, the condition for parametric test was not satisfied and we used non-parametric test (Mann-Whitney test) to compare statistical significance difference between two groups of different duration i.e., during COVID-19 and Pre-COVID-19 of CSR related tweets posted by firm.

5. Findings

Mean scores of topics related with CSR related tweets posted by Forbes global firms were computed.

H1(a): There is no statistically significant difference in disclosing post related to economic dimension of CSR on Twitter during COVID19 and pre-COVID19 period.

A Mann-Whitney test indicated that Forbes firms disclose more post related to economic dimension of CSR during-COVID19 period. (U = 3001.500, p = .0001<0.05). Therefore, H1(a) was rejected.

H1(b): There is no statistically significant difference in disclosing post related to discretionary dimension of CSR on Twitter during COVID-19 and pre-COVID19 period. Forbes global firms disclose more post related to discretionary dimension of CSR (U = 3002.500, p = 0.000 < 0.05) during COVID-19 period. Therefore, H1(b) was rejected. Thus, there was a statistically significant difference in disclosing post related to discretionary dimension of CSR on Twitter during COVID-19 and pre-COVID19 period.

H1(c): There is no statistically significant difference in disclosing post related to ethical dimension of CSR on Twitter during COVID19 and pre-COVID19 period.

The result was insignificant for ethical dimension of CSR (U=3982, p = 0.360 > 0.05). Therefore, H1(c) was not rejected. Thus, there is no statistically significant difference in disclosing post related to ethical dimension of CSR on Twitter during COVID19 and pre-COVID19 period.

H1(d): There is no statistically significant difference in disclosing post related to legal dimension of CSR on Twitter during COVID19 and pre-COVID19 period.

The result was insignificant for legal dimension of CSR (U=4254, p = 0.763 > 0.05). Therefore, H1(d) was not rejected. Thus, we concluded that there is no statistically significant difference in disclosing post related to ethical dimension of CSR on Twitter during COVID19 and pre-COVID19 period.
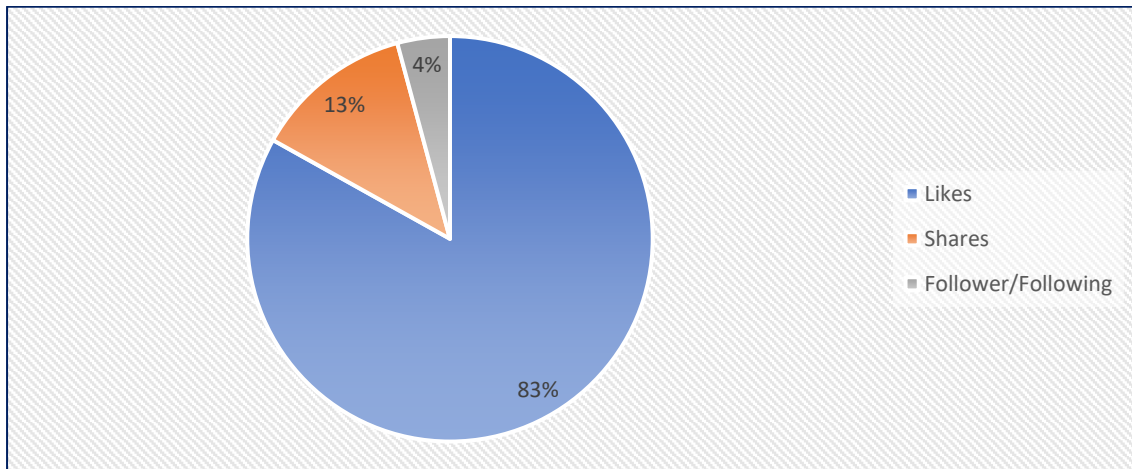

Figure 1 Word Cloud of tweets: pre COVID19 duration

Figure 2 Word Cloud of tweets: during COVID19 duration

The result of social media interaction levels was measured with the help of average number of likes and shares received on Twitter account as well as with the help follower-following ratios received on Twitter accounts of firms during COVID19 and Pre-COVID19 duration.

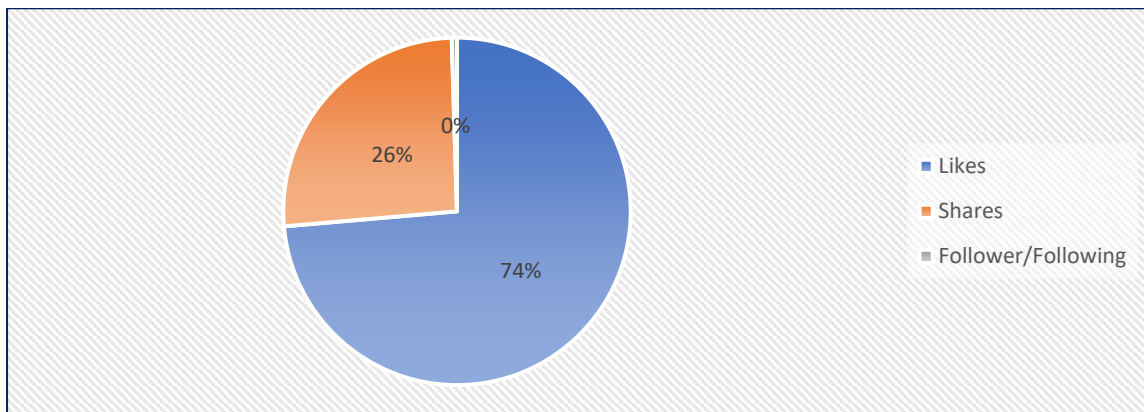**Figure 3:** Social media interaction levels: pre COVID19

Figure 4: Social media interaction levels: During COVID19

H2 (a) There is no statistically significant difference in mean liking of tweets posted by Forbes firm during COVID 19 and Pre-COVID 19 period.

As (U = 3600.00, p = 0.067 > 0.05) Therefore, H4(a) was not rejected. Thus, there is no statistically significant difference in mean liking of tweets posted during COVID 19 and Pre-COVID 19 period.

H2 (b) There is no statistically significant difference in mean sharing of tweets posted during COVID 19 and Pre-COVID 19 durations.

Average sharing of tweets was greater during COVID19 duration (U = 3389.00, p = 0.012 < 0.05) than pre COVID19 duration. Therefore, H4(b) was rejected. Thus, there was a statistically significant difference in mean sharing of tweets posted during COVID 19 and Pre-COVID 19 durations.

H2 (c) There is no statistically significant difference in follower-following ratio of Fortune firm tweets posted during COVID 19 and Pre-COVID 19 durations.

Follower-Following ratios was greater during COVID19 (U = 3302.00, p = 0.006 < 0.05) pre-COVID19 duration. Therefore, H4(c) was rejected. Thus, there was a statistically significant difference in follower-following ratio of Forbes firm tweets posted during COVID 19 and Pre-COVID 19 durations.

6. Discussion and Conclusion

In this study we found that forbes firms posted more about economic dimensions of CSR as well as discretionary dimension of CSR during COVID19 period. Results were insignificant for ethical and legal dimensions of CSR. Literature indicates that by posting CSR related tweets on social media firms can build their corporate reputation (Grover, Kar, & Ilavarasan, 2019). Literature suggests CSR related tweets posted on social media are associated with higher levels of endorsements and diffusions than non-CSR tweets (Araujo & Kollat, 2018). (Vicent Dutot et al., 2009) found that strategically crafted messages about CSR in social media can influence on e-reputation of the firm. (Okazaki et al., 2019) explored online CSR dialogs from brands provides opportunities to consumers to co create value with the relevant brands. From this we conclude that by tweeting about CSR forbes firms are trying to create an opportunity to initiate and influence online conversations. By disclosing their CSR efforts Forbes firms are trying to shape their public image and that of their firms.

The sample data set indicates Forbes firms attracts 10,36,609.4 likes on an average on their Twitter accounts. We also found that Forbes firms gathers 1,58,654.15 shares on an average on their Twitter accounts. We concluded that overall social media interaction levels of Forbes firms are much better during COVID19 period than pre-COVID19 period.

6.1 Managerial implications for practise and policy

This study compares the social media activity of Forbes firms during COVID19 and post COVID19 duration related to CSR disclosure/tweets and their overall social media interaction levels on Twitter. Literature indicates there is the need for firms to use social media platforms for developing increased customer trust, to increased visibility as compared to other firms, in order to builds reputation through validation, in order to develop increased networking to include others beyond geographical region and professional circle (Mudambi et al., 2019). The use of social media to disclose about CSR will help users become more aware of CSR goals of the firm. Firms have the ability to initiate collective participation as well as connective efforts for the shared benefits for corporate social responsibility and ethical standards. This study carries managerial implications for executives, public relations professionals and social media managers.

7. Limitation and future work

The current research is limited by self – selection and computing analytical prejudices that may arise due to choose of words for topic modelling. In further research scholars can use different research methodology for exploring research objective of this study. In conclusion,

numerous social media sites are distinct in their own ways. To obtain a clearer image of the firms' social media networking services, such as Facebook, Linkedin etc., can be used for further investigation.

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