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Has COVID -19 Pandemic altered the Volatility Spillover and Connectedness based on Size of Market Portfolios?

– Kunwar Sanjay Tomar*

Research Scholar, School of Management Studies, Indira Gandhi National Open Univeristy, New Delhi, India

sanjaytomarfin011@gmail.com *https://orcid.org/0000-0003-0166-3749*

– Subodh kesharwani*

Associate Professor, School of Management Studies, Indira Gandhi National Open Univeristy, New Delhi, India

skesharwani@ignou.ac.in *https://orcid.org/0000-0001-8565-1571*

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ABSTRACT

Purpose: The present research article finds the volatility spillover and connectedness for the Indian financial markets. The study also assesses how the volatility is transmitted a monthto the three significantBombay Stock Exchange's three significant Indices. The "Sensex represents the size effect," the primary Index, Mid Cap Index, and the Small Cap Index. The study also focuses on finding the impact of the present COVID -19 impact.

Design / Methodology / Approach: The volatility transmission and the connectedness have been brought forth to its popularity among Diebold and Yilmaz's researchers. David Gabauer further extended the method to its present state of using the TVP-VAR methodology, which overcomes the Diebold and Yilmaz method's shortcomings.

Findings: The method does represent that 58% of the volatility spillover is from within the model. This means that the size alone is responsible for the 58% volatility. The largest dispenser of the spillover is from the Mid Cap.

Originality / Value: Researchers have widely used the method of Diebold and Yilmaz. However, the use and analysis of the Indian financial markets have been significantly less. Especially the size effect using the Gabauer forwarded method of Diebold and Yilmaz

Paper type: View Point

KEYWORDS Volatility Spillover | Connectedness | BSE Sensex | Coivd-19 Impact

****Corresponding Author** *(Sanjay et Al)*

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Introduction

The sheer force of the COVID-19 pandemic has put almost all the capacity and capability economic/financial regulators have put to the test. It seemed that the nature of the business cycles and financial crisis geniuses and insights are now stylized facts. However, the COVID 19 has toppled all such beliefs. This has hence opened another challenge to evaluate the same data in a new light.

The connectedness and volatility spilloverhas been fervently used to check the various economic and financial data combinations. The method is much useful for regulators, policymakers, and portfolio construction.

In the light of the above, this paper estimates and volatilityspillover of the "size effect." The other critical evaluation is the changes in the volatility spillover after the COVID 19 pandemic.

The present studies on the spilloverare grouped based on the financial institutions, banks, Oil, foreign exchange, domestic and international financial markets.

The role of the "Market Index" takes center stage in the field of finance. The derivation of the systematic risk through the market beta is the most prominent of all finance variables. Be it the CAPM, APT, or the Fama-French Model; all require market-adjusted returns. The popularity of the "Beta" CAPM is most common for calculating the discounting factors (Pinto et al., 2015)(Sharpe & Sharpet, 1964). These "market "portfolios are the standard equity Index comprising the large and most prominent companies in any economy. Like in the US, it is the S&P 500. In the UK, FTSE all share/ FTSE 100. In India, the two stock exchanges with the most active investors are BSE (Bombay Stock Exchange) and NSE (National Stock Exchange).

Analysts and academic researchers use either "Sensex" of BSE or NSE "Nifty" to calculate "Beta."

To better represent financial markets, these two stock exchanges have also created more Indices. The BSE has more than one hundred Indices. The thirty-stock index "Sensex" is the most widely used Index for the (Frazzini et al., 2018)systematic risk "Beta." Academic research has been more interested in these two Indices. Other Indices representing varied themes have received very little attention from theresearchers. One can get a fair idea of the world of investor's asset space choice with the Mutual Funds' participation in the stock exchange. Specially investor interest in equity shares: Sensex- Large Cap, Mid Cap, and Small-cap. Classification based on market capitalization; Large, Mid, and small companies.

As per the (SEBI) (*Securities and Exchange Board of India*, n.d.)Security Exchange Board of India (the stock exchange regulator), the first hundred largest companies based on market capitalization defined as the "Large -Cap" companies. The next hundred and one to two hundred and fifty companies as "Mid-cap" companies, while the rest are small-cap companies. The mutual fund schemes and their respective AUM (Asset under management) reported on the SEBI (*SEBI | Annual Report 2018-19<a href='https://www.sebi.gov.in/sebi_data/commondocs/jul-2019/SEBI AR Hindi 2018-19_p.pdf' target='_blank' style=color:#8b0101 > [Hindi]</ a>*, n.d.)website give updated information on India's mutual fund industry. As per this document, there are 1829 mutual fund schemes, with Rs.2454757.53 crores net assets under management on 31 May 2020. Of this, Rs.39648 crores were invested in small-cap companies (apart from investment through various other schemes) (*SEBI | Annual Report 2018-19 [Hindi]*, n.d.)Overall investment in the equity and growth funds accounted for 26%. For middle and small-cap companies. The interest in the large-cap out of this is 5%. Mid-cap attracted the mutual fund investment for 3% and Small-capfor 2%. (Average asset under management for May 2020) (*Securities and Exchange Board of India*, n.d.)The turnover interest in these Indices is 15.12% and 19.95% for the Midcap and the Small Cap. The BSE Sensex percentage of total turnover is 37.47 %. (as of12 June 2020 14.11 PM). The Indian Financial Market represented USD 2,184 billion as of March 2019 end.(*Securities and Exchange Board of India*, n.d.)(SEBI Annual Report 2018). Representing 2.8% of total global market capitalization and 8.7% of the Asia Pacific Region.

The research interest in the three types of Index, however, has not been equal. The most empirical research has been for the "market index" in India, BSE "Sensex" and NSE "Nifty -50". Most studies have focused either on the analysis of the features of these Indexes or the risk-return relation.

The literature is relatively thin in terms of the impact of one Index on the other. This research is to fill this gap. More empirical testing and drawing of the relation would help all the players in the financial market. The Interaction of different Indices on an empirical basis can help Portfolio managers, retail investors, and even organizations. This paper tries to find the long and short-run impact of Indices on each other. These continue to a more significant contribution to the portfolio management and mutual fund industry in India.

Literature Review.

The study of Index has been more dominated in either for or against the CAPM. One of the first challenges to the CAPM came from Banz's study (van Dijk, 2011)(Banz, 1981), as he found that small-cap stocks posted higher returns than large companies. He called this variable (Fain & Naffa, 2019)(Fain &Naffa, 2019)(Fain and Naffa 2019

page 55) "the size effect." With more interest in low, P/E as a better return generating investment lead to more research in this area(Basu, 1983). Extending this interest in value and size effect was extended by the seminal work of the Fama-French. Fama-French(Fama & French, 1996)

(Cai & Houge, 2011) research has aroused much interest in

This elusive line of research. The "size and value" effect leads to series of research undertaken in this area.

More recent work is that of Dijk, "Is the Size Dead?." (Dijk, 2007). Dijk shows an extensive literature review on the issue of size and CAPM. In the paper, "Is Size dead?", (Meitner, 2011)Matthijs, citing "Schwert," stressed on the well-established research outcome that size does matter. He stresses the aspect that more study is required to explore this "size effect." He concluded that the empirical work on the size effect is incomplete. He urges the development of a more consistent theory with "rational maximizing" behavior (van Dijk, 2011). Although these studies have also questioned the statistical measures used.(Harvey et al., 2016).

Nevertheless, the studies focused more on the cross-sectional commonality of the market portfolio"systematicrisk-Beta." Ashwath Damodaran, in the paper "*Growth Investing: Betting on Futures*," has shown that the smaller firms have performed better as an investment compared to the large-cap companies. (Damodaran, 2012). The research focus on the small-cap Index, however, remained limited. The study of the Small-cap*per se* remained more aligned to various interests in its features rather than its relation with other sets of companies classified on a capitalization basis.

The research's primary focus remained on evaluating the small-cap as an asset class in a portfolio or its risk-return analyses. Such research work primarily tested essential features of small-cap.

Like (Menkveld & Wang, 2011), Menkveld, in his research paper, finds the reason for the better return of the small-cap due to the reduced liquidity level and high liquidity risk. Similarly, more studies focused on small-cap as the asset class. Liu and Wnag (2018) study Strategies based on momentum and switching between the growth and value stocks. (Zhang et al., 2021)(Liu & Wang, 2018)Their study takes the Russell index, which comprises large-cap, mid-cap, and small-cap. Liu and Wang concluded that the returns of the Indices varied. The study also does not exclusively focus on the separation of the mid and small-cap and their Interaction.

The research interest further probed the Small-cap for momentum, a mix of assets, the small-cap risk-return, and its place in the portfolio. A study by Biktimirov on FTSE small-cap is an excellent example in this line of focus. In the research paper "asymmetric stock" (Biktimirov & Li, 2014), Biktimirov and Li, study FTSE small-cap price movement. They find "asymmetric" treatment by the price movement in the Index FTSE small-cap. There have also been studies on asset allocation strategies in risky assets and riskless assets using the Binomial Method.Arshanapalli(Arshanapalli et al., 2007) taking Russell large-cap and small-cap. (Reilly & Wright, 2002)Reilly and Wright further calculated the size effect. They evaluate the small-cap sector's risk and return and conclude that the small-cap trail the other asset class. They find significant changes in thecorrelation and risk measures. Paper finds a waning correlation between large-cap and beta of the small-cap stocks(Reilly & Wright, 2002).A similar study by Switzer and Fan utilizes the small-cap for the portfolio efficiency. They find small-cap stocks as a critical component for the portfolio asset interaction. (Arshanapalli et al., 2007) (Switzer, 2007)

The research for accounting and small-cap also found its role in accounting compliance and its impact. Switzer study the SOX impact and small-cap firms. Switzer compares SOX compliant and non-compliant firms of Canada. The study shows a higher return of SOX compliant firms(Switzer, 2007).

In another study, Switzer analyses the comparative performance of large-cap and small-cap during the business cycles. (Switzer, 2010)His study focuses on the performance at the peak and trough of the economic cycles. He uses the Fama French type model of regression with the default risk, bond risk CPI inflation, (US). The dummy variables are different recessions. His Wald Test P-value is 36%, with the three coefficients having significant P-Value among the 18 coefficients. His dependent variable is the SMLt.

Another set of studies focus on daily returns and associated factors of trading. Like the study by McGuinness. (McGuinness, 2006)His study of the small-cap stocks' daily returns is taken and analyzed for the "Turn of the month return effect." The US Monday effect's corollary is seen as the "Tuesday effect" as that by the(Wang & Hsiao, 2010) Wang *et al. .s* "delayed effect" in the Asian time zone because of the US Monday trading hours.

Sen and Chaudhri use different time series forecasting using R programming. The use of BSE consumer durable and small-cap Index data from January 2010 to December 2015. The use of daily data to create monthly averages. They discover the high seasonality in the consumer durables Index and high random effect component in the small-cap Index. (Harvey et al., 2016)(Sen & Chaudhuri, n.d.)(Sen & Chaudhuri, 2016)

Studies analyzing the macro factors affecting Market Index are rather large. An excellent recent example of better estimation is by Tripathi and Kumar. They evaluated the macro factors impact using the VECM (Vector Error Correction method) (Tripathi & Narang, 2012)

The study of Indices or the basket of companies classified on market capitalization remained elusive. Apart from the external factors impacting the stock market, these companies' intrinsic affiliation has not been studied. Many lines of search can be extended in this area. These can either make the implicit relation of these companies more empirically evident or justify the existing investment pattern. This study opens one such area of interest.

Data

The data used is daily for the three main Indexes capturing the size of the market. The stock exchange used is the Bombay Stock exchange. The three indexes are Sensex, Mid Cap, and the small-cap.

Summary Statistics in Table 1 uses times series log difference, showing the returns as we can see from the data that the highest return is that of "sensex" or the leadingIndex od the top thirty companies from the different sectors. The small-cap return is the least. Per one unit of variance, the returns are 0.027,0.024,and 0.015. The reward for the risk is the highest from the large-cap to the small-cap. The portfolio choice seems very clear, which is now a stylized fact through much research on these data sets.

Table 1	BSE	Mcap	SCAP
Mean	0.033	0.031	0.021
Variance	1.216	1.246	1.35
Skewness	-1.033***	-1.352***	-1.477***
	0	0	0
Kurtosis	16.400***	12.271***	10.904***
	0	0	0
JB	29963.776***	17315.887***	13996.353***
	0	0	0
ERS	-3.858***	-3.795***	-3.186***
	0	0	-0.001
Q(20)	46.314***	85.306***	167.320***
	0	0	0
Q2(20)	131.310***	33.776***	93.342***
	0	0	0
LM(20)	675.101***	279.838***	302.462***
	0	0	0
BSE	1	0.827	0.76
Mcap	0.827	1	0.944
SCAP	0.76	0.944	1

Methodology

One of the more used and accepted methods of connectedness and spillover is Dielbold and Yilmaz (Diebold & Yilmaz, 2011) method. Diebold and Yilmaz evaluate the dynamics through the rolling window VAR methodology. While the method has been well accepted for its simplicity and effectiveness, it has some drawbacks. These are well attributed by authors such as David Gabauer etc. These shortcomings are that the system of Diebold and Yilmaz is sensitive to the outliers. The rolling window size is arbitrarilyselected. These lead to the loss of observations and the inability to analyze the low-frequency data. The TVP-VAR based method of connectedness overcomes these shortcomings. (Chatziantoniou et al., 2020)(Antonakakis et al., 2018). This paper uses the methodology forward by David Gabauer, Antonakakis (2018). The methodology uses the TVP-VAR model by Bayesian Information criterion (BIC)

This method can be forwarded as follows:

$$z_t = B_t z_{t-1} + u_t u_t \sim N(0, S_t)$$

$$vec(B_t) = vec(B_{t-1} + v_t v_t \sim N(0, R_t)$$

Here z_t, z_{t-1} and u_t are k x 1-dimensional vector and B_t and S_t are *kxk* dimensional matrices. Whereas$vec\ (B_t)$ and v_t are K^2 x 1-dimensional vectors with Rt is a $k^2\ x\ k^2$ dimensional matrix.

The H Step forwarded generalized forecast error variance decomposition (GFEVD) (Koop et al., 1996), (M. H. Pesaran, 1999)(H. H. Pesaran & Shin, 1998). GFEVD for its variable ordering is an incomplete invariant of Orthogonal forecast error variance decomposition (Diebold & Yilmaz, 2009). In their paper David Gabauer in His paper (Demirer et al., 2021)(Chatziantoniou et al., 2020), the method has not been used extensively in particular of the size effect to the authors' best of knowledge. The application of the GFEVD is developed to bring forth the structural shocks. The use of the arbitrary error structure will lead to unreasonable results. David Gabauer and Antonsks henceforward the TVP-VAR methodology is preferred. (Wiesen et al., 2018). This concept requires changing the TVP-VAR into a TVP -VMA. The expression can be represented as follows:

$$z_t = \sum_{i=1}^{p} B_{it}\, z_{t-1} + u_t = \sum_{j=0}^{\infty} A_{jt}\, u_{t-j}$$

The (scaled) GFEVD ($\phi^g_{ij,t}(H)$) normalizes the unscaled GFEVD($\phi^g_{ij,t}(H)$) in order that each row totals to unity. Here the influence of variable *j* on the variable *i* is $\phi^g_{ij,t}(H)$ being in terms of the forecast error variance share, which is defined as the pairwise directional connectedness from *j* to *I*. Indicator is computed as hereunder

$$\phi^g_{ij,t}(H)) = \frac{S^{-1}_{ii,t} \sum_{t=1}^{H-1} (\iota_i' A_j S_t \iota_j)^2}{S^{-1}_{ii,t} \sum_{t=1}^{H-1} (\iota_i\ A_j A_{t_t}' \iota_i)} \qquad \phi^g_{ij,t}(H)) = \frac{\phi^g_{ij,t}(H)}{\sum_{j=1}^{k} \phi^g_{ij,t}(H)}$$

$\sum_{j=1}^{k} \phi_{ij,t}^{g}(H) = 1$, $\sum_{j=1}^{k} \phi_{ij,t}^{g}(H) = k, and\ \iota_j$ corresponds to a selection vector with unity on the j^{th} position and zero otherwise.

The (Diebold et al., n.d.) based on GFEVD can be expressed (as by Diebold and Yilmaz) mathematically.

$$TO_{jt} = \sum_{i=1, i \neq j}^{k} \tilde{o}_{ij,t}^{g}(H)$$

$$FROM_{jt} = \sum_{i=1, i \neq j}^{k} \tilde{o}_{ij,t}^{g}(H)$$

$$NET_{jt} = TO_{jt} - FROM_{jt}$$

$$TCI_t = k^{-1} \sum_{j=1}^{k} TO_{jt} \equiv k^{-1} \sum_{j=1}^{k} FROM_{jt}$$

$$NDPC_{ji,t} = \tilde{o}_{ji,t}^{g}(H) - \tilde{o}_{ij,t}^{g}(H)$$

The shock of variable *j* on the variable *i* is given by $\tilde{o}_{ij,t}^{g}(H)$. Equation (3) represents the impact of variable j influences on all other variables given by the "*Total directional connectedness to others*." Equation (4), on the other hand, influences all other variables on the variable j, defined as *total directionalconnectedness from others*.

Result and Discussion.

The study is divided into four parts. The first part is evaluating the total data from (*Historical Information*, n.d.)1 April 2010 to 30 September 2020. Simultaneously, the next two parts are for the pre-and post-the announcement of lockdown in India. To capture the interconnectedness of 189 data points (from 1 January 2020 to 30 September 2020) and 189 days before 1 January 2020(starting from 22 March 2019). The fourth part will assess the overall change based on these three parts. For the first part of the TVP-VAR Gabauer method, the codes of the R project by (*David Gabauer - Econometric Code*, n.d.)David Gabauer is used. As the pre-and post-data are less for then the method of Gabauer could not be used. Instead, the Diebold and Yilmaz Index by EViews (*Diebold-Yilmaz index - EViews.com*, n.d.)is used to compare the volatility spillover, and connectedness is used.

Static Connectedness Table

Table 2	BSE	Mcap	SCAP	FROM
BSE	43.406	30.163	26.431	56.594
Mcap	26.745	38.631	34.624	61.369
SCAP	24.107	36.125	39.767	60.233
Contribution TO others	50.852	66.288	61.055	178.196
Contribution including own	94.258	104.92	100.823	TCI
Net spill overs	-5.742	4.92	0.823	59.399

Dynamic Connectedness Table

	BSE	Mcap	SCAP	FROM
BSE	**44.572**	**29.396**	**26.031**	**55.428**
Mcap	**26.066**	**38.951**	**34.983**	**61.049**
SCAP	**23.565**	**36.289**	**40.147**	**59.853**
Contribution TO others	**49.63**	**65.685**	**61.015**	**176.33**
Contribution including own	**94.203**	**104.636**	**101.161**	**TCI**
Net spillovers	**-5.797**	**4.636**	**1.161**	**58.777**

Comprehensive data analysis: The graph of the three sectors as depicted by graph 1 shows how the COVID-19 19 times have brought the market abruptly down at the end of March. The total decline in the Sensex is much higher than the decrease in the mid-cap and the small-cap. The log difference or the returns depicted in graph two, even after smoothing, gives the same result as Graph 1.

For the connectedness, the table shows the overall contribution of the model of their connectedness. Both the table two and three show that both are almost 59%. This explains the model's explanatory power that the connectedness required by other indices can of exogenous factors will contribute less than 50% connectedness.

The next part is to look at each row as the receiver of the connectedness. Each column shows how much each Index based on size contributesto the connectedness to others. Tables two and three show that Sensex (given by BSE in the table) receives 56.59 % of the connectedness. In contrast, the highest is the recipient Mid cap with 61% spillover. If we look at the net flow of the connectedness and spillover, then the BSE (-5.74) is the net receiver of the spillover while the net dissemination is from Midcap which is as much as 4.92, while the small-cap seems to be quiet still in the connectedness and linkage of the spillover with 0.823%.

The overall volatility spillover by Diebold and Yilmaz constitutes the flowing three tables. Table 3.a for the total data volatility spillover by Diebold and Yilmaz. Table 3.b for the pre-COVID-19 and table 3.c for the post-COVID-19 volatility spillover.

From table 3.a,it can be seen that the volatility spillover and connectedness are explained to the extent of 50.9% by these three indexes. The Sensex (BSE) does not spillover the volatility. The volatility is spilled over highest by small-cap. When we see Tables 3.b and 3.c, we can compare that the pre-COVID -19 model accounted for the volatility spillover of 54.1% while this increases to 60.9% after the COVID. This accounts for 6.8% higher connectedness on account of the

COVID-19. The significance is that of the difference in the increase of the MCap from 42% to 52% (the percentage is based on each row total being divided by the From others column total). An increase of 9% reduces the spillover from scrap by approximately the same amount.

Conclusion

The analysis clearly shows that how connectedness works in the Indian financial markets. It needs more elaboration to compare the same with another set of financial markets.

Table 3.a Spillover (Connectedness) Table

	bse	mcap	scap	From Others
bse	100.0	0.0	0.0	0.0
mcap	65.0	35.0	0.0	65.0
((scap	52.7	35.0	12.2	87.8
Contribution to others	117.7	35.0	0.0	152.8
Contribution including own	217.7	70.0	12.3	50.9%

Table 3.b Spillover (Connectedness) Table

	bse	mcap	scap	From Others
bse	95.8	2.3	1.9	4.2
mcap	66.6	32.5	1.0	67.5
scap	55.9	34.6	9.5	90.5
Contribution to others	122.4	37.0	2.8	162.2
Contribution including own	218.2	69.4	12.3	54.1%

Table 3.c Spillover (Connectedness) Table

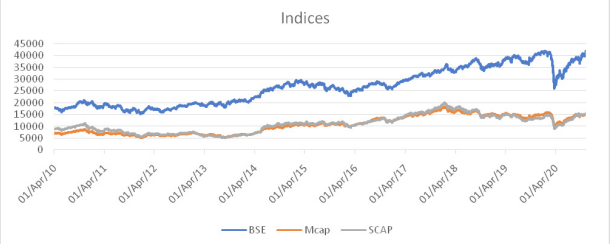
	bse	mcap	scap	From Others
bse	99.8	0.0	0.2	0.2
mcap	93.2	6.0	0.7	94.0
scap	83.7	4.8	11.4	88.6
Contribution to others	177.0	4.9	0.9	182.8
Contribution including own	276.7	10.9	12.4	60.9%

	All data	Pre Covid	Post-Covid
BSE	0%	3%	0%
Mcap	43%	42%	51%
Scap	57%	56%	48%

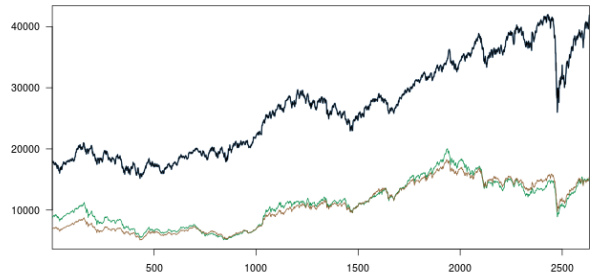
Table 2 each row gives the individual volatility contribution to the forecast error variance of both other size portfolios as the network. Each column

Limitation: One of the researchers' important argument is about the use of the volatility method used by the Diebold and Yilmaz methodology(Diebold & Yilmaz, 2009). The points covered by the TVP-VAR as given by David Gabauer and Antonaskakis has already been given in the methodology section. The more intense data based on the tick-by-tick data could through more lighton the behavior of the three size effect on the Interaction,especially in crisis times. The requirement of a more detailed analysis by other connectedness and volatility methods can also be used. Such analysis could

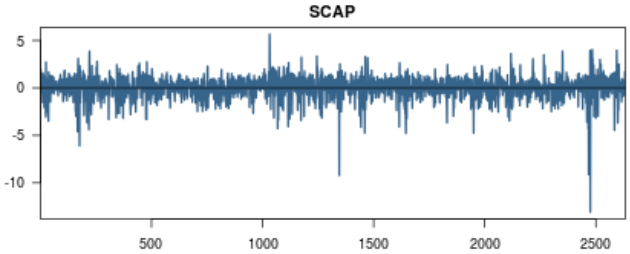
These sets can be the developed and mature markets and underdeveloped markets. The analysis above presented shows clearly how the account of the "sensex," the BSE main index, accounts for its volatility rather than contributing to the others. The mid-cap role in disseminating the volatility and connectedness is very clearly brought by both the methods of David Gabauer and Diebold and Yilmaz.

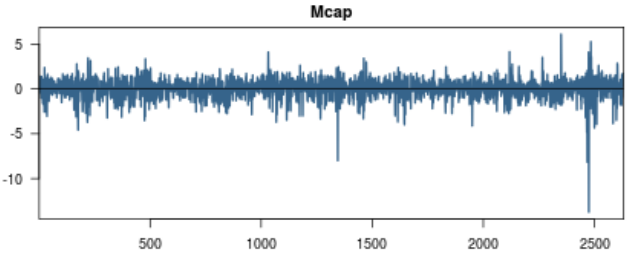


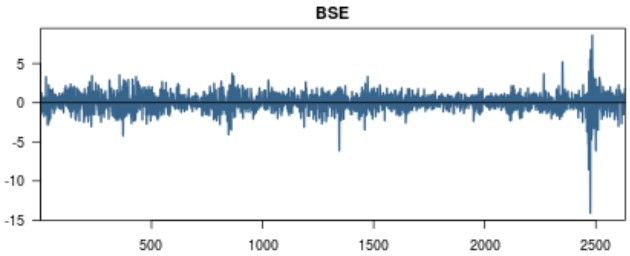
Graph – For Log difference



Transformed Data







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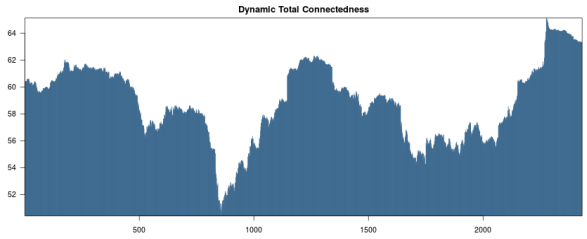
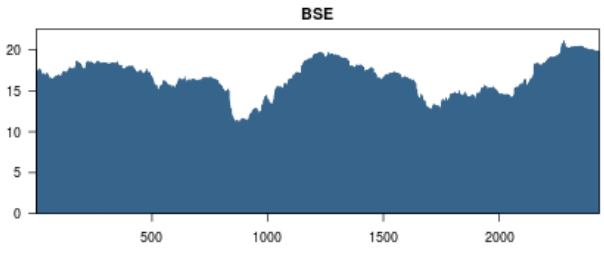
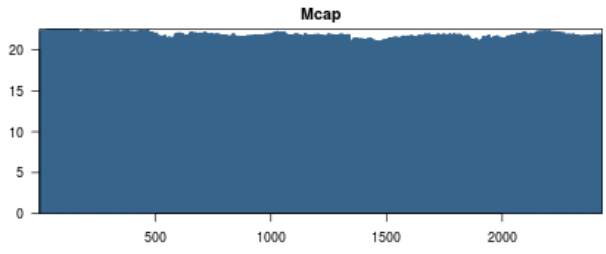
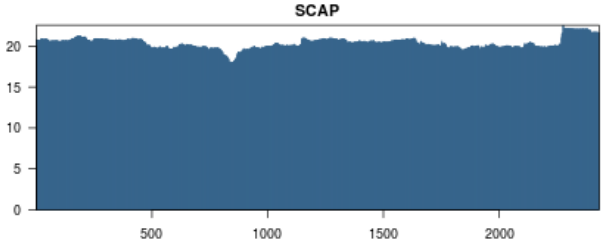


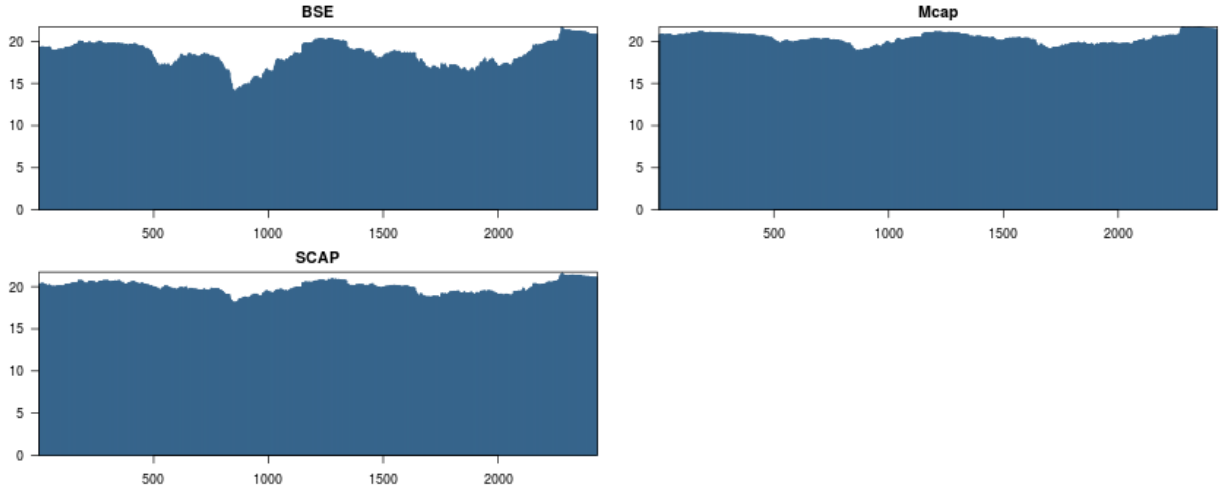
TO (below graph)



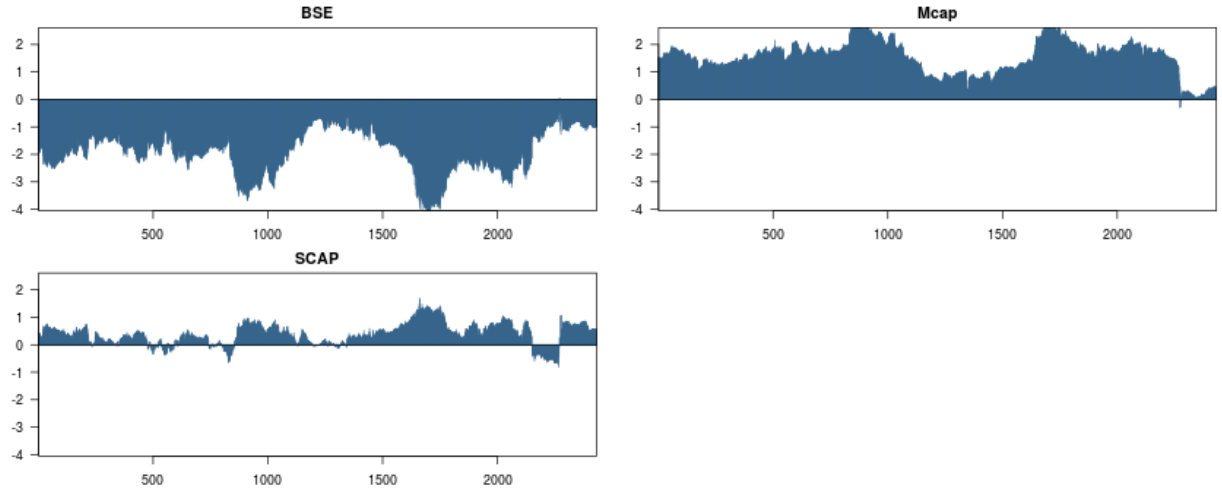




FROM



NET



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Annexure 1

Submission Date	Submission Id	Word Count	Character Count
24-Aug-2020	D93061448 (Urkund)	4009	28063

Urkund Analysis Result

Analysed Document: Size and Volatility Spill Over Impact of Covid Pendamic.docx (D93061448)
Submitted: 8/24/2020 11:03:00 AM
Submitted By: skesharwani@ignou.ac.in
Significance: 5 %

Reviewers Comment

Reviewer's Comment 1: The paper is based on a quite interesting theme. The study finds the volatility spillover and connectedness for the Indian financial markets. The volatility transmission and the connectedness have been brought forth to its popularity among Diebold and Yilmaz's researchers. Researchers have widely used the method of Diebold and Yilmaz. However, the use and analysis of the Indian financial markets have been significantly less.

Reviewer's Comment 2: COVI-19 has affected every aspect of our lives. It has put almost all the capacity and capability economic/financial regulators have put to the test.It seemed that the nature of the business cycles and financial crisis geniuses and insights are now stylized facts. However, the COVID 19 has toppled all such beliefs. This has hence opened another challenge to evaluate the same data in a new light.

Reviewer's Comment 3: The paper is over all presented in a very lucid and structured manner. A good number of supportive existing literaturesare provided in the study. Overall the paper offers a strong basis for further study in the area.

Citation

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Conflict of Interest: Author of a Paper had no conflict neither financially nor academically.

Editorial Excerpt

The article has 05% of plagiarism which is the accepted percentage as per the norms and standards of the journal for the publication. As per the editorial board's observations and blind reviewers' remarks the paper had some minor revisions which were communicated on a timely basis to the authors (Sanjay &Subodh) and accordingly all the corrections had been incorporated as and when directed and required to do so. The comments related to this manuscript are noticeably related to the theme "**Volatility Spillover and Connectedness based on Size of Market Portfolios**" both subject-wise and research-wise. : The present research article finds the volatility spillover and connectedness for the Indian financial markets. The study also assesses how the volatility is transmitted a monthto the three significant Bombay Stock Exchange's three significant Indices. The "Sensex represents the size effect," the primary Index, Mid Cap Index, and the Small Cap Index. The study also focuses on finding the impact of the present COVID -19 impact.Overall, the paper promises to provide a strong base for the further studies in the area. After comprehensive reviews and editorial board's remarks the manuscript has been categorised and decided to publish under "**View Point**" category.

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I am grateful for the insightful comments offered by the anonymous peer reviewers and the editorial team of GJEIS.The generosity and expertise of one and all have improved this study in innumerable ways.

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