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Editorial

We are happy to present December 2020 issue of Apeejay Business Review (Vol. 19, No. 2) to the illustrious scholarly community of practitioners as well as faculty members and researchers. In this issue we have included papers drawn from Marketing, Finance and HR. We sincerely hope that the readers will find these contributions valuable and thought provoking.

Kiranpreet Kaur has investigated the profitability of stock selection based on current ratio metric of Benjamin Graham in Indian stock market, using the data on stocks listed at Bombay Stock exchange for the period spanning from 2003 to 2017, in her paper “Current Ratio and Stock Market Returns: An Empirical Analysis of Indian Stock Market”. The valuation metric has been intended at selecting the shares having current ratio of 2 or more than 2 and the stocks qualifying the valuation metric have been held for the period of one and two years. The study found that the valuation metric provided higher average returns than the market index across the period of study and the asset pricing model confirmed the lesser volatility of the stocks and existence of abnormal returns in case of two-year holding period.

Martins Olanrewaju Atunde, SaliuIshaq Alabi, Lydia EllahNkakim, Johnson Abiodun Medupin, & Marcus Olayinka Atunde, in their paper “Impact of Strategic Human Resources Management on the Performance of Small and Medium Scale Enterprises in Ilorin, Nigeria”, investigated the association between strategic human resources management and organizational performance of small and medium scale enterprises in Ilorin. The study found that strategic human resource management has a significant relationship with organizational performance of SMEs.

Venkatesh D.N., in the paper “Organizational Empathy & Response India during COVID 2019”, analyzed the response strategies adopted by organization to deal with the challenges faced on account of COVID 19. The study covered key aspects such as Leadership and its impact on various organizational dimensions, Organizational Culture in general and specific dimensions such as Trust, Empathy, Commitment, as constituent components of Organizational Culture. Further it studied facilitative dimensions such as Performance and Learning Orientation along with Adaptive capability and Social sensitivity in the organization. The study concludes that both the core and facilitative dimensions have contributed to some organizations, faring better than the other organizations.

Dr. Subrata Roy, Dr. Ravish Chandra Verma & Mr. Avneesh Kumar, in the paper “COVID-19 Pandemic & Economic Downturn: An Empirical Study”, examined the pandemic effect of COVID-19 on stock market. The entire stock markets around the world were expected to decline sharply due to COVID-19 shock. Keeping this view in mind, the study considered five indices (BSE & NSE – India, SCI – China, LSE – Great Britain & NYSE – USA) to examine the above issue and thus, closing daily values of the indices were considered and checked for normality and stationarity. OLS, logit and probit models have been used for analyzing the data and it has been found that all the selected indices have been sharply affected by COVID-19 shock except Shanghai Composite Index (SCI) in China and the authors raise the question as to why SCI is not affected by COVID-19 shock during this volatile situation.

Readers are invited to share their comments on the published articles. Selected communication (1000-1500 words) may be published in the next issue of ABR. Conceptual and empirical papers as well as integrated literature reviews on any theme having a potential impact on management practices are welcome for the forthcoming issues of the journal.

Editors
Current Ratio and Stock Market Returns: An Empirical Analysis of Indian Stock Market

Dr. Kiranpreet Kaur

Abstract

Benjamin Graham, popularly known as the father of fundamental analysis, proposed to invest in stocks having the current ratio of two or more than two. The present study aims to investigate the performance of stocks qualifying the said valuation metric in the Indian capital market. The study is conducted for the time frame of 15 years spanning from 2003 to 2017. The stocks so screened have been retained for the period of one year and two years. The returns obtained have been analysed with the help of T-test and the capital asset pricing model. The results showed that valuation metric provided higher average returns than the market index across the time frame of the study. The asset pricing model confirmed the lesser volatility of the stocks and presence of extraordinary returns in case of two years retention period. The rule thus can be used by analysts, fund managers and investors for optimising the reward to risk ratio of their portfolios.

Key Words: Current ratio, Benjamin Graham, Indian stock market, T-test, capital asset pricing model.

JEL Code Classification: G11, G12, G32

Introduction

Fundamental analysis can help the investors to maximise their return in the stock market as it includes a detailed study of a company’s financial position. Investors use the information shown in the annual reports of a company in order to assess the financial performance of that company (Anwaar, 2016). Equity investors generally refer to the financial ratios of a company (Ozturk and Karabulut, 2017). Based on fundamental analysis, Benjamin Graham, commonly known as the father of fundamental analysis, held that the volume of the current assets of a firm must be at least two-fold the current liabilities, so as to have considerable amount of working capital (Graham, 1949). In other words, the working capital ratio of a company should be at least two or more than two.

The working capital ratio signifies the financial soundness of the company in short run. Thus, higher the ratio, better it is (Khotimah and Murtaqi, 2015). A plethora of research has been conducted around the globe to study the relationship between liquidity ratios and stock market returns. For example, Alexakis et al. (2010), Venkates et al. (2012), Shamsudin et al. (2013), Dadrasmoghadam and Akbari (2015), Arkan (2016) and Hung et al. (2018) have found significantly optimistic connection between the stock returns and the current ratio. However, studies like, Khotimah and Murtaqi (2015), Kachchhy (2015), Anwaar (2016), Ozturk and Karabulut (2018) and Muhammad and Ali (2018) have not observed relationship between the current ratio and the stock market yield.

India, an emerging economy, has a huge corporate sector. The size of Indian corporate sector has increased like the wind since the beginning of the seventies (Goyal, 1988). It therefore becomes imperative to examine whether keeping an adequate amount of working capital can help companies to maximise their market value or not.

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The paper is divided into five segments. Segment 2 details the review of literature. Segment 3 explains the database and research methodology. Segment 4 outlines the results and the discussion and finally, Segment 5 concludes the paper.

Review of Literature

Studies across the world have examined the relationship between current or liquidity ratio and the share market yields; for example, Alexakis et al. (2010) examined the relationship between the working capital and the stock yields in Athens security market during 1993-2006 period. They observed that the portfolios screened on the basis of liquidity ratios produced higher than average returns. Also, Venkates et al. (2012) investigated the association between the working capital ratio and the security yields of shares relating to Information Technology, Banking and Pharmacy sectors of Indian companies for the period 2001 to 2010. They found that investors can create a stronger value portfolio by using the working capital ratio along with efficiency and profitability ratios.

Shamsudin et al. (2013) examined the association between the working capital ratio and the capital market performance of selected Islamic stocks for the period 2007-2012. They found that the ratio had a significantly positive impact on the stock performance of Islamic banks. Thereafter, Khotimah and Murtaqi (2015) studied the relationship between stock returns and the current ratio in the Indonesian stock market and found that stock returns were negatively related to the current ratio. In addition, Kachchhy (2015) observed the connection between the capital market and the liquidity ratios of firms in power generation and the distribution sector listed at the National Stock Exchange for the period 2013-2014. He found that liquidity ratios were impacting stock returns of the said sector insignificantly.

Dadrasmoghadam and Akbari (2015) investigated the association amid the working capital ratio and the share prices of companies of food, sugar, agricultural machinery and equipment sectors listed on Iran share market for the period 1999-2009. They observed positive relationship between the working capital ratio and the share prices of the agricultural sector. Thereafter, Arkan (2016) examined the relationship between the current ratio and the stock returns of the firms listed on Kuwait stock exchange for the period 2005-2014. Afterwards, Anwaar (2016) examined the effect of the quick ratio on the security yields of the companies listed on the London Stock Exchange. A Quick ratio eliminates inventories from the current assets. He, however, found an insignificant impact of the quick ratio on the stock returns.

Also, Hung et al. (2018) investigated the impact of the current ratio on the share prices of the companies listed at Vietnam stock market. They also found that the current ratio was positively correlated with stock price. Likewise, Ozturk and Karabulut (2018) investigated the relationship between current ratio and share market yield in the Istanbul Stock Exchange and found that the current ratio was insignificantly related to share market yield. Furthermore, Muhammad and Ali (2018) studied the relationship between accounting ratios and stock returns for 115 non-financial companies listed on the Karachi stock exchange for the period 2007-2017. They found that out of various accounting ratios, the current ratio was insignificantly related to stock returns. Also, Khan et al. (2020) studied the effect of the current ratio on the share prices of manufacturing firms of Pakistan. They observed positive relationship between the two in certain sectors.

The above literature suggests that researchers have made an effort to estimate the association amid the current ratio and stock returns. The principle of Graham (1949) recommending to buy the stocks having the current ratio at least greater than two has limited exploration. In this context, the current paper attempts to augment the discourse on
fundamental analysis by investigating the profitability of stocks having current ratio of 2 or greater than 2 in the Indian capital market.

Following are the objectives of the paper:
- To investigate the market (index) adjusted returns of shares securing current ratio of two or more than two.
- To examine the risk involved in investing in shares screened in the study.
- To find out the extraordinary returns, if any, generated by said stocks.

**Database and Research Methodology**

Bombay stock exchange is the first and largest stock exchange of India. The population of the study consists of shares listed at BSE. The research is undertaken for the time frame of 15 years i.e. 2003-2017. Moreover, the financial companies are not incorporated in the study.

The fiscal year of Indian companies starts on 1st April and ends on 31st March every year. Thus, the current ratio of the sample stocks has been calculated on 31st March every year. But, the portfolio of the shares fulfilling the condition has been made at the culmination of 30th June every year, so as to evade the look ahead bias in the study. The statistical data regarding the mentioned variables have been collected from the PROWESS database. The data regarding the share prices has been obtained from the website of BSE (www.bseindia.com). It is of further note that equal weighted portfolio has been constructed. It means that same weight or equal weight has been given to each stock in the portfolio.

In order to calculate the return of the portfolio, capital appreciation and dividends distributed by company, both are included. In order to eliminate the positive bias associated with arithmetic returns, log returns have been computed which normalizes the returns to log returns.

The returns have been computed for 1 year, 2-year retention period using the following formula:

$$R_{it} = \ln \left( \frac{p_{it} + d_{it}}{p_{it-1}} \right)$$

Where,
- $R_{it}$ = Monthly yield for share i in month t.
- $p_{it}$ = Market price of share i at the end of month t.
- $p_{it-1}$ = Market price of share i at the end of month t-1.
- $d_{it}$ = Dividend received of $i^{th}$ share during month t.

Next, the yearly share yields (1 year retention period) are computed as:

$$AR_{it} = \sum_{t=1}^{12} R_{it}$$

Where, $AR_{it}$ = the yearly yield of share i at the termination of every year t (t= 2003, 2004,….., 2017)

For 2-years retention period, the annualized yield is figured out as under:

$$AR_{it} = \left( 1 + \sum_{t=1}^{24} R_{it} \right)^{1/2} - 1$$

In order to calculate, the monthly return of the market index (BSE SENSEX), the equation (1) has been used but in lieu of share prices, SENSEX figures are used. Likewise, the yearly
yield of the market index portfolio in case of 1-year retention period, 2-year retention time period is estimated by means of equation (2), equation (3) respectively. Further, raw returns have been deducted from market returns so as to estimate market adjusted yields.

The stocks meeting the criterion of having considerable current ratio are screened and their performance is estimated with the help of the following statistical techniques:

**One sample t-test:** This test is used to investigate the statistical significance of the market adjusted yield of the sample shares. The following null proposition is investigated:

\[ H_0: \text{The average market adjusted returns of stocks having current ratio of two or more than two } = 0 \]

Alternatively, the rejection of the null hypothesis could imply that the mean index adjusted yield of the shares is significantly lesser or greater than zero.

**Capital asset pricing model (CAPM):** CAPM model is used to assess the riskiness involved in selecting stocks having debt to equity ratio lesser than 1. Beta of CAPM model calculates the volatility of the share’s yield to fluctuation in the index’s yield. It therefore measures the volatility of the portfolio in relation to market portfolio (Fama and French, 2004). The model also generates the value of the intercept, \( \alpha_p \) (also identified as Jensen’s alpha). It is also considered as the measure of the extraordinary returns generated by a portfolio. The following time series equation is used to estimate beta coefficient and alpha for the portfolio.

\[
R_{pt} - R_{ft} = \alpha_p + \beta_p \cdot (R_{mt} - R_{ft}) + e_{pt}
\]

Where,

- \( R_{pt} \) is the yield of portfolio \( p \) at time \( t \),
- \( R_{ft} \) is the risk free interest yield,
- \( \alpha_p \) is an intercept term,
- \( R_{mt} \) is the yield of the SENSEX,
- \( \beta_p \) is the beta value of the portfolio,
- \( e_{pt} \) is the residual term.

91 days treasury bills have been considered as an alternate asset to calculate the risk free rate (Tripathi, 2009).

The resulting hypotheses are thus analyzed:

\[ H_{02}: \beta_p = 0 \]
\[ H_{03}: \alpha_p = 0 \]

**Results and Discussion**

The working capital proportion of the sample companies has been calculated and the shares securing working capital ratio of 2 or more than 2 is screened for 15 years i.e. 2003-2017. Thereafter, the market adjusted returns of such stocks have been computed and the relevance of such yields is estimated by means of one-sample t-test. The table 1 shows the results.

**Table 1 Showing Index (SENSEX) Adjusted Yields of Shares Securing Working Capital Ratio of 2 or Larger than 2**

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of shares</th>
<th>1-year retention period</th>
<th>2-year retention period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Average (Annual)</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>2003</td>
<td>32</td>
<td>-18.5506</td>
<td>42.32259</td>
</tr>
</tbody>
</table>
Table 1 reveals that the number of shares fulfilling the condition of having the current ratio of 2 or greater than 2 ranged from 25 to 115 across the time frame of the study. In case of one year retention period, the average market adjusted returns have been positive in 8 years, that is, 2005, 2006, 2008, 2009, 2010, 2011, 2015 and 2016. The positive market adjusted returns implies that the portfolio has yielded higher returns than the market index (BSE SENSEX). However, T-test shows that among these 8 years, the positive index adjusted yields are statistically significant in 6 years, that is, 2005, 2008, 2009, 2011, 2015 and 2016. But in years; 2003, 2004, 2007, 2012, 2013, 2014, 2017, the said portfolio has generated lesser returns than the market.

It is also noteworthy from table 1 that when the retention period of these shares is extended from one year to two years, the stocks started yielding positive average market adjusted returns in 9 years, that is, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2015 and 2016. Out of these 9 years, statistically significant average market adjusted returns could be observed in 5 years. In a nutshell, across the time frame of the study, the shares yielded the mean index adjusted yield of 2.87% significant at 99% confidence level.
Therefore, an investor can reap suggestively greater returns than SENSEX by buying stocks having adequate working capital. Thereafter, the risk and volatility of these stocks has been assessed through capital asset pricing model. In order to apply this model, monthly time series data of raw returns of stocks in excess of risk-free rate has been taken as dependent variable and time series data of SENSEX returns in excess of treasury bill yield has been taken as independent variable.

Before applying time series regression, it is necessary to check that the time series data should be stationary. The unit root is tested with techniques such as Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) test (Gemechu, 2018). The null hypothesis to test the stationarity of data is as follows:

**H₀₄:** The observed variable has non-stationary data

The rejection of the null hypothesis would imply that the data is stationary. Table 2 presents the results of the tests used to check the stationarity of the data series.

**Table 2** Showing the Results of Augmented Dickey Fuller (ADF) and Phillips Perron (PP) Tests for the Variable; Portfolio Returns and Market Returns

<table>
<thead>
<tr>
<th>Phillips-Perron test statistic</th>
<th>One year retention period</th>
<th>Two years retention period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Excess of portfolio returns over risk free rate</td>
<td>Excess of index returns over risk free rate</td>
</tr>
<tr>
<td>t-stats</td>
<td>p-value</td>
<td>t-stats</td>
</tr>
<tr>
<td>-11.209</td>
<td>0.000***</td>
<td>-12.297</td>
</tr>
</tbody>
</table>

**Test critical values:**

- **1% level**
  - Augmented Dickey-Fuller test statistic: -11.182
  - Phillips-Perron test statistic: -3.466

- **5% level**
  - Augmented Dickey-Fuller test statistic: -2.877
  - Phillips-Perron test statistic: -2.575

- **10% level**
  - Augmented Dickey-Fuller test statistic: -2.575
  - Phillips-Perron test statistic: -2.575

**Notes:**

1. *****, **, * denotes p-values significant at 1, 5 and 10 percent level respectively
2. Standard error of mean has been shown in brackets.
3. Source: Author’s Calculations

Table 2 reports the results of unit root test performed based on Augmented Dickey Fuller (ADF) and Phillips Perron test for all the variables for time series regression. It is important to note that for both the variables, that is, excess of portfolio and index returns over the risk free rate, the t-statistic of Phillips-Perron test as well as Augmented Dickey-Fuller test is significant at 99% confidence level. Thus, the null hypothesis (H₀₄) that observed variable has non-stationary data been rejected. Hence, the series turns out to be stationary. Table 3 reports the results of the asset pricing econometric model.
### Table 3 Showing the Results of Capital Asset Pricing Model

<table>
<thead>
<tr>
<th>Particulars</th>
<th>One year retention period</th>
<th>Two year retention period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Values</td>
<td>Null hypothesis</td>
</tr>
<tr>
<td><strong>R-squared</strong></td>
<td>0.024</td>
<td>0.026</td>
</tr>
<tr>
<td><strong>ANOVA</strong></td>
<td>F-Value</td>
<td>4.448</td>
</tr>
<tr>
<td></td>
<td>P-Value</td>
<td>0.036*** Rejected</td>
</tr>
<tr>
<td><strong>Alpha</strong></td>
<td>Coefficient</td>
<td>1.135 (0.731)</td>
</tr>
<tr>
<td></td>
<td>T-Value</td>
<td>1.554</td>
</tr>
<tr>
<td></td>
<td>P-Value</td>
<td>0.122 Accepted</td>
</tr>
<tr>
<td><strong>Beta</strong></td>
<td>Coefficient</td>
<td>0.195 (0.092)</td>
</tr>
<tr>
<td></td>
<td>T-Value</td>
<td>2.109</td>
</tr>
<tr>
<td></td>
<td>P-Value</td>
<td>.036** Rejected</td>
</tr>
<tr>
<td><strong>DW statistics</strong></td>
<td>1.911</td>
<td>1.953</td>
</tr>
</tbody>
</table>

**Note:**
1. *****, **, * denotes p-values significant at 1, 5 and 10 percent level respectively
2. Robust Standard error of mean has been shown in brackets.

**Source:** Author’s Calculations

It is pertinent from table 3 that the value of analysis of variance (ANOVA) has been significant at 95% confidence level in case of one year retention period. In case of two years retention period, the value of ANOVA has been significant at 99% confidence level. It shows the statistical significance of the model in both the retention periods. Furthermore, the value of Durbin Watson (DW) statistic is 1.888 in case of one year retention period and 1.95 in case of two years retention period. The value of DW statistic closer to 2 suggests that there is no autocorrelation in the data.

It is of further note that Breusch Pagan test has been used to check the existence of heteroskedasticity in the dataset. In order to make error term free from disturbances, robust standard errors have been reported.

The riskiness of the stocks having debt to equity ratio lesser than 1, is measured from the beta of the CAPM model. The beta value shows the sensitivity of the portfolio under study as compared to the index portfolio. In other words, it shows exactly how much the market value of a stock or portfolio moves ahead and down in relation to the market index. The value of beta coefficient in case of one year retention period is 0.195. It suggests that if the value of market index (SENSEX) moves up or down by 1%, then the value of portfolio under study would go up and down by 0.19%. It shows that the given portfolio is fairly less volatile as compared to the index. In case of two year-retention period also, the value of beta coefficient is reasonably smaller, that is, 0.206. It also means that the value of the portfolio would go up and down by 0.2% with 1% change in the value of market index. Also, the significant beta value in both the retention periods entails rejection of null hypothesis (H0β) of the zero beta value. As a result, beta turns out to be a significant variable describing the deviation in portfolio’s returns.

In addition, table 3 shows the value of the constant, also called as Jensen’s alpha. Alpha or intercept of this model is contemplated to be the difference between the actual yield of the stocks and the expected yield projected by time series average. Thus, it is the measure of the extraordinary return generated by portfolio. In case of one year retention period, the value of alpha is positive, that is 1.135 showing the presence of extraordinary returns generated by the portfolio across the period of study. However, this value is statistically
insignificant leading to acceptance of the null hypothesis of zero value of the alpha or intercept. But, when the retention period is increased from one year to two years, model yields positive (1.106) as well as statistically significant (significant at 5% level of significance) alpha. Consequently, the null hypothesis of zero alpha value is rejected. Hence, the model confirms the presence of extraordinary returns yielded by stocks having the current ratio of two or greater than two.

Furthermore, the R-square of the above model shows the proportion of variance explicated by the explanatory variables of the regression model. The value of R-square has been quite lesser i.e., 2.4% in the context of one year retention period and 2.6% in case of two years retention period. It is due to the fact that the model has only one independent variable (market index). The R-square of the model can be increased by adding more independent variables in the model.

**Conclusion and Implications**

Investment in the securities market is an important aspect of Indian economy. India being an emerging economy has been an attractive investment destination for domestic as well as foreign investors. Investors invest in the security market with a view to maximise their returns and minimise the risk involved. The quality of an investment avenue to maximise the return and minimise the risk can be accessed through fundamental analysis. It is thus considered as the foundation of making informed investments. Based on fundamental analysis, Benjamin Graham, popularly considered as the father of fundamental analysis, entailed to buy the shares of the companies having the current ratio of two or more than two (Graham and Dodd, 1934). The study is the maiden attempt to investigate the performance of stocks having considerable current ratio in the Indian capital market. The study is conducted for the time frame of 15 years that is, 2003-2017 on the stocks listed at Bombay Stock exchange.

The results show that the stocks screened on the basis of said phenomenon have on average 6.68% higher returns than the market when retained for a period of one year. Likewise, when the retention period has been increased to two years, the stocks have provided 2.87% higher returns than the market. The t-test statistic thereby shows that the yields generated have been statistically significant at 99% confidence level in both the retention periods. Consequently, the investor who invests in the stocks having the current ratio of two or more than two, can obtain significantly greater returns than the index returns.

Additionally, capital asset pricing model has been applied to calculate the presence of extraordinary returns yielded by the sample shares. Also, the risk involved in investing in such shares has been estimated through this model. The results showed that beta value (a measure of risk) of the portfolio under study as compared to market portfolio was quite low in the context of both the retention periods. It thus shows that the given portfolio is fairly lesser volatile than the overall market index. Furthermore, Jensen alpha, an indicator of the extraordinary return generated by portfolio, was positive in both the retention periods. It therefore confirms the presence of abnormal returns yielded by portfolio. However, statistically significant alpha could be observed only in case of two years retention period. Thus, the essence of value generated by such stocks lies in retaining them for at least two years.

The study offers vital implications to diverse range of investors. Fund managers make their decisions about buying and selling of scrip on the basis of research and analysis. They can therefore consider this investment strategy as it would help them to select the portfolio that would outperform the market. The hedge fund manager has to raise investment capital and rebalance investments to maintain a given reward to risk ratio. The selection of equity investment options with very less risk can help the hedge fund manager to optimise the given reward to risk ratio. However, statistically significant alpha could be observed only in case of two years retention period. Thus, the essence of value generated by such stocks lies in retaining them for at least two years.

The study offers vital implications to diverse range of investors. Fund managers make their decisions about buying and selling of scrip on the basis of research and analysis. They can therefore consider this investment strategy as it would help them to select the portfolio that would outperform the market. The hedge fund manager has to raise investment capital and rebalance investments to maintain a given reward to risk ratio. The selection of equity investment options with very less risk can help the hedge fund manager to optimise the given reward to risk ratio. Thus, hedge fund manager can also use the stocks having an adequate current ratio as a tool for risk management. Also, this investment strategy can save
considerable time, money and energy of investment analysts involved in analysing and interpreting complicated financial data. They can simply recommend this strategy to stockbrokers, fund managers and traders to make informed investment decisions. The study also recommends corporate sector to finance its operations largely through owned funds so as to maximise the value of their shares in the long run.

It is of further note that the fundamental analysis includes a detailed analysis of a company’s financial position. However, the study suffers from the major limitation of covering solely current ratio of fundamental analysis. Further study could be conducted by adding more financial ratios and including additional variables in an asset pricing model.

**References**


Impact of Strategic Human Resources Management on the Performance of Small and Medium Scale Enterprises in Ilorin, Nigeria

1Martins Olanrewaju Atunde, 2Saliu Ishaq Alabi, 3Lydia EllahNkakim, 4Johnson Abiodun Medupin, 5Marcus Olayinka Atunde

Abstract

This study investigated the association between strategic human resources management and organisational performance of small and medium scale enterprises in Ilorin. Four research hypotheses guided the study. Descriptive research of a survey type was adopted. The sample for the study was 210 SMEs (Micro, Small and Medium Enterprises) managers, which were selected through stratified random sampling technique. A self-designed questionnaire was used for data collection. Pearson Production Moment Correlation (PPMC) statistics was used for data analysis. Findings revealed that: strategic recruitment ($r = 0.481$), strategic training ($r = 0.288$), strategic compensation ($r = 0.356$) and strategic performance appraisals ($r = 0.199$) respectively were positively related with organisational performance indices of innovation, operation efficiency, service quality and business growth of SMEs respectively. The study concluded that strategic human resource management has a significant relationship with organisational performance of SMEs.

Keywords: Strategic Recruitment and Selection, Strategic Training and Development, Strategic Compensation and Reward, Strategic Performance Appraisal or Evaluation, Organisation Performance.

Introduction

The contribution of small and medium-sized enterprises (SMEs) to the economic growth and development has been enormous. Accordingly, SMEs contribute substantially to the gross domestic product, export earning, and development opportunities in developing economies like Nigeria. This however made many succession Nigerian governments acknowledge the fact that SMEs plays a significant role in the growth and development of their economies. In view of this, a number of policies were instituted by economic policy makers and the government towards the facilitation and empowerment of SMEs. One of the notable objectives of these policies was improving the performance of SMEs (Federal Republic of Nigeria [FRN], 2013). In addition, international economic and financial bodies such as the African Development Bank (ADB), International Monetary Fund (IMF), World Bank, the European Investment Bank (EIB) and the International Financial Corporation (IFC) have invested heavily in making SMEs robust and vibrant in developing countries. Furthermore, non-governmental organisations (NGOs) in developing countries such as Nigeria have employed advocacy and capacity-building campaigns and programmes to promote the growth of SMEs.

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Despite the importance accorded to SMEs as well as their contribution to economic growth, researchers (Ogunyomi & Bruning, 2016; Ologunde, Monday & James-Unam, 2015; Ugheoke, Isa & Noor, 2014) have argued that, the performance of SMEs in Nigeria has been below expectations, as most SMEs are struggling for quality service delivery, financially, and survival to be in business. Research evidences (Animoku, Haruna & Attah, 2016; Arshad, Khawaja & Azhar, 2014; Ogunyomi & Bruning, 2016; Muogbo, 2013) however attributed the below par performances of SMEs in Nigeria to a number of factors ranging from poor customer service to poor management and poor human resource management. While the poor performance of SMEs in Nigeria can be attributed to a number of factors, human resource management could be a major factor in determining this poor performance (Abubakar, 2014; Jimoh & Danlami, 2011; Khan, 2016; Oladipo & Abulkadir, 2011; Ologunde, Monday & James-Unam, 2015; Qiqi, 2017; Waziri, 2014). This is what Bello (2015) tagged: “A major challenge for industrial psychology and management” (p.5), and on this note, the scholar suggested that if an organisation or institution is to attain high level of productivity; a robust, healthy and effective strategic human resources management (SHRM) practices must be adopted, implemented and maintained.

There are numerous descriptions of strategic human resources management espoused in the global research. Armstrong (2014) stated that, strategic human resource management encompasses those decisions and actions, which concerns organisational managers at all levels in the business, which is directed towards creating and sustaining competitive advantage. Strategic human resources management according to Nickson (2016) is an approach dealing with longer-term personnel issues as part of the strategic management thrust of the business. In line with this definition, Abdullahi, Oluremi, Adedeji and Emerole (2017) mentioned that the cogent aim of SHRM is to produce institutional capacity by ensuring that an organization has the skilled, engaged, committed and well-motivated employees needed to achieve sustained competitive advantage. In relation to this study, SHRM is that part of management concerned with how organizations (SMEs) strategically attract the best talent (people/human resource), harness and development their skills, offer them suitable monetary and non-monetary rewards in order to motivate them as well as develop approaches in appraising or evaluating them by following progressive human resources policies and practices conducive to bring about high staff morale, job commitment, efficiency, productivity and above all organizational performance. In this regard, scholars like Abdulraheem and Atunde (2018), Alaraqi (2017), Anand and Suwastika (2015), Armstrong (2014), Idikwu (2014), Jackson and Schuler (2016), Muogbo (2013) and Nickson (2016) suggested the strategic context with which human resources management encompasses. These include: manpower planning, staff recruitment and selection, orientation, training and development, motivation and welfare, health and safety, wages and salary administration, employee communication, industrial relation and collective bargaining, disciplinary management, performance appraisal or job evaluation, personnel audit, human resource research and employee retirement.

Within the context of this study, the aforementioned critical functions were streamlined into four operational areas of SHRM, namely; strategic staff recruitment and selection, strategic training and development, strategic compensation and reward, and strategic performance appraisal or evaluation. This contextual classification was based on the fact that they are the four major pillars of strategic human resources management (Abdulraheem & Atunde, 2018; Agbulu, 2015; Alshuwairekh, 2016; Khan, 2016; Naz, Aftab & Awais, 2016; Osman, 2017) which are very crucial for business growth and effectiveness, and that, most organization depends on them for survival. In this regard, the major worry of the researcher as well as previous studies (Alshuwairekh, 2016; Ologunde, Monday & James-Unam, 2015; Osman, 2017; Ugheoke, Isa & Noor, 2014) regarding these four core SHRM activities is about the
strategic process employees are been recruited, trained, rewarded, compensated and appraised by SME managers/owners, which might affect the overall performance of their businesses. With regard to this study, innovation, operational efficiency, quality services and business growth were considered as indicators of good organizational performance. This is because every performing businesses or organization in the present 21st century must be innovative, efficient operationally, deliver quality services, and ensure that its business is growing profitably (Abdullahi, Oluremi, Adedeji & Emerole, 2017; Alaraqi, 2017; Buller, & McEvoy, 2012; Hamzah, Abdullah & Hamzah, 2014).

As a result, a steadily increasing number of studies exist that analyze the effect of SHRM on organisational performance. For example, a study conducted in Kosovo, Osman (2017) adopting a cross-section descriptive survey investigated the impact of strategic human resource on organizational performance among 150 best performing SMEs in Kosovo. The study revealed that SHRM practices based on the key functions (recruitment and selection, training effectiveness, employee relation practices, consultative performance appraisal, innovation practices and human resource planning) are practiced in most of the SMEs that participated in the study, but the extent varied amongst the SMEs. The study also revealed a positive correlation between strategic human resource management practices and organizational performance, ranging between 0.2 and 0.6, meaning that with the improvement in strategic human resource practices, organizational performance also increased.

In another descriptive research based on the case study approach, Alshuwairekh (2016) assessed the relationships between strategic human resource management (SHRM) and organizational performance in Saudi Arabia Basic Industries Corporation (SABIC). One hundred and twenty respondents were selected randomly for the study while both qualitative (Interview Guide) and quantitative (questionnaire) research instrument were used for data collection. Results from regression analysis revealed that (SABIC) has overall good performance due to Strategic human resource management. However continuous improvement is required specially decline in oil prices in the last quarter of 2014 and global financial crisis.

In a survey conducted in Nigeria, Ogunyomi and Bruning (2016) determined the relationship between HRM practices and the financial and non-financial performance of 236 SMEs in Nigeria. Multiple regression results showed that human capital development and occupational health and safety had a direct relationship with non-financial performance, and employee performance management and non-financial on financial performance. HRM practices as a group accounted for 16% of the variance in non-financial and 12% of the variance in financial performance.

In another similar survey, Ologunde, Monday and James-Unam (2015) provided empirical evidence on the impact of SHRM practices on the competitiveness of 120 SMEs in the Nigerian hospitality industry. Using correlation and multiple regression analysis, the study showed that, profitability of the SMEs was positively related to job description (r = 0.486), training and skill development (r = 0.428), performance appraisal (r = 0.430), career planning (r = 0.427), and employee participation (r = 0.255), while it was negatively related to compensation system (r = -0.140) and recruitment and selection practice (r = -0.132). However, the study concluded that implementation of SHRM practices of SMEs in the Nigerian hospitality industry could be generally described as fair.

In a cross sectional study, Ugheoke, Isa and Noor (2014) examined the impact of strategic human resource management on tangible firm performance among 250 SMEs in Lagos Nigeria. Using multiple regressions, the study revealed that 76.4% (R square =0.764) of the variance of tangible performance have been significantly explained by the four dimensions of SHRM (work knowledge, incentive for achieving firm goal, incentive for employee contribution and individual--firm job fit); and work knowledge has the most effect on
tangible performance based on their beta value. However, the study concluded that SMEs may not have the resources to fully engage in these practices. From the foregoing empirical analysis, it is obvious that business organisations in developed economies are known to employ SHRM more frequently and passionately than those in developing countries (Bercu, 2015; Buller & McEvoy, 2012; Nwankwo, 2014). However a small body of knowledge exists alluding to SHRM practices in African countries. Besides, one of the major limitations of existing research, which warrant the need for further research, is the conflicting results. The literature surveyed shows that even though there are a lot of studies on this research endeavour, the results do not show any cohesiveness regarding the association between the two variables under study (SHRM and organisational performance). Further observation from previous studies revealed that, very few researches were conducted among SMEs in Nigeria and other developed countries. In addition, a geographical gap exists as the studies were not conducted in Ilorin, Kwara State. Theoretically, plethora of theories has also evolved over the years explaining the relationship between SHRM and organizational performance. While some theories are better than others in explaining their relationships, some cannot explicitly explain it. In view of this, this present study rest on the Resource-Based Theory (RBT), which is attributed to the works of Penrose’s in 1959 but adapted later by Barney in 1991 (Barney, Wrightb & Ketchen, 2001). The basic tenet of the RBT starts with the assumption that an organization has a unique resource, and management has an important role in creating a sustainable competitive advantage and improving performance based on distinctive competencies (Osman, 2017). This implies that, organizations can achieve competitive advantages than their competitors by creating and developing a set of activities that connect to HR practices on the strategic level. At this juncture, the relevance of the resource- based theory to this present is that, it stresses the need for a specific HRM strategy which seeks to achieve high level of organisational performance by increasing the commitment and competence of the SME employees.

Hence, the study aims to determine the effects of SHRM on organizational performance of SMEs in Ilorin, Kwara State, Nigeria. Specifically, this study will: determine the association between strategic recruitment and selection and innovations of SMEs in Ilorin; ascertain the association between strategic training and development and operating efficiency of SMEs in Ilorin; assess the association between strategic reward and compensation and service quality of SMEs in Ilorin; and examine the association between strategic performance appraisals and business growth of SMEs in Ilorin.

Based on highlighted objectives, the researchers hypothesize that:

H1: Strategic recruitment and selection will positively relate with innovation of SMEs in Ilorin.

H2: Strategic training and development will positively relate with operating efficiency of SMEs in Ilorin.

H3: Strategic reward and compensation will positively relate with service quality of SMEs in Ilorin.

H4: Strategic performance appraisals will positively relate with business growth of SMEs in Ilorin.
**Research Framework**
In this study, the framework in Figure 1 identified the indicators under study and shows their association. The framework, which was designed based on the research gaps identified in the literature review, depicts the link between the studied variables in a way that focuses on the problem and the desired outcome once the problem is solved. Specifically, the framework was tested to show the organisational performance of SMEs is a cause-effect of strategic human resources management practices components.

**Methods**
The study was conducted in Ilorin metropolis. Ilorin, the capital city of Kwara State is located on Latitude 80°30’N and Longitude 4°35’E, it lies in the plain of the North-Central part of Nigeria with an annual growth rate of 2.84% (NPC.1991) which has reached 847,582 by population (NPC, 2016). At present, the city of Ilorin cuts across three Local Government Areas namely Ilorin West, Ilorin East and Ilorin South, and it has twenty (20) political wards. The people of Ilorin are predominantly Yoruba’s, Hausas, Fulani’s, Nupes, Barubas, other Nigerians (non-indigenes) and foreign national. In terms of employment, good portion of inhabitants are civil servant and there are a greater percentage of individual who are engaged in agricultural activities, industrial activities, transportation, trading activities, while others are self employed in various areas such as mechanics, carpentry, artisans among other.

The research design used for this study was descriptive research of a survey type, which requires a quantitative system of data collection from a sampled population through the use of a questionnaire. The choice of the research design was because of its usefulness in gathering data relating to peoples’ opinion, practices, behaviour and records of events.

The population for the study comprises of 422 SMEs registered with the Kwara State Bureau of Micro, Small and Medium Enterprises (KWBMSMEs) as at 2017. This is because KWBMSMEs constitute the major government organisations that is recognized and charged with the responsibility of promoting the interests of SMEs in Kwara State. Thus, the target population comprises of 422 SME managers in Ilorin, Kwara State. The sample size for this study was calculated using the Yaro Yamane’s formula. The computation is as follows:

\[ n = \frac{N}{1+Ne^2} \]

Where
- \( n \) = Sample size
- \( N \) = Population of Study
- \( e \) = Tolerable error (5%)

Accounting Staff

Therefore:

\[ n = \frac{422}{1+422 (0.05)^2} \]

\[ n = 210.473 \text{ or approx. } 210 \]

Furthermore, by means of stratified random sampling method, 210 sampled registered SMEs in Ilorin were selected. The choice of this sampling technique was because it gave the researcher an opportunity to select amongst the three categories of SMEs (micro, small and medium enterprises) in Ilorin metropolis.

Data used were extracted from a structured designed questionnaire titled: “Strategic Human Resource Management and Organisational Performance Questionnaire” designed through extensive literature review. The questionnaire was in three sections. Section A was on demographic data of the respondents. Section B is a close ended question containing 16 items used to determine the strategic human resource management practices of SMEs in areas of strategic recruitment and selection, strategic training and development, strategic reward and
compensation and strategic appraisal and evaluation. Section C also consists of 16 items which was used to elicit information on the level of organisational performance of SMEs. Sections B and C were close ended form of questionnaire based on a four (4) point Likert scale, ranging from Strongly Agree (SA) = 4 points, Agree (A) = 3 points, Disagree (D) = 2 point and Strongly Disagree (SD) = 1 point.

The research instrument was subjected to both content and face validation by three experts in Business Management and Entrepreneurship. The comments and corrections made independently by these experts helped the researcher to modify and produce the final instruments. To ascertain the reliability of the instrument, a pilot study was conducted on 40 managers of SMEs in Ilorin who were not part of the sampled population but, share the same characteristics with the respondents of this study. Their response was analysed using Cronbach Alpha Reliability method with Statistical Package for Social Science (SPSS) 20.0 version. The rationale for the use of Cronbach Alpha was informed by the fact that the items had no right or wrong answers as they were not dichotomously scored. The alpha values obtained for strategic recruitment, strategic training, strategic reward and strategic appraisal were 0.85, 0.82, 0.79 and 0.79 respectively. While, the reliability coefficient values of 0.711, 0.750, 0.801 and 0.702 were obtained for organizational performance indicators of innovation, operating efficiency, service quality and business growth respectively. The overall reliability estimate of 0.814 and 0.741 (see Table 1) respectively were obtained for SHRM and organizational performance. This result indicates that the instrument is reliable and therefore considered appropriate for use.

### Table 1: Reliability Coefficients

<table>
<thead>
<tr>
<th>S/N</th>
<th>Variables</th>
<th>Number of Items</th>
<th>Cronbach’s Alpha Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Strategic Human Resource Management</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Strategic recruitment and selection</td>
<td>4</td>
<td>0.854</td>
</tr>
<tr>
<td>2</td>
<td>Strategic training and development</td>
<td>4</td>
<td>0.823</td>
</tr>
<tr>
<td>3</td>
<td>Strategic reward and compensation</td>
<td>4</td>
<td>0.791</td>
</tr>
<tr>
<td>4</td>
<td>Strategic performance appraisals</td>
<td>4</td>
<td>0.786</td>
</tr>
<tr>
<td></td>
<td><strong>Overall Reliability Index</strong></td>
<td><strong>16</strong></td>
<td><strong>0.814</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Organizational Performance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Innovation</td>
<td>4</td>
<td>0.711</td>
</tr>
<tr>
<td>2</td>
<td>Operating efficiency</td>
<td>4</td>
<td>0.750</td>
</tr>
<tr>
<td>3</td>
<td>Service quality</td>
<td>5</td>
<td>0.801</td>
</tr>
<tr>
<td>4</td>
<td>Business growth</td>
<td>3</td>
<td>0.702</td>
</tr>
<tr>
<td></td>
<td><strong>Overall Reliability Index</strong></td>
<td><strong>16</strong></td>
<td><strong>0.741</strong></td>
</tr>
</tbody>
</table>

A total of 210 copies of questionnaire were administered by the Researchers on SME (micro, small and medium enterprises) managers/business owners in Ilorin. Completed copies of questionnaires were retrieved on the spot. This questionnaire administration gave a 97.6% response rate (that is 205 out of 210 administered questionnaires were returned and filled correctly). Data collected was analysed descriptively with frequency counts, percentages, mean and standard deviation, while Pearson product moment correlation (PPMC) statistics was used to test the formulated hypotheses at .05 level of significance.

**Results and Discussions**

Findings from the survey (Table 2) revealed that most (36.1%) of the SMEs in the study area were into food processing, soft drinks, and beverages, followed by office supplies (24.0%). Of the 205 SMEs, majority (25.8%) had been in operation between six to ten years. Most
(55.1%) of the SMEs had a capital base less than five million. With regards to the number of employees, most (55.6%) of the SMEs had less than ten employees.

<table>
<thead>
<tr>
<th>Demographic Statement</th>
<th>Study Sample Information</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE OF PRODUCTS/SERVICES</td>
<td>Raw materials</td>
<td>21</td>
<td>10.2</td>
</tr>
<tr>
<td></td>
<td>Equipment</td>
<td>23</td>
<td>11.2</td>
</tr>
<tr>
<td></td>
<td>Food Processing, Soft Drinks, and Beverages</td>
<td>74</td>
<td>36.1</td>
</tr>
<tr>
<td></td>
<td>Office supplies</td>
<td>49</td>
<td>24.0</td>
</tr>
<tr>
<td></td>
<td>Contracted industrial services</td>
<td>31</td>
<td>15.1</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>07</td>
<td>3.4</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>205</td>
<td>100.0</td>
</tr>
<tr>
<td>YEARS OF OPERATIONS</td>
<td>1 - 5 years</td>
<td>41</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>6 - 10 years</td>
<td>53</td>
<td>25.8</td>
</tr>
<tr>
<td></td>
<td>11 - 20 years</td>
<td>49</td>
<td>24.0</td>
</tr>
<tr>
<td></td>
<td>21-30 years</td>
<td>42</td>
<td>20.5</td>
</tr>
<tr>
<td></td>
<td>31 and above</td>
<td>20</td>
<td>9.7</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>205</td>
<td>100.0</td>
</tr>
<tr>
<td>CAPITAL BASE (₦ MILLIONS)</td>
<td>Less than 5</td>
<td>113</td>
<td>55.1</td>
</tr>
<tr>
<td></td>
<td>5 – 9</td>
<td>36</td>
<td>17.6</td>
</tr>
<tr>
<td></td>
<td>10 – 39</td>
<td>19</td>
<td>9.3</td>
</tr>
<tr>
<td></td>
<td>40 – 49</td>
<td>25</td>
<td>12.2</td>
</tr>
<tr>
<td></td>
<td>50 – 99</td>
<td>07</td>
<td>3.4</td>
</tr>
<tr>
<td></td>
<td>100 – 200</td>
<td>05</td>
<td>2.4</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>205</td>
<td>100.0</td>
</tr>
<tr>
<td>NUMBER OF EMPLOYEES</td>
<td>Less than 10</td>
<td>114</td>
<td>55.6</td>
</tr>
<tr>
<td></td>
<td>10 – 29</td>
<td>24</td>
<td>11.7</td>
</tr>
<tr>
<td></td>
<td>30 – 49</td>
<td>31</td>
<td>15.1</td>
</tr>
<tr>
<td></td>
<td>50 – 99</td>
<td>25</td>
<td>12.2</td>
</tr>
<tr>
<td></td>
<td>300 – 400</td>
<td>11</td>
<td>5.4</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>205</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Analysis from Table 3 revealed that strategic recruitment and selection (average mean score = 3.18), strategic compensation and reward (average mean score = 2.78) and strategic training and development (average mean score = 2.67) were fairly practiced, while the practice of strategic staff performance appraisal (average mean score = 2.42) among SMEs in Ilorin was poor.

<table>
<thead>
<tr>
<th>S/N</th>
<th>Items</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The recruitment and selection processes in this organisation are impartial.</td>
<td>3.57</td>
<td>0.60</td>
</tr>
<tr>
<td>2</td>
<td>Favouritism is not evident in any of the selection process in this organisation.</td>
<td>3.48</td>
<td>0.62</td>
</tr>
<tr>
<td>3</td>
<td>All appointments in this organisation are based on merit (i.e., the</td>
<td>3.04</td>
<td>0.89</td>
</tr>
</tbody>
</table>
Descriptive analysis in Table 4 indicated that SMEs in Ilorin performed moderately/averagely in areas of service quality, innovation, operating efficiency and business growth, cluster mean values of 2.94, 2.86, 2.74, and 2.55 respectively. In sum, the performance of SMEs in Ilorin was at average level (mean values of 2.77).

### Strategic Training and Development

<table>
<thead>
<tr>
<th>S/N</th>
<th>Items</th>
<th>Mean</th>
<th>Std Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Equal Employment Opportunity (EEO) in highly promoted in our organization’s recruitment process</td>
<td>2.63</td>
<td>0.90</td>
</tr>
<tr>
<td>5</td>
<td>Employees are encouraged through study leave with pay for the acquisition of higher degrees to enhance their academic and career development.</td>
<td>2.60</td>
<td>0.94</td>
</tr>
<tr>
<td>6</td>
<td>Seminars, workshops and refresher courses are organized regularly to assists staff to improve their knowledge on new trends in library services.</td>
<td>2.19</td>
<td>1.12</td>
</tr>
<tr>
<td>7</td>
<td>Employees in each job normally go through training programmes every year or periodically.</td>
<td>2.56</td>
<td>0.85</td>
</tr>
<tr>
<td>8</td>
<td>Employees training and development assist organization to achieve increased productivity.</td>
<td>3.34</td>
<td>0.72</td>
</tr>
</tbody>
</table>

Cluster mean = 2.67

### Strategic Compensation and Rewards

<table>
<thead>
<tr>
<th>S/N</th>
<th>Items</th>
<th>Mean</th>
<th>Std Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Pay raises for employees are based on job performance</td>
<td>2.70</td>
<td>0.80</td>
</tr>
<tr>
<td>10</td>
<td>Employees have the opportunity to earn individual bonuses (or commission) for productivity, performance or other individual performance outcomes.</td>
<td>2.92</td>
<td>0.93</td>
</tr>
<tr>
<td>11</td>
<td>The amount earned by employees is determined primarily by an incentive plan rather than by a guarantee-income plan.</td>
<td>2.59</td>
<td>0.81</td>
</tr>
<tr>
<td>12</td>
<td>Salaries and other benefits of the company are comparable to what is generally obtainable in the industry.</td>
<td>2.91</td>
<td>0.72</td>
</tr>
</tbody>
</table>

Cluster mean = 2.78

### Strategic Performance Appraisal

<table>
<thead>
<tr>
<th>S/N</th>
<th>Items</th>
<th>Mean</th>
<th>Std Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Performance of employees in your firm are measured based on firm’s quantifiable objectives.</td>
<td>2.60</td>
<td>0.94</td>
</tr>
<tr>
<td>14</td>
<td>Your firm determines the firm’s success through performance appraisal.</td>
<td>2.48</td>
<td>1.02</td>
</tr>
<tr>
<td>15</td>
<td>Firm’s objectives are standard for measuring performance.</td>
<td>1.98</td>
<td>1.07</td>
</tr>
<tr>
<td>16</td>
<td>Performance appraisals are carried out periodically to increase firm’s performance.</td>
<td>2.63</td>
<td>0.82</td>
</tr>
</tbody>
</table>

Cluster mean = 2.42

Mean value (Good = 3.25 - 4.00; Fair = 2.50 - 3.24; Poor = 1.00 - 1.99)
Mean value (High = 3.25 - 4.00; Average/Moderate = 2.50 - 3.24; Low = 1.00 - 2.49)

As indicated in Table 5, the p-value (0.001) is less than .05 level of significance at 203 degrees of freedom. Hence, the hypothesis is accepted. This shows that there was positive relationship between strategic recruitment and selection practices and innovation of SMEs in Ilorin (r = 0.481; p<0.05).

### Table 5. Correlations between SRS and innovation

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRS</td>
<td>12.7153</td>
<td>3.00754</td>
<td>205</td>
</tr>
<tr>
<td>Innovation</td>
<td>11.4213</td>
<td>3.02708</td>
<td>205</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Correlations</th>
<th>SRS</th>
<th>Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>.481**</td>
</tr>
<tr>
<td>N</td>
<td>205</td>
<td>205</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.05 level (2-tailed).

Key: SRS = Strategic Recruitment and Selection
Results in Table 6 shows that the p-value (0.004) is less than .05 level of significance at 203 degrees of freedom. The hypothesis is consequently accepted. This is an indication that, strategic training and development practices is positively related with operating efficiency of SMEs in Ilorin ($r = 0.288; p<0.05$).

**Table 6. Correlations between STD and operating efficiency**

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>STD</td>
<td>10.6851</td>
<td>3.35754</td>
<td>205</td>
</tr>
<tr>
<td>OE</td>
<td>10.9416</td>
<td>3.22701</td>
<td>205</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Correlations</th>
<th>STD</th>
<th>OE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>.288**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.004</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>205</td>
<td>205</td>
</tr>
</tbody>
</table>

Hypothesis 1: Strategic training and development practices is positively related with operating efficiency of SMEs in Ilorin ($r = 0.288; p<0.05$).

**Table 7. Correlations between SRC and service quality**

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRC</td>
<td>11.1210</td>
<td>3.25754</td>
<td>205</td>
</tr>
<tr>
<td>SQ</td>
<td>14.7112</td>
<td>3.67705</td>
<td>205</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Correlations</th>
<th>SRC</th>
<th>SQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>.356**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.002</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>205</td>
<td>205</td>
</tr>
</tbody>
</table>

Hypothesis 2: Strategic reward and compensation practices is positively related with service quality of SMEs in Ilorin ($r = 0.356; p<0.05$).

**Table 8 indicates that the p-value (0.007) is less than .05 level of significance at 203 degrees of freedom. Hence, the positive hypothesis was accepted. This reveals that, strategic**
performance appraisals practices has a positive but weak impact with business growth of SMEs in Ilorin \((r = 0.199; p<0.05)\).

### Table 8. Correlations between SPA and business growth

<table>
<thead>
<tr>
<th></th>
<th>SPA</th>
<th>BG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>9.6850</td>
<td>7.6370</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>3.85030</td>
<td>2.63713</td>
</tr>
<tr>
<td>N</td>
<td>205</td>
<td>205</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>SPA</th>
<th>BG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>.199**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.007</td>
</tr>
<tr>
<td>N</td>
<td>205</td>
<td>205</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.05 level (2-tailed).

**. Key: SPA = Strategic Performance Appraisals; BG = Business Growth

### Discussion

Findings from the first research hypothesis revealed that strategic recruitment and selection was positively related with innovation of SMEs in Ilorin. The findings collaborated that of Anand and Suwastika (2015), Buller and McEvoy (2012) and Hamzah, Abdullah and Hamzah (2014) who observed that, the degree to which traditional recruitment is transformed into strategic recruitment and selection approach of SHRM determines how innovative a firm can be. This is supported by a survey (Naz, Aftab & Awais, 2016) conducted among 320 SMEs in Multan, Pakistan which reported that recruitment and selection was moderately correlated with \((r=0.451 \text{ at } p\text{-value}=0.05)\) SMEs performance. This result is further corroborated with the findings of Alaraqi (2017) who argued that the strategic approach to employee recruitment and selection enhances the organizational performance in long run, although it required higher financial implication in early stages of the process. The process needs to be focused on the hiring of skilled workforce that is strategically fit in the organizational vision.

Results from the second research hypothesis revealed that strategic training and development practices have a positive correlation with operating efficiency of SMEs in Ilorin. This is an indication that, the fair practices of strategic training and development been implemented by SME managers/owner translated into the moderate level of operating efficiency of SMEs. This finding concurred with the observation of Alabi (2015), Animoku, Haruna and Attah (2016), Idikwu (2014), Khan (2016) who observed that, organizations that do not provide appropriate training for its employees, their skills development would leave them behind in line with the demands of the competitive work environment which will result into increase number of complaints from its customers. This finding further corroborated other similar researches carried out in Iraq (Alaraqi, 2017), Kosovo (Osman, 2017), Pakistan (Naz, Aftab & Awais, 2016) and Nigeria (Abubakar, 2014; Ologunde, Monday & James-Unam, 2015) who reported a link between strategic training and development with employees job satisfaction, reduction in wastages, and profitability of SMEs.

Findings from the third research hypothesis revealed that, strategic reward and compensation practices showed a significant correlation with service quality of SMEs in Ilorin. This finding
implies that, the lack of strategic approach to compensation and rewards of employees by SMEs will not only result into lower employee motivation and commitment but also affect the overall delivery of services to its clients/customers. This finding is in line with the findings of Bello (2015), Gerhart and Fang (2014), Naz, Aftab and Awais (2016), Okonkwo (2016) and Oladipo and Abdulkadir (2011) who reported that, strategic compensation and reward is a critical component of organizational strategy, influencing firm performance by motivating employee effort and by attracting and retaining high ability employees to deliver highly dependable services to customers. This finding also tallies with that of Masood (2017) who reported that, companies that were keen to reach rapid-growth provided their workers monetary incentives and stock choices as part of their reward packages. In doing so, firms managed to achieve high levels of performance from workers, provide employees the sense that they have rights in the firm, fascinate and recall high-quality employees (Naz, Aftab &Awais, 2016; Ukpai, 2015; Waziri, 2014), and swing a share of a firm’s business risk to the employees.

Lastly, findings from the fourth hypothesis revealed that strategic performance appraisals practices had a significant negative relationship with business growth of SMEs in Ilorin. This implication of this finding is that poor strategic approach to employees’ appraisal by SME managers in Ilorin had a negative impact on the level of business growth of SMEs. This discovery confirms the report by Alshuwairekh (2016) and Gunasekaran, Irani, Choy, Filippi and Papadopoulos (2015), Ogunlana and Oshinaike (2016) and Ojokuku (2013) who observed that performance appraisal of employees is pivotal to the improvement of sales and profitability as it enables employees to improve their job performance as well as helps to draw the attention of SME managers/owners to the present performance of their employees in their jobs for improvement.

Conclusion and Recommendations

The findings of this study indicated that, there was significant relationship between SHRM and organisational performance of SMEs. This study however concluded that strategic recruitment and selection, strategic training and development, strategic reward and compensation and strategic performance appraisals respectively had significant effect on service quality, innovation, operating efficiency and business growth of SMEs. In the light of the findings and conclusions made, it was recommended that:

1. SME owners/managers should ensure that their employees/personnel at regular intervals undergo various training and development programmes like seminar, workshop, refresher courses, and conference promptly, as this would enhance the skills, capacity and development of employees and thus, enhance the operational efficiency of SMEs.
2. SME owners/managers should regularly or periodically conduct the performance appraisal of its employees in order to constantly identify the strengths and weaknesses for improved individual and organisational performance.
3. SME managers/owners, irrespective of categories, should pay more attention to the SHRM indices identified in this study with a view to improving their practices in line with international best practices for enhanced innovation, operating efficiency, service quality and business growth.

In furtherance, it is germane to note that in spite of the findings and aforementioned recommendations, the present research has its shortcomings. The research was limited only to 210 SME managers within Ilorin, Kwara State, Nigeria. Further researches should cover wider geographical dispersions within, Ilorin with larger sample size so as to attain long-viewed generalizability of the research endeavor on SMEs. Likewise, the study is limited conceptually to strategic recruitment, training, compensation and appraisal. Other strategic human resources management practices such as manpower planning, work-life balance
(health and safety), communication, disciplinary management, and employee retirement should be studied in relation to organizational performance.

References


Human Resource Management, 27 (6), 612-634. Available at: https://doi.org/10.1080/09585192.2015.1033640


Organizational Empathy & Response India during COVID 2019

¹Prof Venkatesh D N

Abstract

This paper tries to study and analyse the response strategies adopted by organization to deal with the challenges faced on account of COVID 19. The literature survey covered key aspects such as Leadership and its impact on various organizational dimensions, Organizational Culture in general and specific dimensions such as Trust, Empathy, Commitment, as constituent components of Organizational Culture. Further it studied facilitative dimensions such as Performance and Learning Orientation along with Adaptive capability and Social sensitivity in the organization. For validating the construct, secondary data was collected from randomly sampled organizations covering key sectors such as Information Technology, Banking, Manufacturing and Hospitality Sectors. The data was analysed using qualitative research method and it was observed that both the core and facilitative dimensions have contributed to some organizations, faring better than the other organizations. Based on the research carried out Organizational Empathy Maturity Model (OEMM) has been briefly described, as agenda for future research in the area, both from theoretical and empirical perspectives.

Keywords: Organizational Empathy, Social Sensitivity, CSR, Performance Orientation, COVID 19

Introduction

COVID 19, has presented a challenges to the entire humanity, with a magnitude impacting everyone on the face of the earth. All types of organizations/institutions be it the government, organizations both in public and private sectors and social organizations (NGOs) have responded in their own way. Few organizations have responded purely from the perspective of their internal needs like business continuity, employee welfare and few have responded with a sense of responsibility towards environment that include financial contributions to welfare funds managed by the government, manufacturing to personal protection equipment like masks and some of them have gone ahead and created large quarantine hospitals within short span and few have set up large community kitchens to supply food to migrant workers, who were stranded across various cities of India.

The buzzword Unique Selling Proposition has been replaced with the word “Empathy” in contemporary business context. Empathy as a cultural attribute in the organization has multiple dimensions. The internal dimensions include leadership interaction and relationship with employees, policies and procedures that are sensitive to aspirations of the employees. The other dimensions of organizational procedures is the strategy and approach the organization takes to build relationships that are sustainable with its stakeholders such as suppliers, customers and more importantly the community and society at large.

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Assisted by Mr. B V N S Sumanth, Research Student, Mumbai
An organization which is high on empathy looks at opportunities to contribute back to the society through initiatives such as Corporate Social Responsibility (CSR). The steps taken by such organizations include create governance structures that involve Leadership and Employees, towards the social causes identified by the environment. The organization does not look at CSR activities from a branding and visibility perspectives, but from an ethical sense of responsibility and its commitment to the community at large.

**Scope & Research Objectives**

This research paper aims to study the various initiatives taken by Indian organizations to respond to the needs of both the employees and the society at large. The paper aimed to evaluate the following research objectives:-

1. **Study the impact of the Leadership of an organization on its response strategies during COVID 19**
2. **Study the impact of Organizational Culture on the response policies and initiatives during COVID 19**
3. **Study the impact of the culture of commitment in the organization on its response strategies during COVID 19**
4. **Study the impact past track record of CSR impact an organization on its social support initiatives**
5. **Study the impact of employee centricity in the organization on empathy and COVID response towards both employees and external communities**
6. **Study the impact of adaptive and learning orientation in an organization on the empathy and COVID response**
7. **Study the impact of performance orientation of an organization on the empathy & COVID response initiatives**

**Literature Review**

*Leadership & Organization*

Gagandeep et al\(^1\) have carried an extensive review of literature related to leadership (208 research papers published between 2010 and 2017) and they have analysed the influence of leadership from 5 dimensions i.e 1) Leadership Style in General 2) Moderating factors in Leadership 3) Quitting intentions of talent and leadership 4) Leadership Perception 5) Role of Leaders in Learning and 6) Effect of Leadership on Job Performance and Work Satisfaction. The leadership style can be analysed from two broad dimensions i.e., Transactional and Transformative styles and the consequent impact on the employees working in the organization. Employees working under a Transformative Leaders are found to have a positive impact and otherwise with employees working under Transaction Leadership. The relationship of leader with the employees is found to have a significant and positive impact on the employees. In respect of quitting intentions of the employees, the research evidence indicates that positive and bonding relationship with the leader and the organization will lower the intensity of the employee to quit the organization. The perception of all the three key constituents i.e., Leaders, Manager and that of employees has a significant influence. A positive perception towards each other of the three constituents has a positive impact on the organization. The competence of a leader has a impact on the employee behaviours in relation to the learning orientation. A transformational leader with high level of competitive will instil a positive learning orientation among the employees. Earlier research further indicates that a transformational leadership have higher motivational impact on the employees.
Organizational Culture (OC)

Wager (2005) described OC as a shared perception of employees about the organization. Schein (1990) viewed OC as norms and practices taught by the legacy leaders in the past. Schein (1990) further added that OC gets refined by the critical incidents in the existential history of the organization. Furnham & Gunter (1993) has studied from the perspective of working relationships between the employees working in the organization. The other perspectives of research on OC have been captured below:

<table>
<thead>
<tr>
<th>Researcher &amp; Year</th>
<th>Research Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harrison (1972)</td>
<td>Orientation towards People, Power Task and Role Forms</td>
</tr>
<tr>
<td>Hofstede (1980)</td>
<td>Individualism vs Collectivism ; Uncertainty Avoidance and Power Distance</td>
</tr>
<tr>
<td>Schein (1985)</td>
<td>The dimensions for classification of organization are Support, Achievement, Role and Power Cultures</td>
</tr>
<tr>
<td>Pareek (1989)</td>
<td>He classified types of OC as Technocratic, Entrepreneurial, Autocratic and Bureaucratic</td>
</tr>
<tr>
<td>Denison (2004)</td>
<td>OC was analysed from the dimensions of Consistency, Adaptability, Mission and Involvement as the traits of organization in his model.</td>
</tr>
<tr>
<td>Lau and Idris (2001)</td>
<td>The dimensions used for studying OC were Training and Development, Communication and Rewards</td>
</tr>
</tbody>
</table>

OC was found to have positive influence on organizations in areas such as Engenders a sense of commitment among the employees, brings in improvement of on the job performance, employee retention.

Trust & Organizations

Trust has an important role to play in the effectiveness of the organization (Zand 1972; Zan 1997; Lewis & Weigert 1985; McAllister 1995; Lane 1998; Rousseau, Sitkin, Burt and Camerer1998; Nooteboom 2002). It helps in fostering positive and functional relationships in organization (Olekalns and Smith, 2005). Sztompka (2005) defined trust as expectations by people/groups from others with whom they interact and/or cooperate.

Researchers had worked in the area of trust in organizations from two dimensions. The first being between employee and his/her direct supervisor (Aryee, Budhwar, and Chen 2002; Deluga 1994; Dirks 2000; Dirks and Ferrin 2002). The other dimension being systemic (Creed and Miles 1996; Huff and Kelley 2003; 2005). Gills (2003) defined it as organization’s willingness grounded on its culture and communication behaviours in the relationships and transactions, with an assumption that others in the organization are competent, honest, concerned and are aligned to the common goals. Hansen (1994) defined trust as an outcome of internal reward and compensation system coupled with the processes used for decision making in the organization.

Six (2007, 292) has suggested four operative conditions for fostering trust that include 1) Avoidance of opportunistic behaviour 2) Exchange of positive relational signals by the members 3) Members avoiding negative relational signals and 4) Stimulation of trust behaviours by the leadership.
Empathy & Organization
Malissa et al (2018) have carried out an extensive survey of literature on Empathy based on papers published during the period 1983 to 2018 from two dimension 1) Does empathy have an impact on outcomes that are of interest to organizations and employees and 2) Can Empathy can changed in a change and if yes, the methods for doing so. Empathy in literature has connected to constructs such as organizational citizenship behaviour (Settoon & Mossholder, 2002), emergence of Leadership (Wolff, Pescosolido & Druskat, 2002) and interpersonal justice (Patient & Skarlicki, 2010). The recent literature has linked to Leader-member exchange (Cropanzano, Dasborough & Weiss, 2017), crisis management (Konig, Graf-Vlachy, Bundy & Little, 2018), corporate philanthropy (Muller, Pfarrer & Little, 2014) and forgiveness (Fehr & Gelfand, 2012). There has been research focused on organizational practices aimed to improving employee empathy (Ford’s “Empathy Belly”; Beasley, 2016)

Organizational Commitment
The Construct of OC refers to a process that builds a positive relationship between employee and the organization due to the association of the employee with the organization (Allen & Meyer, 1990; Meyer & Allen, 1991; Messner, 2013). It is dependents on antecedent such as employee experience, culture of the organization etc. Employees would be keen to invest in their job, when they perceive that the organization takes care of their psychological needs to be safe and secure (Kahn, 1990; Maslow, 1958). The extent to which an employee identifies with the organization is a predictor of Individual OC (Nelson and Quick (2008) and Tune et al (2016).

The initial research viewed OC as single dimensional construct and interpreted that individuals were committed only as long as employee is associated with an organization, due to concept of economic exchange (Alutto, Hrebinia& Alonso, 1973, Becker, 1960; Porter, Steers, Mowday & Boulian, 1974)

Allen & Meyer (1990) proposed a 3 dimensional OC model consisting of Affective, Normative and Continuance. An employee operating in affective mode strongly identifies with the organization such as role clarity, challenge in the job, and manageable difficulty in the goals assigned, timely and constructive feedback by the management, receptivity of management to the employee feedback and equity in opportunity and compensation. The continuance commitment by an employee comes into play due to factors such as non-availability of opportunities, length of service, position/authority enjoyed in the organization. The normative form of commitment arises due to factors moral obligation, sense of duty, sense of justifying the compensation provided by the employer etc.

Organizational Learning
In times of change ad crisis it is imperative for the organizations reinvent and adapt quickly to the environment. It was described as process of open-minded inquiry and informed interpretation by employees working in the organization (Day, 1994). Initial researchers viewed it as cognitive process in an individual while the behaviourists viewed it from change in behaviour of an employee, in the post learning context. The subsequent researchers felt both the processes are interconnected, with an employee demonstrating changed behaviour, after learning at cognitive level (Argyis, 1977; Crossan, Lane & White, 1999)

The process of organizational learning occurs through transfer of knowledge & skills (both tacit & explicit). Nonaka (1994) in his research emphasized on the knowledge (cognitive capability - Know what) and skill (behavioural capability – Know how) for organization to leverage on the learning of the employees. It is easier for organizations to facilitate explicit knowledge and skills, while the real challenge is around transfer of tacit knowledge & skills.
The research on social exchange (SX) and leader-member exchange (LMX) as facilitative tools to facilitate effective transfer of both explicit and tacit knowledge & skills.

The capacity of an organization to learn i.e acquire, apply and spread new insights is construed as strategic capability (Fiol & Lyles, 1985) and will provide a competitive advantage to the organization (de Geus, 1988, 1997; Stata, 1989). For an organization to be vibrant, it is necessary that learning is continuous at individual, group and at organizational level.

Organizational Adaptation & Survival
The research on the topic assumed importance in the second half of 20th century. It has been defined in multiple ways ranging from change (both proactive & reactive) to a specific context of organizational response to the conditions and demands of the environment (Hrebiniak and Joyce (1985 : 387). The research on the topic has carried out from the dual perspectives of environmental determinism and managerial voluntarism. The determinists focused on the sociodemographic features of TMTs (Top Management Teams) and different strategic outcomes i.e., acquisitions/alliances or aspects such as firm’s innovativeness, dynamism in its strategy, or strategic initiatives such as internationalization and diversification (Hambrick, 2005, 2007). The researchers from behavioural school of thought studied dimensions such as narcissism of CEO, Chatterjee & Hambrick, 2007, in Press). The behavioural theory approach provided support to the research on dimensions such as resource dependence, evolutionary approach and roll of organizational learning in the adaptation and survival of the organization.

The choice of approach (determinism/voluntarism) is dependent on the life cycle stage of the organization and would vary over a period of time (Bedian, 2006; Bourgeois, 1984; Hrebinaik & Joyce, 1985; Pettigrew, 1987, Volbrda & Lewin, 2003).

The proponents of organizational ecology model (Hannan & Freeman, 1977) furthered that the structure of environment in the form of niches, distribution across the society, intractability by one organization, makes it difficult for any single organization to manipulate. Thus there are limits to the autonomous strategic choices of the organization (Astley & Van deVen, 1983:249). The ecology school of researchers applied the Darwinian process of variation-selection-retention to analyse the success or failure of the ability of an organization to adapt to the environment.

Performance Orientation
There has been lot of research on corporate performance. Cui & Hu (2012) have analysed corporate performance from four dimensions, i.e Financial, Non-Financial, Corporate Governance and last one being long sustenance and growth of the organization. Hermanlin & Weisbach (1991) have analysed organizational performance from financial dimension on parameters such as Profit, Return on Assets (ROA), long term profitability. The subsequent researchers felt analysing a firm’s performance purely from a financial angle is inadequate and incomplete view and that’s when Non-Financial dimension has come into focus. Kaplan & Noton(19920 through their balanced score card have brought in overall four dimensions ( 3 additional dimensions) i.e customer, internal business processes, learning & growth of employees. Bagozzi et al, have brought new dimensions such as in-role and extra-role, and linked it to the corporate culture of employees displaying organizational citizenship behaviour (OCB) and going beyond the call of the duty. The latest research has brought in dimensions such as consciousness of social responsibilities and is linking to corporate social responsibility. (Roland & Philippe, 1991; meralElci, HakanKitapci & AlperErtrak, 2007)
The subsequent wave of research focussed on “value added” perspective with focus on dimensions such as quality of management and governance (Benjamin E Hermalin and Michael S. Weisbach, 2003). This set of researchers studied dimensions such as independence of boards as key impacting factor determine the performance of the organization. The fourth and last area of research is the long term growth, competitive strength and long term stock performance.

Corporate Social Responsibility
The research on CS dates back to Drucker (1946), who indicated that survival of the firm is dependent on the harmony between the organizational objectives and the environment in which it operates. Bowen & Howard (1953) have stated that businesses are obligated to have their policies aligned to the social values of the community in which they operate. Davis & Keith (1960) in their research identified that it is imperative for aligning corporate objectives with socio-legal needs of the environment. Caroll model forecasted the three competing alternates to CSR as Concept of responsibility, global corporate citizenship and stakeholder management. The role of government in driving CSR was identified as a critical influencer (Moon, 2004). The critical incidents help in fine tuning CSR policy of an organization (Vaaland - Heide, 2008). Mallan(2012) identified three key developments in the area of CSR a) increasing proximity between business and world due to environment b) New business ideas evolving from CSR activities and 3) External stakeholders would influence business goals of the organization.

Methodology
Design
The research design used for this paper is based on the secondary data, given the challenging context the world is facing and organizations are responding dynamically on a real time basis during COVID-19. The research will be based primarily based on the published information available in the public domain. The primary reason being that, both the leaders and managers are trying to grapple with the situation on real time basis and hence it if not an opportune time for primary research to reach out to them for collection of data. In addition, due to lock down related restrictions, it is not possible to have in-person conversation.

Population & Sampling
The population for the study are all types’ commercial organizations which are operating in the country. However, due to constraints such as time, resources and the sampling method used is a combination of convenience based sampling method.

Conceptual Framework
The study of literature has identified the various impacting factors with influence on Organizational Empathy. The list of factors identified through the literature study include Leadership of the organization, which influences the organization across the spectrum on entire spectrum such as building and nurturing a positive culture which is built on values such as trust among both internal and external stakeholders between both the segments. In addition it has impact on the on other dimensions such as commitment of employees to the cause/goals of the organizations, empathy towards each other and aso towards the stakeholder. All these factors are interactional in nature and have an impact on the organizational adaptation and survival and its efforts to support the cause of community it operates through the CSR activities.

The conceptual framework used for the research is depicted and explained below. The model has three major components. The first set of components is foundation but cannot result in
visible results, without the facilitative components. From a sustainability perspective, it is important to support them with facilitative attributes as well.

About the Conceptual Framework
This Model takes a unique approach of viewing the organizational empathy from three dimensions i.e., Core Attributes, which gets supplemented by contributory attributes. These two elements result in resulting in empathy and response initiatives. The core attributes impacting the organizational culture of the organization, Commitment in the organization, adaptation ability of the organization and learning orientation of the organization. The culture of the organization could be assessed through various indicators such as Leadership like the style of leadership, the role of the leader in creating a positive environment with factors like trust between the employees, engendering a sense of commitment among the employees towards the goals of the organization. The key aspect that a leader plays is towards creating a human organization. Leader has a major role, in building empathy in the organization, leading by example. The list of facilitative attributes includes performance orientation, learning orientation, ability to adapt and community/social sensitivity.

The combination of these two sets of attributes will result in organization demonstrating it empathy towards its employees, through the HR initiatives and policies. An organization with empathy can work towards welfare of its stakeholders as well. For instance an organization can help its supply chain participants in facilitating credit availability, training on quality, migration to new technologies etc. More importantly, an organization with empathy can readily and proactively work towards welfare of the society that it is operating it. In such cases the organization does not strategize the CSR initiatives from a branding and ROI perspectives, but more so from the perspective of accountability and responsibility as a corporate citizen.

Data Collection
Based on published information in the public domain, the following information has been collected

**IT Sector**

*TCS*
- Mr Ratan Tata has announced a contribution of INR 1500 Crore to the PM Cares Fund towards COVID relief operations.
- It has developed the COVID 19 patient tracker and offered it to the government.
The TCS iON Digital Glass Room product has been offered free to the schools & colleges, to help the educators continue the learning delivery to the students. The product allows comprehensive learning solutions such as polls, debates, quizzes and many more tools.

It is also working with STEM Partners (Science Technology Engineering and Medicine) worldwide through programs such as GoIT and Ignite My Future for use by the teachers, students and parents.

The TCS Innovation lab and its team of scientists have identified 31 molecular compounds using Artificial Intelligence, which hold promise for a drug discovery for COVID 19.

**Infosys**

- Work from Home for employees
- Accepted the positive testing of its employee working at Pune Location
- Had vacated 2 buildings where the employee was working in
- CEO Mr Salil Parikh has published a message on their website indicating the organizational commitment to employee welfare and detailed community welfare initiatives started by the organization, demonstrating its sensitivity.
- The organization has offered its online learning platform to teachers to teach online to the students.
- The organization has sacked an employee (working as Social Architect) who was promoting Corona on Social Media and has ordered an internal probe. By doing so it has demonstrated its zero tolerance to employee behaviour, which is anti to the community welfare at large.

**Wipro**

- Azim Premji Foundation has made a huge donation of INR 1125 Crore to PM Cares Fund to support COVID 19 relief operations
- Permitted employees to work from home (WFH) much in advance i.e, March 16\(^{th}\), 2020
- Had reopened their offices in China on March 30\(^{th}\), as soon as the situation turned better in the country
- Constant engagement with employees to check on their sense of comfort on WFH initiative
- Constant updates on internal portal on status on COVID 19 and precautions to be taken both for self and their families.
- All Wipro sites have been equipped with Thermometers, masks & sanitizers
- Had equipped Occupational Health centers (OHCs) for testing suspected employees
- Having clearly defined procedures on process steps to be taken in case an employee tests positive
- Essential Health Services (EHS) providing constant support to employees who have been tested positive to COVID 19.
- Creating a robust governance structure such as empowered committee consisting of COO and cross functional leaders, constitution of operational task force to deal with ground situation
- Advisory to corporate affairs and global security liaison groups on the process/steps for coordinating with government authorities
- Providing permissions to employees for WFH apart from enabling VDI for employees who may be using personal equipment for WFH.
- For the purpose of business continuity reasons, critical employees have been identified and they have been provided with passes from government authorities.
Have transparently updated the status of updates on initiatives taken by it across locations.

**Mindtree (L & T)**
- Have uploaded the company’s response initiatives on their website
- They are following the WHO guidelines on Employee Safety, Travel and other related advisory guidelines
- Have created and empowered the enterprise risk management team to take decisions on structure based on the situation to manage the operations
- Work from home option has been provided to all the employees
- Have set up a 24-hour medical hotline to help employees
- Increased the digital collaboration tools capacity to support the employees

**HCL Technologies**
- Has operationalized the well-defined pandemic policy to deal with the situation
- Work from Home has been enabled for 76% of India-based employees and 92% of employees located in other geographies. Skeletal staff has been permitted to operate from offices, post approval from the respective local authorities, from a disaster management architecture perspective.
- Facilitated employee interaction through virtual meetings
- Ensure deliver of the its commitments to its clients and employees
- Has helped the district administration of Noida in setting up of a Corona Control Centre that runs 24X7 with a toll-free number

**L & T Infotech**
- Work from Home facility for most of the employees across globe
- Ensured sanitization drive by increasing the frequency and intensity of the offices
- Has imposed travel restrictions on employees both on domestic and international travel
- Has equipped the medical centers to deal with medical emergency situation.
- Has conducted a crisis simulation exercise to gear up the system, before the lockdown to test the preparedness of the organization and train the employees
- Has set up a global helpline to address employee queries about COVID 19.
- Has been sharing regular updates to all the employees through email, intranet and other communication channels.

**BFSI Sector**
The banks in the country were allowed to operate, as they are part of the essential services for the country. The staffing in the branches was reduced based on customer footfall and employees were advised to attend to duties in turns, only for limited number of hours. The banking services were restricted to four essential services i.e., Cash Deposits, Cash Withdrawals, Govt Transactions and Cheque Clearing Operations.

Based on the finance ministry, government of India, the banks had offered the facility of moratorium on Loan EMIs payable by its customers. In addition the banks have responded individually, the details of which are captured below.

**SBI:**
- The Bank has contributed INR 100 Crore to the PM Cares Fund
- All the 2,56,000 Employees have consented to contribute 2 days salary to the PM Cares Fund
- Additionally it has agreed to contribute 0.25% of its annual profit for the FY 2020 towards fighting COVID 19. The areas of support include preventive healthcare, sanitation and disaster management.
The bank has extended moratorium on loan payable as per the directives of Finance Ministry.

**Axis Bank**
- The bank has announced a contribution of INR 100 Crore to the PM Cares Fund.
- The bank has waived of charges for online transactions
- The bank has withdrawn chat services and but has offered digital services such as Internet

**ICICI Bank**
- The group has committed INR 100 Crore to the PM Cares Fund
- Has launched a new digital platform called ICICIstack to take of baking needs of the customers, digitally, using API technology. The platform offers 500 different services that the bank offers to the customers.
- Employees who could work from home, have been offered the WFH option and rest in customer facing roles are guided by the govt and the RBI guidelines.

**HDFC Bank**
- The HDFC group has contributed INR 150 Crore to the PM Cares Fund
- The bank has deployed mobile ATMs in coordination with local governments.
- The bank has leveraged technology to continue to provide banking services through digital channels such as Chatbot(Eva), Mobile Banking, Net Banking.

**Kotak Mahindra Bank**
- The group has contributed an amount of INR 60 Crore for the COVID relief operations (The Bank and the Chairman have contributed INR 25 Crore to the PM Cares Fund and INR Crore for the relief operations in Maharashtra)
- The Chairman Mr Uday Kotak has foregone his one year compensation and decided to take just INR 1 Rupee for the year as his compensation.
- The top leadership have come forward to forego 15% of salary for the year.
- The bank apart from offering the facilities advised by the govt has offered banking services through digital channel

**Union Bank of India**
- The bank apart from extending the services to the customers as per the directive of RBI/Government has taken a unique step towards employees. It has undertaking training initiative to rain all the 9500 branch managers using digital technology in critical skill areas to upskill/reskill them.

**Manufacturing Sector**

**Mahindra & Mahindra**
- The group company Mahindra Logistics Limited (MLL), which provides enterprise mobility solutions has provided free emergency cab services, for those impacted by COVID 19.
- It has manufactured face shields to protect people from COVID 19 infection
- Have come up innovative ventilator product, which it has manufactured at a mere cost of INR 7,500, which otherwise costs INR 10.00 Lakhs
- All the Mahindra tech employees have been provided with work from home option

**Godrej Industries Limited**
- Has donated INR 50 Crores to the PM Cares Fund, as an initial contribution and could be scaled up subsequently.
- The group has leveraged its expertise in medical refrigeration construction business to build quarantine rooms, needed for the COVID positive tested patients.
It has offered its vast expertise in mechanical, electrical and plumbing systems to the hospitals which are used for COVID relief operations.

- It has donated 115 beds to the government hospitals in the state of Maharashtra.
- Supported setting of 75 bed quarantine centre near seven hills in Andheri located in Mumbai City.
- It being the second largest soap manufacturer in India, has undertaken to create awareness on handwashing through #ProtecktIndiaMovement through multiple channels. As a part of the campaign, they have distributed 1 million sachets of Mr Handwash Liquid powder packets in Mumbai and Thane areas.
- It has further supported 1.12 Lakh beneficiaries spread across 8 states with Handwash kits

**Reliance Industries**

- Contributed INR 500 Crore to PM Cares Fund and INR 5 Crore each to the states of Gujarat and Maharashtra towards COVID Relief Activity
- It has manufactured 1 Lakh Mask and Personal Protection Equipment
- The H N Reliance Foundation Hospital has built a 100 bed isolation hospital in less than 2 weeks in Mumbai and made it available to the govt.
- 50 Lakh free meals were made available for 10 days to the needy citizens.
- The organization has affirmed that all the 6 Lakh employees are committed to play their part in the national service
- Reliance Retail stepped in to supply essential goods to the needy for relief operations
- Reliance Life Sciences has contributed to virus testing capacity in the country, through its own tests, which were available to the employees on a pilot basis.

**Vedanta**

- Made a contribution of INR 201 Core to the PM Cares Fund
- In addition, it has contributed INR 200 Crore for relief measures to communities effected by COVID 19.
- Pledged its support to 10 lakh meals per day to the people who have lost their livelihoods, like daily wage labourers, migrant workers etc
- It has started feeding 50,000 stray animals daily for a month
- Tied up with Ministry of Textiles, Govt of India to import machines from China to manufacture PPE.
- It has collaborated with district hospitals to provide markings, disinfectant sprays and medical equipment
- BALCO Hospital in New Raipur, Chhattisgarh has set up 100 bed hospital at Korba, Chhattisgarh
- It has handed over the Cairn Centre of Excellence at Jodhpur has been handed over to be converted into a Quarantine Centre.
- Provided over 1 Lakh Masks and 15.500 soaps and sanitizers to the rural communities
- All the employees of Vedanta to donate 1 day salary for COVID 19 relief operations and organization to make matching contribution.

**L & T**

- Has donated INR 154 Crore to PM Cares Fund
- Has set aside INR 500 Crore PM to take care of 1,60,000 contract workers employed by it.
- Has offered its community and health facilities (hospitals & ambulances) for COVID support.
• It has offered to transform the company owned training & other select establishments for isolation wards needed for COVID 19 positive persons
• Work from home is being offered where possible and for other employees, safety precautions have been established to eliminate health risk.
• Increased health care & vigilance at project sites for worker safety
• Tech solutions developed by L & T have been made available to state governments to track the virus on real time basis.
• The organization has transparently made its efforts relating to COVID in a transparent way.
• 24X7 availability of medical facilities including ambulance to all the employees
• Providing daily health advisories to all the 1,20,000 employees on a daily basis.
• Creation of COVID Response Teams (DRTs) with empowerment for timely action at ground/operational level.
• Closure of establishments as per directive of the government authorities.

Hospitality Sector
The Federation of Hotel and Restaurant Association of India (FHRAI), an association of major hotel & restaurant businesses in India have come forward and offered 45000 rooms across the country, for accommodating the healthcare personnel working in COVID relief operations across the country. The association members include Taj Group, ITC, Radisson, Menon Tree, OYO had reached out to embassies with an offer to host stranded tourists in its properties. It has partnered with Apollo Hospitals to offer quarantine facilities for the COVID patients. The CEO, Mr Ritesh Agarwal has come forward to forego 100% of his salary for the year and the top leadership has agreed voluntary salary cuts.

Analysis
The analysis of the initiatives by various organizations across the sectors is captured below

<table>
<thead>
<tr>
<th>Sector</th>
<th>Initiatives/steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Sector</td>
<td>Constitution of a Disaster Management Team</td>
</tr>
<tr>
<td></td>
<td>Constant communication with stakeholders</td>
</tr>
<tr>
<td></td>
<td>Financial contribution to the PM Cares Fund</td>
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<tr>
<td></td>
<td>Work from home to most of the employees, except for critical staff, who were advised to work from office, after obtaining necessary govt clearances</td>
</tr>
<tr>
<td></td>
<td>Providing technology support for drug/vaccine invention to fight against cancer, especially those who had capabilities in the area.</td>
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<tr>
<td></td>
<td>Round the clock helpline for employee support</td>
</tr>
<tr>
<td>Banking Sector</td>
<td>Financial Contribution to the PM Cares Fund</td>
</tr>
<tr>
<td></td>
<td>Running operations as per the directives of the sector regulator(RBI) and Govt of India</td>
</tr>
<tr>
<td></td>
<td>Providing work from home facilities to the employees, where possible</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>Financial contribution to the PM Cares Fund</td>
</tr>
<tr>
<td></td>
<td>Preparation and distribution of food to the needy people</td>
</tr>
<tr>
<td></td>
<td>Sharing real time health advisories to the employees along with precautions to be taken</td>
</tr>
<tr>
<td></td>
<td>Making the company medical facilities available for the quarantine purposes</td>
</tr>
<tr>
<td></td>
<td>Offered work from home employees where possible</td>
</tr>
<tr>
<td></td>
<td>Facilities were shut as per the advice of local government authorities</td>
</tr>
</tbody>
</table>
Preventive and welfare measures at project sites

Manufacture of Personal Protective Equipment, where possible

<table>
<thead>
<tr>
<th>Hospitality</th>
<th>Facilities offered for quarantine purposes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Facilities offered for stay &amp; related logistics of stranded foreign tourist</td>
</tr>
<tr>
<td></td>
<td>Employees were laid off</td>
</tr>
<tr>
<td></td>
<td>Few Leaders have forgone their salary</td>
</tr>
</tbody>
</table>

On reviewing the above, it is observed among all the four sectors covered for the study, the manufacturing have delivered far more than the other sectors. Some of the reasons, could be the nature of their operations, strength of infrastructure built for the purpose of their operations. In addition, some of the leading players came forward with substantial humanitarian support like serving food for large number of needy people apart from producing and freely distributing personal protective equipment. Few of the organizations have come forward and contributed to the manufacturing of ventilators which were dire necessity for India’s preparedness to fight Corona Virus. The Banking sector played a facilitative role largely because of the nature of operations on one side and regulator/govt directives on the other side. The organizations in IT had a comprehensive and integrated approach, which is based on principles of project management, which is a business imperative, as per the guidelines/practices of the industry. The banking industry though played a restrictive role in terms of contribution to humanitarian efforts, and limited itself to making financial contribution and providing work from home facility to the employees. It’s contribution to keep the economy going through digital channels and offering financial relief to the borrowers. The former is individual response, but the latter was mandated by the regulator/government. The hospitality sector has made nominal and least contribution among all the four sectors, of limiting itself to offering the rooms.

Results

Based on the research carried out, the results of research are being interpreted for each of the hypothesis for the research.

- **H1 : Leadership of an organization has a positive impact on its response strategies during COVID 19**
  - Yes the leadership of an organization has a major impact both on the empathy and the response initiatives of the organization. From the data and analysis, it is observed that organizations like Reliance, L & T, Vedanta and Tata Group, which have leaders who have high levels of social sensitivity have responded and supported the COVID relief efforts, both for the employees and the community relief operations. One key aspect to be noted is that the leaders of all the above 3 organizations, have created infrastructure and governance towards CSR activities, much before and that has helped them to undertake and execute the relief operations/support undertaken by them.

- **H2: Organizational Culture has a positive impact on the response policies and initiatives during COVID 19**
  - Yes the culture of an organization has major role on the empathy and response initiatives. The culture of an organization gets built and nurtured over a period of time. The foundations for the culture get laid by the founders and get strengthened by the successive leaders. In the study all the four (Reliance, L & T, Tata organizations which have responded far better than other organizations have a strong cultural roots laid down by the founders/current founders and have a tradition and track record of undertaking and carrying out CSR activities.
H3: The culture of commitment in the organization positively impacts its response strategies during COVID 19

- Yes, it does. On an analysis of the response and performance of organization in the COVID relief activities, we can observe that the all the four organizations, are known for two aspects. The first aspect being the commitment to the cause of community and CSR. These organizations have track record of being passionate and committed about both organizational goals both in terms of business and CSR goals. The strong sense of commitment has translated into outstanding performance and response. As a result, their response to COVID has better in relation to the other organizations, which have routine or trying to in line with the response of the other organizations in the market place.

H4: Past track record of CSR impact an organization has influence on its social support initiatives

- Yes, the positive track record of the organization in the past has a significant for multiple reasons. The organizations has sensitivity and feel accountable to respond and support the community during a crisis or a specific cause, to which it is aligned. The track record of undertaking and executing CSR initiatives will ensure that the organization has governance structures along with processes and procedures in place. Further, employees working in the organization will have positive commitment to support the organizational initiatives in an active way.

H5: Employee centricity in the organization has impact on the empathy and COVID response initiatives aimed at both employees and external communities

- Partly Yes. The organizations which have a track record of designing and implementing HR policies and initiatives. The sampled organizations have a strong HR policies/procedures aimed at employee welfare and engagement. There are two three dimensions towards organizational response towards COVID. The first aspect are the mandatory guidelines of the government and local authorities during the lockdown which the organizations are obligated to comply. Organizations do not have a way but to comply with the guidelines as not doing so would invite necessary penal action that includes criminal prosecution for non-compliance. The second aspect is, taking steps towards employee and community welfare activities. Apart from mandated work from home initiatives, there are organizations that have undertaking steps such as PPE (personal protective equipment), round the clock access to online medical and expert advice, training & development opportunities, and sharing health advisories on a real time basis. Further, the organizations have undertaken COVID relief efforts of large scale such as providing food and PPE to needy people, sharing organizational infrastructure (hospitals, ambulance, guest houses) with government authorities. The pre-existence well equipped healthcare and medical facilities is a key indicator of employee centricity especially for the organizations in the manufacturing organizations. Having the infrastructure is one perspective, but opening up pro-actively to support the government is another aspect. Though all the manufacturing organizations have the facilities, not all having reached out to the government with their support. For instance, most of the IT organizations have established system of catering facilities for their employees. It would have been easy for the IT organizations to coordinate with the catering service providers and arrange for relief food for the needy people, but that is not observed. In a sense the IT organizations looked at immediate environment of their employees and their
business partners and have taken steps towards their welfare. Most of the IT organizations including the sampled IT organization barring a few, have limited themselves to cheque philanthropy. Thus having employee centric HR policies does not always translate to proactive response to external communities, but may get restricted to the internal stakeholders and business partners. The orientation towards response to the community comes from having a strong leadership that is responsive and proactive to the needs of the environment. The difference can be seen between the four organizations (Reliance, L & T, Vedanta and Tata group), which have extended a proactive support spontaneously, and thus raising up to the occasion.

- **H6**: Adaptive and learning orientation in an organization has a positive impact on the empathy and COVID response.
  
  o Yes. COVID as a phenomenon is not something that either employees or organizations have witnessed in the recent history of the mankind. For organizations with higher proportions of millennials, this is first crisis of this magnitude that the generation has faced. The organizations with a strong learning and adaptive orientation have been able to bounce back to normalcy even during lockdown in comparison to the rest. For instance, TCS which is the bell weather company in IT space, has strong culture of learning both mandated and voluntary in the culture of the organization. One of the key prerequisite for career progression of employee is completing online courses mandatorily and getting certified, to be eligible for being considered for promotion to the next level. Further, TCS has HR systems, which allows employees to work from home for personal exigencies and needs of the employees. It is precisely for this reason that the leadership during the announcement of Q4 results of FY 19-20 has announced that organization has learnt to operate under a new normal i.e, work from home (WFH), and they have added that the objective of the organization is to have 75% of the employees working from home in the near future (3-4 years). This is a win-win both for organization and the employees.

- **H7**: Performance orientation of an organization has positive impact on the empathy & COVID response initiatives.
  
  o Yes. Performance orientation, as the literature indicates it as an ability of an organization to steer its people and resources towards accomplishing goals/objectives of the organization. The people, processes/systems are designed to accomplish the assigned goals. The leadership of the organization may have noble intention of extending support to external environment, but if the organization does not have a performance orientation, then the leadership may limit itself to cheque or symbolic philanthropy/ CSR activities. The ability to make large contribution like providing 3 crore meals by Reliance was possible only because the organization has a strong performance culture deeply rooted in the organization.

**Conclusion**

The research was carried out on a contemporary and highly debated topic i.e., how did organizations respond to COVID19 and what could be the causal factors for organizations to do. The initial research on the topic and subsequent research has identified factors two sets of factors that will influence the empathy and response of the organization. The first set of factors are core factors such as Quality of Leadership, Organizational Culture in general and specifically components viz Shared Values, Trust Levels in the organization along with level of commitment among the employees towards organizational goals. In addition there are
contributory attributes such as Performance, Learning and Adaptability orientation(s) along with Community/social sensitivity of the organization. The combination and interaction of these two sets of variables will result in organizational empathy and response which can observed and assessed through employee welfare, stakeholder and community welfare initiatives. The sampled organizations have demonstrated varying levels of empathy and response to the COVID 19. Some of the organizations have limited themselves to making financial contributions to the Pm Cares fund and have implemented the lock down guidelines, which are mandated by the government. Few organizations have extended help to their business partners and stakeholders connected with their business. Only few organizations have taken response initiatives that are aimed at providing relief and support to the needy people.

Organizations such as Reliance, L & T group, Tata group have responded in much superior way, as compared to other sampled organizations. The organizations have responded differently and the causal factor could varying levels of empathy. We could deduce that like individuals, organizations too can have varying levels of maturity and we could the response of organization has varied due to this factor. Based on the study, have come up with a model called Organizational Empathy Maturity Model (OEMM), which is presented below:

The empathy of organization can operate at 4 levels, which can be termed as Organizational Empathy Maturity Model (OEMM). In the first level, the organization has no empathy for multitude of factors such as lack of strong and ethical leadership, ill-defined or undefined shared values, resulting in low levels of trust between internal and external stakeholders. The level of commitment among the employees towards the organizational goals and objectives will be low as well. The organizational could be operating purely for profits or may be operating as a directionless ship. The significant attribute of organization operating in the second level it focused on employee welfare and does not view other aspects such as welfare of other stakeholders such as business partners, supplier or for that matter the community/society at large. In the level III of maturity, the organization part from taking care of employees looks at welfare of its business partners/associates who are associated with it and whose support is critical for it to be successful for it to realize its business goals and objectives. The organization operating in the level IV, looks at extending its empathy to all the stakeholder, both internal, business associates and more importantly the community at society at large.

The interesting perspective here, does an organization always operates at the same level of maturity or does it progress or regress from the one level or empathy maturity to another levels and if yes, what can be the contributory factors. The two major influencing factors are Leadership & Business Context of the organization. An organization with a strong leadership can progress from low level to higher levels of empathy maturity if the business context has been conducive resulting in higher operating margins and profits. However in case of non-conducive business environment, inspite of having a strong leader and good intentions, the leader may find it difficult to navigate the organization from lower level of empathy to higher levels.
Implications of the study

This study contributes information of how organizations across sectors have responded to the COVID challenges. The data collected includes the comprehensive data on all the efforts undertaken by the organization to help both internal and external stakeholders. At the end of the study there the linkage between empathy in the organization and the response initiative was observed. For paucity of time, the sample size was small and the organizations were taken only from India. There is an opportunity for a broader study by expanding the scope of the study to larger set of organization globally, to study if the national/regional culture has any impact on this phenomenon. Further there is opportunity to make a detailed study on OEMM, come up with an instrument and use it for predicting the maturity in empathy levels in an organization.

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COVID-19 Pandemic & Economic Downturn: An Empirical Study

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Abstract

The present study seeks to examine the pandemic effect of COVID-19 on stock market. Due to sudden COVID-19 attack thousands of people have lost their valuable lives and many infected people around the world are fighting against death and the situation is very severe. All the nations are jointly working against COVID-19 to save the human civilization. The COVID-19 shock has not only pushed the human life in danger but also the entire economy in the world has headed down in front of COVID-19. The entire stock markets around the world are expected to decline sharply by COVID-19 shock. Keeping this view in mind, the study considers five indices (BSE & NSE – India, SCI – China, LSE – Great Britain & NYSE – USA) to examine the above issue and thus, closing daily values of the indices are considered and checked for normality and stationarity. Here, OLS, logit and probit models are applied and found that all the selected indices are sharply affected by COVID-19 shock except Shanghai Composite Index (SCI) in China and conclude that why SCI is not affected by COVID-19 shock during this volatile situation?

Keywords: COVID, BSE, NSE, NYSE, LSE, SCI

Introduction

Entire world is now experiencing the negative impact of COVID-19. We are all fighting against this pandemic Corona virus by which we can save our human civilization in the Earth. Already, we have lost thousands of human lives by this deadly virus. Millions of people have been infected and in isolation. The entire economy in the world is going down speedily within a very short period of time and if this continues the entire world would experience a great recession. Corona virus is not a flu, because it is not due to an influenza virus but it is very similar to these pandemic flus. But, there are two epidemics of corona virus related severe respiratory illness in the recent past. The first one is Severe Acute Respiratory Syndrome (SARS) caused by the virus known as SARS-COV that spread among 30 countries in the world in 2003-04 and infected more than 8500 people and 813 were died among them.

The second epidemic is Middle East Respiratory Disease Syndrome (MERS) in Arabia due to corona virus that affected 2500 people and 858 were declared as death (Sullivan, 2018).

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COVID-19 outbreak expands significantly into a global pandemic. It is the epidemic of a respiratory illness caused by a virus identified and popularly known as COVID-19 (Corona virus). The virus is officially designated as “Severe Acute Respiratory Syndrome Corona virus 2 (SARS-CoV-2)” that is assigned by the International Committee on Taxonomy of Viruses. It is related genetically but unlike from acute respiratory syndrome corona viruses (SARS-CoV) (WHO, 2020). The Pattern of symptoms is the same in the majority of patients with mild or levels of symptoms (JSA & AIPSN, 2020). A study claims that around 14% per 1000 were died (Guan et al., 2020). Another study by Li et al., 2019 depicts that 71000 influenza associated excess respiratory deaths occurred in individuals aged 60 years or older. Another study by Lancet (2018) concludes that influenza virus causes death to children but fortunately the corona virus has not led to death in children but infected (CIA et al., 2020). In India, currently, 7000 persons have been tested since the epidemic began (Scroll, 2020). A joint mission on COVID-19 conducted by WHO and China (2020) reports that (1) COVID-19 is transmitted via droplets and fomites during close unprotected contact between an infector and infectee (2) in China, human to human transmission of the COVID-19 is largely occurring in families and (3) China has a policy of meticulous case and contact identification for COVID-19. Another paper by Benjamin Hurlbut (2017) examines the relationship between political norms associated with governance of pandemic risk and he argues that scientific regimes are laying claim to a kind of sovereignty by positioning the norms of scientific practice including a commitment to unfettered access to scientific information and to the authority of science to declare what needs to be known as essential to global governance. He reports that scientific authority occupies a constitutional position insofar as it figures centrally in the repertoire of imaginaries that shape how a global community is imagined. In 2019, Yang et al., says that COVID-19 outbreaks in Wuhan, Hubei province and began spreading rapidly with more than 80000 cases confirmed and 3000 deaths in China. Many countries like Italy, Iran, Korea, Japan, USA and other countries have reported nearly 60000 cases and most of the COVID-19 patients initially suffered from fever, cough, fatigue and breathing problem along with muscle pain, headache, chest pain and diarrhea similar to the symptoms observed after chemotherapy, targeted and immune therapy. Kim et al., (2016) once again memorizes the Ebola scare in 2014 where many people evinced strong fear and xenophobia and their study informed by the pathogen-prevalence hypothesis, tested the influence of individualism and collectivism on xenophobic response to the threat of Ebola. Similarly, Ceukelaira et al., (2020) says that corona virus (COVID-19) outbreak has already spread from China to the entire world in less than two months. Now is the time to take stock and to assess the responses of different countries to the outbreak so far. Global corona pandemic teaches to the entire nation that strong public health systems have the flexibility to address massive health threats with the collective responses they require. Privatization of health services and individualization of risks might further weaken our ability to address this and future global pandemics. Another study by Tomes (2010) observes that Spanish influenza arrived in the United States at a time when new forms of mass transportation, mass media, mass consumption and mass warfare had vastly expanded the public places in which communicable diseases could spread. So, public health authorities tried to implement social distancing measure to control over the situation of deadly crowd disease. The study reports that social distancing is an important measure that significantly can reduce mortality rates affected by H1N1 influenza pandemic during 1918-1919. So, it may be opined that social distancing is an important tool opined by the entire world to protect human lives from spreading COVID-19 also. A 55 year old individual from Hubei province in China may have been the first person to have infected COVID-19 in 17th November 2019 (South Morning China Post). At that time, authorities suspected that the virus came from something sold at a wet market in the city. However, it is now confirmed that early in what is now a pandemic, some infected people had no connection to that seafood market that is reported by the researchers in 20th January 2020.
Scientists now suspect that corona virus has been originated in a bat and somehow hopped to another animal, possibly the pangolin which then passed it into the human body. So, here there is a lot of anomaly about origin of COVID-19. Someone claims it is artificially invented by the scientist and the other groups claim it has been passed from the animal body. Now the disease is spreading between people without any animal intermediary and the scientists are trying to trace the virus back to where it has been originated to learn more about its spread.

Where the source of COVID-19 till now is unknown and we expect it would be disclosed in the coming days. But, besides human loss, the entire economy is at risk. Today’s economy is not a centrally planned and fully independent. All economies are interlinked and interdependent with each other and thus, all the economy is termed as global economy. There are so many factors that affect the economy positively or adversely. Recently, the entire economy in the globe is suddenly affected by the corona virus (COVID-19) and as a result, the economies become slowdown and side by side all the nations become lockdown rapidly. So, COVID-19 shock originated from China has been spread all over the world and the economies are going to face global crisis. The increased uncertainty has led to financial market more volatile which transpiring all the economies in front of deepest financial crisis in recent time. It has been seen that most international stock markets are nearing bear market territory as investors process the lower corporate earnings that will result from the fear of COVID-19 pandemic outbreak. The longer the COVID-19 spreads, the more economic and corporate performance will be adversely impacted and raising concern about debt sustainability especially for highly indebted countries and companies. In 2012, Lewandowsky et al., says that widespread prevalence and persistence of misinformation in contemporary societies, such as the false belief that there is a link between childhood vaccinations and autism, is a matter of public concern. They speak about myths surrounding vaccinations which prompted some parents to refuse to give immunization from their children have led to a marked increase in vaccine preventable disease as well as unnecessary public expenditure on research and public information campaigns aimed at rectifying the situation. They examine how this misinformation is disseminated in society both unintentionally and purposely. Misinformation can originate from rumors but also from works of fiction, governments and politicians and vested interests. Moreover, changes in the media landscape including the arrival of internet have fundamentally influenced the ways in which information is communicated and spread and they also examine the misinformation at the level of the individual and review the cognitive factors that often render misinformation resistant to correction. Recently, we have seen misinformation spreading over the social media about COVID-19 pandemic and it is very difficult to assess which is wrong and which right. This misinformation is spreading by the individual, political leaders, religious saints and their followers for their vested interest. So, it is dangerous for a country to control over the situation of COVID-19 and thus, to control over the debunking of misinformation they provide specific recommendations pertain to the ways in which corrections should be designed, structured and applied in order to maximize their impact.

In this volatile situation, the present study tries to examine the pandemic effect of COVID-19 on the selected stock markets around the world. The study is new one and there is scanty of literatures. There is lot of studies on financial crisis but financial slow down by virus attack is totally new one and this study surely adds value to the existing literature.

**Objective of the study:**
The study is trying to examine the following objectives:
1. To examine the impact of COVID-19 on stock market
2. To examine the vulnerable situation caused by COVID-19 in the stock market based on logit and probit model
Data & Study period:
The study uses daily data and thus five popular stock market indices are considered around the world. They are Bombay Sensitive Exchange (BSE), National Stock Exchange (NSE), New York Stock Exchange (NYSE), London Stock Exchange (LSE) and Shanghai Composite Index (SCI). The first two indices are from India and followed by USA, Great Britain and China respectively. The reason behind to select these indices are (a) from daily experience it is observed that Indian stock market is drastically fall by COVID-19 attack (b) the first person attack by COVID-19 is from China so SCI is selected (c) NYSE is the leading stock market in the world and also affected by COVID-19 drastically (d) LSE is also a leading stock market in Europe and this region is significantly affected by COVID-19. The daily closing index data is collected from 1st April 2019 to 20th March 2020 and converted into log form. The whole data is divided into two halves. The first half is from 1st April 2019 to 30th September when all the stock market is at normal position or in other words is not affected by artificial COVID-19 and the second half is from 1st October 2019 to 20th March 2020. It is assumed that the first COVID-19 attack and also detected is between in the months of November or December 2019 but when COVID-19 entered into a human body was unknown. It is also assumed that some publicly available information about COVID-19 already prevailing in the economy through social media before November, 2019 and that time the information was not so important to the public as well as Government and for this reason the whole data is divided into two halves. The daily data is collected from the official websites of the respective indices.

Methodology:
Let start with a simple regression model where COVID-19 is considered as the independent variable and closing price of the indices (BSE & NSE) as the dependent variable. Before specify the model, it is assumed that the closing index value is normally distributed with zero (0) mean constant standard deviation. To test normality J-B statistic is used and the following hypothesis is formulated:

$$H_0: \text{time series data is normally distributed}$$
$$H_a: \text{not normally distributed}$$

To test J-B statistic, skewness and kurtosis are computed. The distribution is symmetry if the value of skewness is zero (0). Similarly, kurtosis measures the peakedness of the distribution and finally, J-B statistic as under:

$$J - B = n \left[ \frac{S^2}{6} + \frac{(k - 3)^2}{24} \right]$$

Where, \(n\) is the number of observations
S is the skewness
K is the kurtosis

In the same way, a random variable \((Y_t)\) is said to be stationary if the following conditions are satisfied:

$$E(Y_t) = \mu = \text{constant for all } t; \ \var(Y_t) = \sigma^2 = \text{constant for all } t, \ \text{and } \cov(Y_t, Y_{t-j}) = \lambda = \text{constant for all } t \neq j.$$ 

It is assumed that the macro-economic time series is stationary if differentiating technique is followed. Now, start with an autoregressive framework AR(1):

$$Y_t = \rho Y_{t-1} + \varepsilon_t$$

Where, \(Y_t\) is a series of observations at time \(t\), \(\rho\) is the real number and \(\varepsilon_{t-1}\) is the error term with 0 mean constant variance.

Here, if \(|\rho|<1\) then \(Y_t\) converges (as \(t \to \infty\)) toward stationary time series and if \(|\rho|=1\), then it faces a problem of unit root, i.e., a situation of non-stationary and if this happens then the variance grows exponentially as \(t\) increases (Dickey & Fuller 1979). Here, ADF and P-P tests are used to check stationary as under:
\[ \Delta Y_t = \delta Y_{t-1} + \sum_{i=2}^{k} \alpha_i \Delta Y_{t-i} + e_t \quad (3) \]

e_t is white noise error term with the same properties as discussed above. Here, equation 3 incorporates difference term \([\Delta Y_t = (Y_{t-1} - Y_{t-2})]\) and the null hypothesis is as under:

\( H_0: \delta = 0 \) (non-stationary) and \( H_a: \delta < 0 \) (stationary)

Now, start with a simple regression function by considering closing daily closing value of the stock market index as the dependent variable and COVID-19 as the independent variable. It is assumed that the daily closing value of the index is normally distributed with 0 mean and constant standard deviation. Generally, the formal model can be written as:

\[ \text{Index}_{it} = \alpha + \beta \text{COVID}-19_{it} + e_{it} \quad (4) \]

or in other words index is a function of COVID-19 as under:

\[ \text{Index} = f(\text{COVID}-19) \]

Where, \( \text{Index}_{it} \) is the daily closing value of the \( i^{th} \) index at time \( t \)

\( \text{COVID}-19_{it} \) is the dummy variable that takes value 1 (if the index is affected by it) or 0 (otherwise).

\( e_{it} \) is the disturbance term with all usual assumptions of CLRM.

Here, \( E(\text{Index}_{it} | \text{COVID}-19_{it} = 0) = \alpha = \mu_0 \)

\( E(\text{Index}_{it} | \text{COVID}-19_{it} = 0) = \alpha + \beta = \mu_1 \)

It may be said that the intercept of equation 4 is the mean value of index not affected by COVID-19 attack. The slope coefficient is the difference of mean index value affected by COVID-19 and also non-affected by it (i.e., \( \beta = \mu - \mu_0 \)). From the above discussion, the following hypothesis may be formulated as under:

\( H_0: \mu = 0 \)

\( H_a: \mu \neq 0 \)

and it may be examined whether there exists any statistically significant differences between the mean value of the index under two type of situations.

In model 4 it is found that COVID-19 (dummy) appeared as independent variable. But, in many situations where the dependent variable is considered as dummy variable and such type of model is known as binary choice model and this model also belongs to the class of limited dependent variable models (LDVM) because the dependent variable assumes only a limited or countable number of values or in other words, in this model, the dependent variable considers two situations namely presence or absence of an attribute.

Such type of situation may be handled by applying three approaches (i) linear probability model (LPM) (ii) logit model and (iii) probit model where dependent variable is considered as dummy which indicates quantity or attribute.

Now, start with the following linear probability model (LPM):

\[ \text{COVID}-19_{it} = \alpha + \beta \text{Index}_{it} + e_{it} \quad (5) \]

Where, the details about the notations are same as described in equation 4.

But, the present study uses logit and probit models to examine the above issue because LPM model suffers from some difficulties like (i) violation of normality assumption of the disturbance term (ii) disturbance term suffers from heteroskedasticity (iii) due to violation of normality and homoskedasticity assumptions, test of significance becomes invalid (iv) violation of condition \( 0 \leq E(Y_i/X_i) \leq 1 \) and (v) unsuitability of conventional measure of goodness of fit \( (R^2) \).

Therefore, the study doesn’t consider LPM model here. But, it can be started with the sigmoid curve or S-shaped curve.
It is observed from the above figure that the value of $\hat{Y}_i$ is negative at the lower left end of the line and higher than unity at the upper right end. The LPM shows that when the dependent variable is binary then a non-linear specification of the model appears more appropriate. Particularly, it seems meaningful to some kind of an S-shaped or sigmoid curve to the observe data points. This curve has the following characteristics:
(i) It represents an elongated – S
(ii) The tails of the sigmoid curve level off before reaching $P = 0$ or $P = 1$, so that the problem of impossible values of estimated probability is avoided and
(iii) The sigmoid curve resembles the cumulative distribution function (CDF) of a random variable and therefore an appropriate CDF can choose to represent the sigmoid curve to capture 0 - 1 representation for the dependent variable.

The commonly chosen CDFs represent sigmoid curves are logistic and normal. The model that uses CDF of a logistic function to represent the binary dependent variable model is called logit model. Similarly, the model that uses CDF of the standard normal distribution to represent the same is known as probit model.

Firstly, the logit model can be represented as:

$$P_i = (\text{COVID-19}_i = 1) = F(Z_i) = \frac{1}{1 + e^{-Z_i}} \quad (6)$$

Where,

- $P_i$ represents the probability of $\text{COVID-19}_i = 1$
- $F(Z_i)$ represents the CDF of the cumulative logistic function
- $Z_i = \alpha + \beta \text{Index}_i$ is a predictor variable and $e$ is the base of natural logarithms which is 2.71828.

Now,

$$1 - P_i = \frac{1}{1 + e^{-Z_i}} \quad \text{[as, } P_i + (1 - P_i) = 1]$$

and

$$\frac{P_i}{1 - P_i} = \frac{1 + e^{-Z_i}}{1 + e^{-Z_i}} = e^{-Z_i}$$

so,

$$\ln(\frac{P_i}{1 - P_i}) = Z_i = \alpha + \beta \text{Index}_i \quad (7)$$

Here, $\frac{P_i}{1 - P_i}$ represents odd-ratio in favour of the event occurring and $\ln(\frac{P_i}{1 - P_i})$ is the log odds-ratio (also called logit P).
Model 7 considers only one explanatory variable but according to the necessity more explanatory variables can be included by assuming that $Z_i$ is a linear function of a set of predictor variables and that can be written as follows:

$$Z_i = \alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \ldots + \beta_k X_{ki}(8)$$

Practically, it is not possible to estimate equation 7 by applying OLS technique because of two reasons:

(i) Equation 7 is a non-linear model (although it is linear in parameter)

(ii) $\frac{P_i}{1-P_i}$ is not a familiar quantity

To solve such type of situation there are two approaches namely weighted least squares (WLS) and maximum likelihood (ML). Due to some difficulties contain in model 7, the study uses maximum likelihood approach.

If the study applies logit model 6 then it is not possible to observe individual $P_i$ values for the $1^{st}$ choice (1) as well as second choice (0). The main objective of ML method of logit model is to estimate the coefficients ($\alpha$ and $\beta$) and thus likelihood function (it gives joint probability of observing a given set of sample values) is formed in this way:

Suppose,

$n_1 = \text{number of times the first alternative is selected}$

$n_2 = \text{number of times the second alternative is selected}$

and finally, $n_1 + n_2 = n$

It may be written as that the first $n_1$ observations are associated with the first choice and thus the likelihood function is under:

$$L = \text{Prob}(\text{COVID-19}_1, \text{COVID-19}_2, \ldots, \text{COVID-19}_n) = \text{Prob}(\text{COVID-19}_1) \times \text{Prob}(\text{COVID-19}_2) \times \ldots \times \text{Prob}(\text{COVID-19}_n) \quad (9)$$

Similarly, the probability of the second option is equal to 1 minus the probability of the first option ($1 - 1 = 0$) and it can be represented as under:

$$L = P_1 \times P_2 \times \ldots \times P_{n_1} \times (1 - P_{n_1}) \times (1 - P_{n_2}) \times \ldots \times (1 - P_n)$$

Now, we take logarithm on both sides to form log-likelihood function as under:

$$\ln L = \sum_{i=1}^{n_1} \text{COVID-19}_i \ln P_i + \sum_{i=n_1+1}^{n} (1 - \text{COVID-19}_i) \ln (1 - P_i)$$

$$= \sum_{i=1}^{n_1} \text{COVID-19}_i \ln \left[ \frac{1}{1 + e^{-\alpha - \beta \text{Index}_i}} \right] + \sum_{i=n_1+1}^{n} (1 - \text{COVID-19}_i) \ln \left[ \frac{1}{1 + e^{\alpha + \beta \text{Index}_i}} \right] \quad (11)$$

Now, maximizing lnL with respect to $\alpha$ and $\beta$, we can obtain ML (maximum likelihood) estimates of $\alpha$ and $\beta$.

It is assumed that in ML estimates (a) all parameter estimates are consistent and efficient asymptotically and (b) all parameter estimates are asymptotically normal. Generally, in OLS regression, the $i^{th}$ estimated slope coefficient ($\hat{\beta}_i$) indicates the marginal effect of change in the $i^{th}$ explanatory variable ($\text{Index}_i$) on the dependent variable but in case of logit model, the marginal effect of change in explanatory variable on $P_i$ needs to be calculated after estimation of the model and that can be done as under:

$$\frac{dP_i}{dZ_i} = \frac{d}{dZ_i} \left[ \frac{1}{1 + e^{\alpha + \beta \text{Index}_i}} \right] = \frac{e^{-\text{Index}_i}}{(1 + e^{-\text{Index}_i})^2} \quad (12)$$

Now, the marginal effect ($dP_i/dZ_i$) of change in $i^{th}$ explanatory variable ($\text{Index}_i$) on $P_i$ is computed as under:
\[
\frac{dP_i}{d\text{Index}_i} = \frac{dP_i}{dZ_i} \times \frac{dZ_i}{d\text{Index}_i} = \frac{e^{-\hat{\alpha} - \hat{\beta} \text{Index}_i}}{1 + e^{-\hat{\alpha} - \hat{\beta} \text{Index}_i}} \times \hat{\beta}_i (13)
\]

and this marginal effect exposes about \((dP_i/d\text{Index}_i)\) change in \(P_i\) as a result of one percentage change in index.

Like logit model, probit model also represents an S-shaped or sigmoid curve. This model also considers CDF of a standard normal distribution and \(P_i\) shows standard normal CDF which is considered as a linear function of the explanatory variable \((s)\). The probit model can be written as under:

\[
P_i = P(\text{COVID} = 1) = F(\alpha + \beta \text{Index}_i) (14)
\]

Where, \(F(\alpha + \beta \text{Index}_i)\) indicates the CDF of the standard normal distribution so that

\[
P_i = F(\alpha + \beta \text{Index}_i) = \int f(Z)dz (15)
\]

Where, \(f(z)\) is the density function of \(z \sim N(0,1)\), i.e.,

\[
F(z) = \frac{1}{\sqrt{2\pi}} e^{-\frac{z^2}{2}} (16)
\]

The estimation of probit model almost same like logit model except that \(P_i\) represents probabilities associated with the cumulative normal function rather than cumulative logistic function. Like logit model, the log-likelihood function is as under:

\[
\ln L = \sum_{i=1}^{n} \text{COVID} - 19_i \ln P_i + \sum_{i=n+1}^{n} (1 - \text{COVID} - 19_i) \ln(1 - P_i)
\]

\[
= \sum_{i=1}^{n} \text{COVID} - 19_i \ln F(\alpha + \beta \text{Index}_i) + \sum_{i=n+1}^{n} (1 - \text{COVID} - 19_i) \ln 1 - F(\alpha + \beta \text{Index}_i) (17)
\]

Now, the unknown parameters can be estimated by solving equation17.

Similarly, like logit model, the marginal effect of change in explanatory variable on \(P_i\) needs to be computed in probit model as under:

\[
\frac{dP_i}{d\text{Index}_i} = \frac{dP_i}{dZ_i} \times \frac{dZ_i}{d\text{Index}_i} = f(Z) \times \hat{\beta}_i = \left( \frac{1}{\sqrt{2\pi}} e^{-\frac{z^2}{2}} \right) \times \hat{\beta}_i (18)
\]

Where, \(\pi = 3.14159265\)

To understand the goodness of fit of any estimated model, we generally use \(R^2\) or adjusted \(-\) \(R^2\) for OLS regression model. Sometime, these measures are not enough to understand the goodness of fit when the dependent variable of the model is binary. In this case there are two approaches to assess goodness of fit of binary dependent variable models (i) revising the existing \(R^2\) formula considering the binary feature of the dependent variable and (ii) developing alternative measures using the likelihood ratios.
Here, the study uses Mcfadden’s Pseudo-$R^2$ that considers likelihood ratios to measure goodness of fit of the estimated model and that can be obtained by comparing the values of log-likelihood of initial regression model (models) with the value of log-likelihood that can be obtained with only the intercept term in the regression model. It is a joint probability of observing given sample quantities and its value lies between 0 and 1 that implies that log-likelihood is negative and can be written as:

$$Pseudo - R^2 = 1 - \frac{\ln L}{\ln L_0} \quad (19)$$

So, the minimum value of Pseudo-$R^2$ is 0 when $\ln L = \ln L_0$ and its maximum value is less than 1.

Finally, to examine the overall significance of logit and probit models, log-likelihood ratio-statistic (LR statistic) is used and it can be computed as under:

$$LR = 2 \ln\left(\frac{L}{L_0}\right) = 2(\ln L - \ln L_0) \quad (20)$$

Here, LR statistic follows $\chi^2$ distribution with $k$ degrees of freedom.

**Results & Analysis:**

The descriptive statistics of four major stock indices are reported in Table 1. It is found that the fluctuation of daily returns of the indices is not so wide and the average returns of the indices are positive. Here, BSE provides the highest return (4.591041) and followed by NYSE, NSE, LSE and SCI. The standard deviation of the indices is not so high. The data of the three indices are skewed in the left (leptokurtic) as compared to the right one and positive excess kurtosis means that the indices’ values are flatter tails than a normal distribution.

Finally, the JB test statistic (Jarque-Bera) shows very large and the probability of obtaining such statistics under the normality assumption is significantly 0 (at 99% confidence interval) that confirms about rejection of null hypothesis ($H_0$: Normal distribution).

<table>
<thead>
<tr>
<th>Variable</th>
<th>ADF Test</th>
<th>Philips-Perron Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Level</td>
<td>Level</td>
</tr>
<tr>
<td></td>
<td>t-statistic</td>
<td>Probability</td>
</tr>
<tr>
<td>lnBSE</td>
<td>-3.523404*</td>
<td>0.0082</td>
</tr>
<tr>
<td>lnNSE</td>
<td>-3.725263*</td>
<td>0.0043</td>
</tr>
</tbody>
</table>

The unit root problems of the indices are tested by using the ADF and PP test statistics. It is found (Table 2) that the computed ADF and PP test statistics of the indices in level form are statistically significant at 5% level with their corresponding probabilities that confirms about rejection of null hypothesis ($H_0$: $\delta = 0$ or $\rho = 1$) that means the time series don’t appear to have a unit root. But in case of LSE the ADF and P-P test statistics are significant at 1st difference that confirms about rejection of null hypothesis.
Table 3 presents the regression (model 4) result when COVID-19 is used as a dummy variable. It is found that the constant terms of all the indices are positive and statistically significant. In the same way, the slope coefficients of the COVID-19 dummy are positively significant for BSE, NSE, NYSE and LSE that indicates COVID-19 significantly affects the stock market of India (BSE & NSE), USA (NYSE) and Great Britain (LSE). It is also found that the slope coefficient of the COVID-19 dummy is negative and statistically insignificant that means Shanghai Composite Index (CHINA) is not affected by COVID-19.

### Table 3

<table>
<thead>
<tr>
<th>Dep. Var.</th>
<th>Constant</th>
<th>t-statistic</th>
<th>Slope Coefficient</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>lnBSE</td>
<td>4.584053</td>
<td>2126.572*</td>
<td>0.014213</td>
<td>4.623371*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.0000)</td>
<td></td>
<td>(0.0000)</td>
</tr>
<tr>
<td>lnNSE</td>
<td>4.058787</td>
<td>1813.158*</td>
<td>0.008753</td>
<td>2.741709*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.0000)</td>
<td></td>
<td>(0.0066)</td>
</tr>
<tr>
<td>lnNYSE</td>
<td>4.109285</td>
<td>2137.689*</td>
<td>0.014566</td>
<td>5.236397*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.0000)</td>
<td></td>
<td>(0.0000)</td>
</tr>
<tr>
<td>lnLSE</td>
<td>3.766770</td>
<td>845.3902*</td>
<td>0.098664</td>
<td>15.52997*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.0000)</td>
<td></td>
<td>(0.0000)</td>
</tr>
<tr>
<td>lnSCI</td>
<td>3.473014</td>
<td>2278.914*</td>
<td>-0.002688</td>
<td>-1.267148*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.0000)</td>
<td></td>
<td>(0.2065)</td>
</tr>
</tbody>
</table>

Source: Author’s own calculation

*Significant at 5% level

The estimated result of the LOGIT model is given in Table 4. It is observed that relationship between the slope coefficients (COVID-19 dummy) with the stock markets (BSE, NSE, NYSE & LSE) are positive and statistically significant meaning that India, USA and Britain are mostly affected by COVID-19 attack but surprisingly Shanghai Composite Index (CHINA) is in safe position and this result is in same line with the above result. The goodness of fit of the estimated models of all the indices is shown by the values of McFadden R². It is also found that overall significance indicated by the LR statistic of the estimated LOGIT model (BSE, NSE, NYSE & LSE) is statistically significant except in case of China market (SCI).

### Table 4

<table>
<thead>
<tr>
<th>Index</th>
<th>Dep. Var.</th>
<th>Constant</th>
<th>z-statistic</th>
<th>Slope Coefficient</th>
<th>z-statistic</th>
<th>McFadden R²</th>
<th>LR Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSE</td>
<td>COVID-19</td>
<td>-150.6869</td>
<td>-4.19318*</td>
<td>32.8041</td>
<td>4.193493*</td>
<td>0.071573</td>
<td>23.80826*</td>
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<tr>
<td></td>
<td></td>
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<td>(0.0000)</td>
<td></td>
<td>(0.0000)</td>
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<td>(0.000001)</td>
</tr>
<tr>
<td>NSE</td>
<td>COVID-19</td>
<td>-66.92907</td>
<td>-2.555592*</td>
<td>16.46108</td>
<td>2.555041*</td>
<td>0.023993</td>
<td>7.981060*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.0106)</td>
<td></td>
<td>(0.0106)</td>
<td></td>
<td>(0.004727)</td>
</tr>
<tr>
<td>NYSE</td>
<td>COVID-19</td>
<td>-174.4831</td>
<td>-4.832395*</td>
<td>42.35357</td>
<td>4.830642*</td>
<td>0.092912</td>
<td>31.51108*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.0000)</td>
<td></td>
<td>(0.0000)</td>
<td></td>
<td>(0.00000)</td>
</tr>
<tr>
<td>LSE</td>
<td>COVID-19</td>
<td>-144.4108</td>
<td>-7.344327*</td>
<td>37.72448</td>
<td>7.367890*</td>
<td>0.459799</td>
<td>156.7745*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.0000)</td>
<td></td>
<td>(0.0000)</td>
<td></td>
<td>(0.0000)</td>
</tr>
<tr>
<td>SCI</td>
<td>COVID-19</td>
<td>38.69591</td>
<td>1.264539</td>
<td>-11.12766</td>
<td>-1.262442*</td>
<td>0.005370</td>
<td>1.614332*</td>
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<tr>
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<td></td>
<td></td>
<td>(0.2060)</td>
<td></td>
<td>(0.2068)</td>
<td></td>
<td>(0.203884)</td>
</tr>
</tbody>
</table>

Source: Author’s own calculation

*Significant at 5% level
Table 5 presents the estimated result of the PROBIT model. It is observed COVID-19 positively and significantly affects India, USA and Britain except China and the result is same as provided by the LOGIT model.

Table 5  

<table>
<thead>
<tr>
<th>Index</th>
<th>Dep. Var.</th>
<th>Constant</th>
<th>z-statistic</th>
<th>Slope Coefficient</th>
<th>z-statistic</th>
<th>McFadden $R^2$</th>
<th>LR Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSE</td>
<td>COVID-19</td>
<td>-61.45915</td>
<td>-4.363505*</td>
<td>13.38440</td>
<td>4.361441*</td>
<td>0.055809</td>
<td>18.56442*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.0000)</td>
</tr>
<tr>
<td>NSE</td>
<td>COVID-19</td>
<td>-33.15121</td>
<td>-2.681235*</td>
<td>8.154886</td>
<td>2.679328*</td>
<td>0.020936</td>
<td>6.964351*</td>
</tr>
<tr>
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<td></td>
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<td></td>
<td></td>
<td>(0.0074)</td>
</tr>
<tr>
<td>NYSE</td>
<td>COVID-19</td>
<td>-66.10046</td>
<td>-4.852375*</td>
<td>16.04782</td>
<td>4.847346*</td>
<td>0.068309</td>
<td>23.16678*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.0000)</td>
</tr>
<tr>
<td>LSE</td>
<td>COVID-19</td>
<td>-84.49177</td>
<td>-8.152136*</td>
<td>22.07713</td>
<td>8.178471*</td>
<td>0.466652</td>
<td>159.1114*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.0000)</td>
</tr>
<tr>
<td>SCI</td>
<td>COVID-19</td>
<td>34.44240</td>
<td>1.266073</td>
<td>-7.029121</td>
<td>-1.263955*</td>
<td>0.005397</td>
<td>1.622477</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.202747)</td>
</tr>
</tbody>
</table>

Source: Author’s own calculation

*Significant at 5% level

The marginal effects of the exogenous variables for LOGIT and PROBIT models are depicted in table 6 and 7. The marginal effects are given in the last column in the tables. It is found that index value is the significant variable for determining the impact of COVID-19 in the economy. According the ranking of the marginal effect NYSE comes first and followed by NSE, BSE, LSE and SCI in LOGIT model but in case of PROBIT model the pattern is slightly different. Here, LSE comes first and followed by NYSE, BSE, NSE and SCI.

Table 6  

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean of the Variable</th>
<th>Constant</th>
<th>Estimated Coefficient</th>
<th>Mean value of the Variable X Estimated Coefficient</th>
<th>$z_i$</th>
<th>$dp_i/dz_i$</th>
<th>Marginal effect = Estimated Coefficient X $f(Z_i)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSE</td>
<td>4.59104</td>
<td>-150.6869</td>
<td>32.80411</td>
<td>150.605014</td>
<td>-0.081886</td>
<td>0.47953974</td>
<td>20.31022841</td>
</tr>
<tr>
<td>NSE</td>
<td>4.06309</td>
<td>-66.92907</td>
<td>16.46108</td>
<td>66.88284954</td>
<td>-0.046220</td>
<td>0.48844694</td>
<td>20.68747203</td>
</tr>
<tr>
<td>NYSE</td>
<td>4.11624</td>
<td>-174.4831</td>
<td>42.35357</td>
<td>174.3375</td>
<td>-0.1456</td>
<td>0.536335</td>
<td>22.71570197</td>
</tr>
<tr>
<td>LSE</td>
<td>3.8153</td>
<td>-144.4108</td>
<td>37.72448</td>
<td>143.9302085</td>
<td>-0.480591</td>
<td>0.38211254</td>
<td>16.18383053</td>
</tr>
<tr>
<td>SCI</td>
<td>3.47162</td>
<td>-38.69591</td>
<td>-11.12768</td>
<td>-38.63114321</td>
<td>0.064767</td>
<td>0.48381397</td>
<td>-5.383772049</td>
</tr>
</tbody>
</table>

Source: Author’s own calculation

Note: $z_i = \text{Constant} + \text{Mean value of the variable} \times \text{slope coefficient}$ and

$$
\frac{dp_i}{dz_i} = \beta_i \left(\frac{e^{-z_i}}{1 + e^{-z_i}}\right)^2
$$

Table 7  

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean of the Variable</th>
<th>Constant</th>
<th>Estimated Coefficient</th>
<th>Mean value of the Variable X Estimated Coefficient</th>
<th>$z_i$</th>
<th>$f(Z_i)$</th>
<th>Marginal effect = Estimated Coefficient X $f(Z_i)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSE</td>
<td>4.59104</td>
<td>-61.45915</td>
<td>13.38440</td>
<td>61.44832916</td>
<td>-0.010820</td>
<td>0.39896563</td>
<td>3.5399315678</td>
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<tr>
<td>NSE</td>
<td>4.06309</td>
<td>-33.15121</td>
<td>8.154886</td>
<td>33.13403576</td>
<td>-0.017174</td>
<td>3.25380864</td>
<td>3.253808645</td>
</tr>
<tr>
<td>NYSE</td>
<td>4.11624</td>
<td>-66.10046</td>
<td>16.04782</td>
<td>66.05669464</td>
<td>-0.043765</td>
<td>0.39932443</td>
<td>6.408286705</td>
</tr>
<tr>
<td>LSE</td>
<td>3.8153</td>
<td>-84.49177</td>
<td>22.07713</td>
<td>84.23087409</td>
<td>-0.260895</td>
<td>0.41275319</td>
<td>9.112409592</td>
</tr>
<tr>
<td>SCI</td>
<td>3.47162</td>
<td>24.44240</td>
<td>-7.029121</td>
<td>-24.40247922</td>
<td>0.0399207</td>
<td>0.39862451</td>
<td>-2.801979961</td>
</tr>
</tbody>
</table>

Source: Author’s own calculation
Note: \[ f(Z) \times \hat{\beta}_i = \left( \frac{1}{\sqrt{2\pi}} e^{-\frac{z^2}{2}} \right) \times \hat{\beta}_i \] Where, \( e = 2.71828 \) and \( \pi = 3.14159265 \)

Conclusion:
We should never have under-estimate the potential seriousness of new COVID-19 pandemic and even of seasonal flu as a global public health problem. This study tries to examine the impact of COVID-19 attack in the stock market and thus, five major stock indices are considered. It is found that the daily closing value of the indices is not normal but they are stationary at their level forms except LSE which is stationary at its 1st difference. According to the OLS method it is observed that three indices are mostly affected by COVID-19 except Shanghai Composite Index from China and the evidence is same when LOGIT and PROBIT models are applied. According to the marginal effect, daily index value appears to be the most important factor in determining the effect of COVID-19. From the above discussion it is found that COVID-19 affects all the selected major stock markets but it is also noticed that Shanghai Composite Index in China is not affected by COVID-19 attack. So, it may be opined that where all the major stock markets in the world are directly affected by the sudden attack of COVID-19 whereas China’s economy is not so affected by COVID-19 attack. Although, the world population from various countries are largely affected by COVID-19 and this is very natural scenario. The investors may think that China market is safe during this emergency and thus, they invest more money which is withdrawn from other economies and it may be happened that China government has won the faith of the investors. But, the most surprising thing is that what the probable reasons behind China’s stock market are till now is in safe position in a turbulence situation and it’s sure that academicians, politicians, policy makers, professionals and researchers should give attention to this issue critically for policy making and future research.

References:

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1The financial companies are not included in the study because the economic meanings of accounting numbers used in the study may differ between financial and non-financial firms.