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Impact of Covid-19 on the Stock Market and Corporate Firms in India

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Indrani Chakraborty [1]

Abstract

Covid-19 was declared by WHO as a 'pandemic' on March 11, 2020, and the very next day the Indian stock market crashed heavily. This was primarily due to net outflows of foreign institutional investment (FII). While most of the sectors would go through adverse experience due to Covid-19, there are sectors where the negative impact could be low due to low negative demand shock or a strong balance sheet of firms. In this paper, we highlight the possible consequences of the pandemic. We contend that the direction of sector-wise movement in FII flow signals which sectors will grow or shrink in the coming years. Analysing the daily data from March 2, 2020 to May 22, 2020, we observe that FII flow 'Granger causes' stock market performance, measured by the closing price. We also observe from the analysis of Impulse Response Functions that the effect of external shock on FII has destabilizing impact on the closing price of BSE Sensex till the next 10 days. Higher profitability in the past years, better growth opportunities in the stock market and being a stand-alone firm have a favourable impact on stock price reactions to COVID-19 shocks and hence they make the firms with these characteristics more resilient. We also discuss the possibility of 'herding' by the foreign institutional investors following the current volatility in the stock market. Arbitrage activity, especially short selling by arbitrageurs, is also likely to increase, which may further destabilize the stock market. In India, as stocks experienced sharp falls in the wake of the Covid-19 outbreak, SEBI imposed a ban on short selling since March 23 in an attempt to stabilise the market and maintain investor confidence. However, the effectiveness of the ban on short-selling remains a contested issue.

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1. Introduction

Following the outbreak of Covid-19, severe economic crisis occurred throughout the world which appeared to be the worst since the Great Depression (Gopinath, 2020). But the behaviour of the stock markets appears to be insensitive to all this. From the world-wide trends of stock prices, no relationship is apparent between the severity of the pandemic as indicated by the number of Covid-19 cases and deaths and the reactions of stock markets. Thus, how far the reactions of the stock markets can be explained by economic fundamentals remains a matter of curiosity.

Krugman (2020), in one of his New York Times columns, tells us to remember three rules in this regard: "First, the stock market is not the economy. Second, the stock market is not the economy. Third, the stock market is not the economy (…). The relationship between stock performance – largely driven by the oscillation between greed and fear – and real economic growth has always been somewhere between loose and nonexistent". Krugman disregards any relationship between the stock market and the economy, which raises questions on the worth of the Efficient Market Hypothesis (EMH). Burton Malkiel and Robert Shiller have also noted similar observations while discussing the apparently irrational behaviour of stock markets in the time of Covid-19 (Malkiel and Shiller, 2020).

All these debates give us the opportunity to draw new insights into the behaviour of the stock market against the backdrop of Covid-19 crisis. Although the Covid-19 shock has been global, its impact has not been the same across countries. Our focus here is on the behaviour of stock markets in India, following the outbreak of Covid-19. In what follows, a brief review of the recent literature on the impact of Covid-19 on stock market is presented.

A large literature has developed rapidly which analyses the responses of stock markets to the Covid-19 pandemic in various countries. Haddad et al. (2020) find that the stock market movements in US regained upward trends mainly due to the implementation of the stimulus plans to tackle the crises by the US Federal Reserve. Several studies have shown that the stock prices of those companies have been least affected which were financially strong prior to the crisis, less exposed to the pandemic through global supply chains, spending more on corporate social responsibility, have less entrenched executives, and larger non-financial corporate ownership (Alburque et al., 2020; Ding et al., 2020; Fahlenbrach et al., 2020, Ramelli and Wagner, 2020).

Capelle-Blancard and Desroziers (2020) analyse how stock markets have integrated public information about the Covid-19 pandemic and the subsequent lockdowns in various countries. Considering a panel of 74 countries from January to April 2020, they have divided the situation in each country into four phases: Incubation, Outbreak, Fear, and Rebound. They collected country-specific daily data on stock prices, volatility in the global market, the number of cases and death due to COVID-19, different interventions that the government has undertaken, and so on. They find no effect of country-specific characteristics on stock prices but the number of Covid-19 cases in neighbouring and wealthy countries affected investor sentiments. They have also observed that government policy measures helped prevent the fall in stock prices. Hence their results suggest that stock markets remained unconnected with the economic fundamentals in each of those countries before the crisis, they became rather sensitive to short-term reactions during the crisis.

Baker et. al. (2020) investigates the role of news about infectious disease outbreaks on stock market volatility in US. They find that there was no relationship between the daily news of infectious disease outbreaks and daily movements in stock prices in all the past events starting from 1900, including the Spanish Flu of 1918-20 and the influenza pandemics of 1957-58 and 1968. However, in contrast, the daily news related to Covid-19 had an effect on daily stock market volatility, during the period from 24 February 2020 through April 2020. They have rejected the argument of disruptions to cross-border supply chains as the cause for stock market volatility. They argue that various government restrictions on business activities, which include business closures, different restrictions on commercial activity, and maintaining social distance, have played the major role to cause volatility in stock market in US.

The rest of the paper is as follows. In section 2, we analyse the trends in daily stock prices at BSE Sensex, taking into account the role of foreign institutional investment (FII). In section 3, we analyse the association between the daily BSE Sensex numbers and FII flows over the period from March 2, 2020 to May 22, 2020, by using some econometric methods. In section 4, we examine, by noting the stock price reactions of BSE listed firm, how some firms remain resilient to the crisis. In this exercise we try to identify which firm characteristics make some companies more resilient to the Covid-19 shock than others. Finally, in section 5 we reflect on the literature on herding and short-selling, to highlight the possibilities of arbitrage

activities which may influence the recent volatility in the stock market. We conclude in section 6.

2. Trends in BSE Sensex and FII

On March 11, 2020 (Wednesday), the World Health Organisation (WHO) declared Covid-19 (outbreak of corona virus) as a 'pandemic'. Indian stock market crashed heavily on the next day, March 12. The benchmark indices Sensex fell by 2,919 points or 8.2 per cent to close at 32,778, and Nifty shed 900 points to close below 9,590. This was primarily due to the net outflows of foreign institutional investments (FII). Foreign investors have pulled out more than 34,000 crore from Indian equities and bonds in March leading to a crash in the stock market (*The Hindu*, March 13, 2020). FIIs have been net buyers of Indian equities since September 2019. However, the foreign investors have turned net sellers from the last week of February as India, like many other countries, imposed various restrictions on travel and official events which worried the investors (see Table 1).

Table 1: Monthly volume of net FII investments in India during 2020

Calendar Year	Rs. crores				
	Equity	Debt	Debt-VRR	Hybrid	Total
January	12123	-11648	529	-46	957
February	1820	2097	2637	2416	8970
March	-61973	-60376	4165	-19	-118203
April	-6884	-12552	4033	544	-14859
Total - 2020	-54914	-82479	11364	2895	-123135

Source: SEBI ** up to 01-May-2020

From the newspaper reports we observe that, during December 31, 2019 to March 31, 2020, the Nifty 50 declined by 29.3 per cent, which was the lowest quarterly fall since June 1992 when it had fallen by 32.2 per cent. The Sensex had declined by 28.1 per cent during the same quarter. In 2008-09, the Sensex had recorded a 37.9 per cent decline, while the Nifty declined by 36.2 per cent with the onset of the global financial crisis. FIIs are net investors in the 2019-20 fiscal (see Table 2) with a net inflow of Rs. 45,151 crore in equities and Rs. 605 crore in debts. However, market experts apprehended that there would be further crash in the market due to corona virus fear and economic slowdown.

The sharp decline in the stock indices during Covid-19 has been led by financial sector stocks viz, banks, non-banking financial companies, housing finance companies, and insurance

firms. The automobile, metal, and real estate sectors are also badly affected. Performances of these sectors were below average and fell between 40 per cent and 43 per cent during the last quarter. However, the pharmaceuticals and fast-moving consumer goods (FMCG) sectors performed relatively better as they declined by 11 per cent and 9 per cent, respectively. The index for the information technology (IT) sector declined by 18 per cent. The market experts forecast that, the IT, consumer staples, pharmaceuticals, and chemicals sectors are likely to overcome the current crisis with low earnings in the short term but would recover in the long term. Telecom will also be the least affected. On the other hand, it is most likely that banking, financial services and insurance may have to absorb some of the negative impacts.

Table 2: Net investments by FIIs in the Indian capital market

(Rs. Crore)

Year / Month	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Total
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
2014-15	7923	16844	11260	11072	6829	6062	387	13709	-910	18063	8776	10228	**110244**
2015-16	7761	-475	-5801	5980	-16334	-5061	5104	-5081	1098	-10060	-7626	25613	**-4882**
2016-17	6929	2561	5133	10993	10254	10064	-5050	-17355	-8624	-1373	11111	33683	**58326**
2017-18	-1740	10930	3667	4592	-11824	-11776	-1110	15798	-1432	14466	-11834	16850	**26587**
2018-19	-6672	-9196	-4183	4686	-181	-5345	-25774	6713	1477	1627	12579	40576	**16307**
2019-20	12251	11204	2976	-14261									**12170**

Source: RBI

It has been observed by many economists and policy makers that economic recovery in India is likely to be adversely affected by the slowdown in economic activities following the lockdown. Many sectors like travel, tourism, hotels, manufacturing and services are dependent on global demand and the output of many large corporations may shrink.

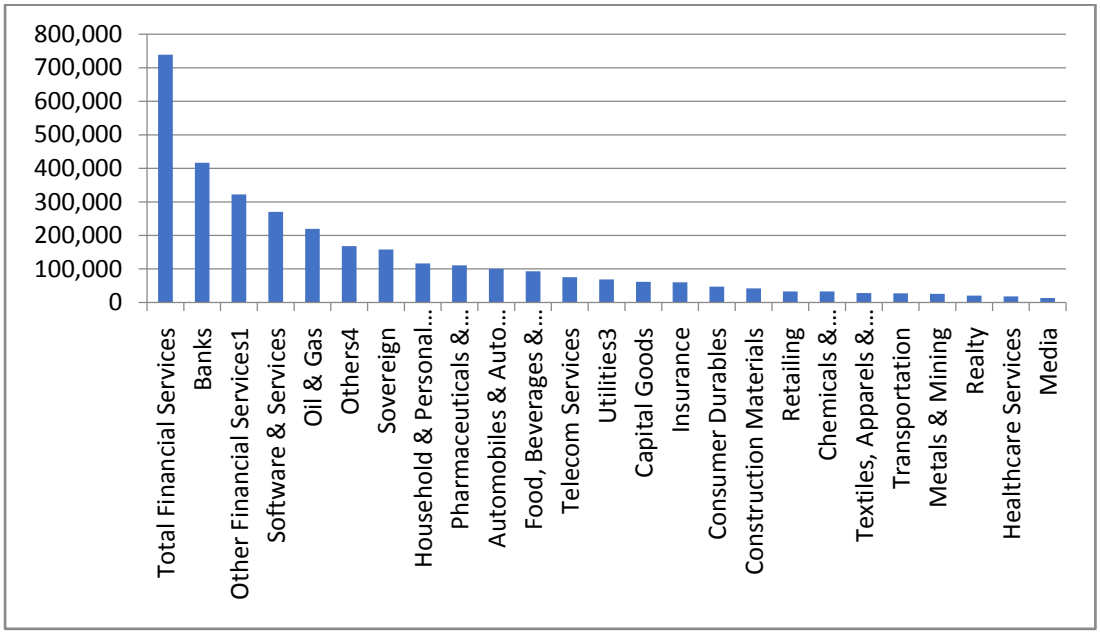
At this critical juncture when credit pressures are rising, the moratorium on servicing of bank loans until May 2020 provided by the RBI helps to relieve the pressure at least in the short term. Over the long term, however, resilience of any sector would depend on how quickly it would recover from the negative demand shock, i.e. how strong the balance sheet is, so that the negative demand shock could be absorbed.

A report by CRISIL (2020) reveals that while most of the sectors will go through adverse experience, in a large number of sectors the negative impact could be low. The report shows that nearly 44% of the debt is in sectors which might be called the ‘high-resilience category’.

These include pharmaceuticals, fertilizers, oil refineries, and power & gas distribution & transmission because they constitute essential commodities and some of them get government support. Telecom and fast-moving consumer goods (FMCG) are expected to experience less negative impact on demand. Then about 52% of the debt is in sectors which may be termed as the 'medium-resilience category'. These include automobile manufacturers, power generators, roads and construction. These sectors have moderate-to-high disruption due to the lockdown, but they will recover in the medium term because of having strong balance sheets or low demand shocks. Finally, around 4% of the debt is in sectors in the 'least-resilience category'. These include airlines, gems & jewellery, auto dealers and real estate due to the non-essential nature of these goods and services, as well as of their weak balance sheets. In the financial services segment, both the repayment of loans and getting fresh loans will become difficult because of the lockdown restrictions.

Fig. 1 show that high-resilience sectors are also those sectors which have experienced net positive FII investments during the period from March 16 to April 15, 2020, whereas the least resilience category have net negative FII investments during the same period. Thus, the direction of sector-wise movement in FII flows signal which sectors will grow or remain stagnant over the coming years.

Fig. 1: Share of FIIs in different industries during March 16-April 15, 2020



Source: SEBI

Sharp decline in the BSE Sensex and Nifty50 created a panic buying and selling activities by the investors. This gave a big blow to the Indian stock market. There are various indicators for assessing development of the stock market. One common measure is market capitalization, which is represented by the product of the number of outstanding shares and the share price per unit. Market capitalization measures the size and expansion of the market. During 2019-20, market capitalization of the Sensex has seen a decline of over Rs.12.88 lakh crore (-18.6%), from Rs.69.46 lakh crore on April 1 last year to Rs.56.57 lakh crore on March 31. On January 20, as the Sensex touched their life-highs, the Sensex also recorded its highest market capitalisation of Rs.77.40 lakh crore. However, at the end of the fiscal year 2019-20, the Sensex's market value fell by 18.6%, or Rs.20.83 lakh crore in absolute terms.

Table 3 reports market capitalization for top 100 companies on May 7, 2020. It shows that these top 100 companies not only include FMCG, Pharmaceuticals and services industries but also some banks and insurance companies. These companies would perhaps form the high-resilience group of companies in the Indian market.

Table 3: Top 100 companies by market capitalization on May 7, 2020

Name of Company	Closing Price (Rs.)	Market Capitalization (Rs. Crore)
RELIANCE INDUSTRIES LTD.	1507.25	955496.1
TATA CONSULTANCY SERVICES LTD.	1891.25	709669.76
HDFC Bank Ltd	924.95	507237.37
HINDUSTAN UNILEVER LTD.	1992.5	468131.5
HOUSING DEVELOPMENT FINANCE CORP.LTD.	1703.8	295106.27
BHARTI AIRTEL LTD.	527.8	287944.32
INFOSYS LTD.	665.05	283244.3
KOTAK MAHINDRA BANK LTD.	1199.5	229468.95
ICICI BANK LTD.	336.75	218023.41
ITC LTD.	161.05	197966.38
NESTLE INDIA LTD.	17132.85	165187.6
ASIAN PAINTS LTD.	1593.95	152891.33
STATE BANK OF INDIA	170.7	152343.12
MARUTI SUZUKI INDIA LTD.	4749.4	143469.9
Avenue Supermarts Ltd	2198.35	142403.55
HCL TECHNOLOGIES LTD.	511.8	138885.38
Bajaj Finance Limited	2060.95	124005.11
LARSEN & TOUBRO LTD.	822.7	115498.2
AXIS BANK LTD.	397.4	112139.72
SUN PHARMACEUTICAL INDUSTRIES LTD.	452.3	108519.24
WIPRO LTD.	184.1	105184.31

HDFC Life Insurance Company Ltd	494.25	99779.11
OIL AND NATURAL GAS CORPORATION LTD.	75.65	95169.81
ULTRATECH CEMENT LTD.	3251.85	93856.55
NTPC LTD.	90.5	89545.74
POWER GRID CORPORATION OF INDIA LTD.	161.65	84568.65
COAL INDIA LTD.	130.8	81192.91
DABUR INDIA LTD.	442	78104.22
Titan Company Limited	849.3	75399.68
HINDUSTAN ZINC LTD.	176.25	74471.25
BAJAJ FINSERV LTD.	4675.15	74399.07
SBI Life Insurance Company Ltd	735.3	73531.93
BHARAT PETROLEUM CORPORATION LTD.	329.6	71498.57
INDIAN OIL CORPORATION LTD.	75.8	71359.32
BRITANNIA INDUSTRIES LTD.	2915.25	70102.52
BAJAJ AUTO LTD.	2406.35	69631.83
PIDILITE INDUSTRIES LTD.	1352.3	68713.58
SHREE CEMENT LTD.	18389.25	66349.79
DR.REDDY'S LABORATORIES LTD.	3834.35	63712.25
DIVI'S LABORATORIES LTD.	2257.8	59937.5
ADANI PORTS AND SPECIAL ECONOMIC ZONE LTD.	282.4	57376.67
ICICI Prudential Life Insurance Company Ltd	397.85	57125.79
HDFC Asset Management Company Ltd	2635.35	56081.12
ICICI Lombard General Insurance Company Ltd	1209.45	54965.42
SBI Cards and Payment Services Ltd	573.8	53877.34
TECH MAHINDRA LTD.	516.05	49843.45
MAHINDRA & MAHINDRA LTD.	400.75	49820.94
GODREJ CONSUMER PRODUCTS LTD.	486.6	49745.91
CIPLA LTD.	589.4	47519.74
BERGER PAINTS INDIA LTD.	450.55	43758.31

Source: BSE website

3. Causal link between stock performance and FII

Whether FII flow has a causal link with the stock market performance in India is a contested issue. Some studies in the post-reform period found no causality from FII flows to market capitalization but found a unidirectional causality from market capitalization to stock market performance (Tripathy, 2007). Notable research on this issue, in the context of developed economies, has been done by scholars like Levine (1997), Bond & Smith (1996), Demirguc-Kunt& Levine (1996), Demirguc-Kunt & Maksimovic (1996), Levine & Zervos (1996a,1996b), Rajan and Zingales (1998) among others. Their findings show that development in the stock market leads to economic growth.

In Table 4 we report daily data for various indicators of stock market performance in BSE Sensex and net FII flows during April, 2020. From this table we may not conclude whether FII has an impact on BSE Sensex or not. To have a better picture regarding such an impact we have analysed the daily data for BSE Sensex and net FII flows during March 2, 2020 to May 22, 2020, by applying some econometric techniques viz. Granger causality test, Johansen Cointegration test and Impulse Response Functions by estimating a Vector Autoregression (VAR) model. For the performance indicator of BSE Sensex, we have considered the daily closing price (Close) of BSE Sensex.

Table 4: Stock market performance in BSE Sensex and Net FII flows in April, 2020

Date	BSE closing price	PE Ratio	PB Ratio	Total MKTCAP (Rs. Crore)	Total Turnover (Rs. Crore)	Net FII (Rs. Crore)
Apr-01	28,265.31	17.18	2.19	1,10,28,123.54	1,884.94	
Apr-03	27,590.95	16.79	2.14	1,08,43,397.55	2,188.76	-6749.51
Apr-07	30,067.21	18.44	2.35	1,16,38,099.98	2,350.30	-1789.63
Apr-08	29,893.96	18.04	2.3	1,16,82,527.09	2,565.14	-96.22
Apr-09	31,159.62	18.74	2.39	1,20,81,461.88	2,620.93	21.72
Apr-13	30,690.02	18.58	2.37	1,19,76,444.34	2,257.63	429.56
Apr-15	30,379.81	18.37	2.34	1,19,96,675.59	4,071.67	-1228.48
Apr-16	30,602.61	18.35	2.34	1,20,67,240.06	2,191.87	-1228.48
Apr-17	31,588.72	19.16	2.44	1,23,50,980.37	2,812.29	-3783.80
Apr-20	31,648.00	19.21	2.45	1,23,72,581.25	2,339.41	-1586.09
Apr-21	30,636.71	18.42	2.35	1,20,42,172.38	2,192.62	1647.28
Apr-22	31,379.55	18.94	2.42	1,22,55,039.98	2,692.85	-1629.25
Apr-23	31,863.08	19.41	2.47	1,23,73,458.73	2,681.22	2762.40
Apr-24	31,327.22	18.90	2.41	1,21,73,452.47	2,493.18	1118.98
Apr-27	31,743.08	19.20	2.45	1,23,46,159.54	2,014.80	-958.44
Apr-28	32,114.52	19.44	2.48	1,24,13,735.39	2,249.33	-220.35
Apr-29	32,720.16	19.88	2.53	1,26,21,048.50	2,207.55	-623.85
Apr-30	33,717.62	20.90	2.63	1,29,41,620.82	2,661.85	-3237.40

Source: BSE Website and NSDL.

According to Garg and Bodla (2011), there are two arguments which can explain the impact of the Flls on stock market return:

i) 'Positive Feed Back Trading' hypothesis, which suggests that FIIs enter the market following positive signals of higher stock return, and the reverse is true when stock return declines.

ii) 'Base broadening' hypothesis, which suggests that as FIIs enter the market, there is an expansion of the investors' base which leads to increased diversification and reduced risk, and as a consequence risk premium falls. Thus, there is a permanent increase in the stock price through risk pooling which may be viewed as signaling higher returns.

Of these two arguments, the first one suggests that the causality runs from stock price to FII flows whereas the second one suggests the reverse. Regarding the direction of causality between FII flows and stock market performance, there exist several studies in the context of post-reform India. However, the findings are ambiguous. Some studies observed causality running from FII flows to stock market performance (Bose, 2012; Srikanth and Kishore, 2012; Mishra et. al.,2009; Gordon and Gupta, 2003) whereas others find the reverse or bi-directional causality (Kaur and Dhillon, 2010; Khan et. al., 2010; Chakrabarti, 2001; Mukherjee, 2002; Ahmad and Ashraf, 2005). Furthermore, the findings are observed to be different in different time periods. Thus, it is a testable proposition to examine the direction of causality between FII flows and stock market performance during Covid-19 epidemic in India. In Table 5 we report the results of Granger causality between daily net FII flows and daily closing price of BSE Sensex. It shows that causality is running from FII flows to closing price of BSE Sensex and not the other way around. Our finding thus supports the existence of 'Base Broadening Hypothesis' in the time of Covid-19.

Table 5: Pairwise Granger causality test between FII and closing price of BSE Sensex

Null Hypothesis:	Obs	F-Statistic	Prob.
FII does not Granger Cause CLOSE	47	2.91618 **	0.0338
CLOSE does not Granger Cause FII		1.31297	0.2826

Note: ** indicates significant at 5% level

To examine if there is any co-movement between the net FII flows and the stock price performance, we apply Johansen Cointegration tests between daily net FII flows and daily closing price of BSE Sensex. From the daily trends between these variables (Fig.2) we observe that there are similar movements between net FII flows and closing price.

Fig.2: Daily Trends of Net FII Flows and Closing Price of BSE Sensex

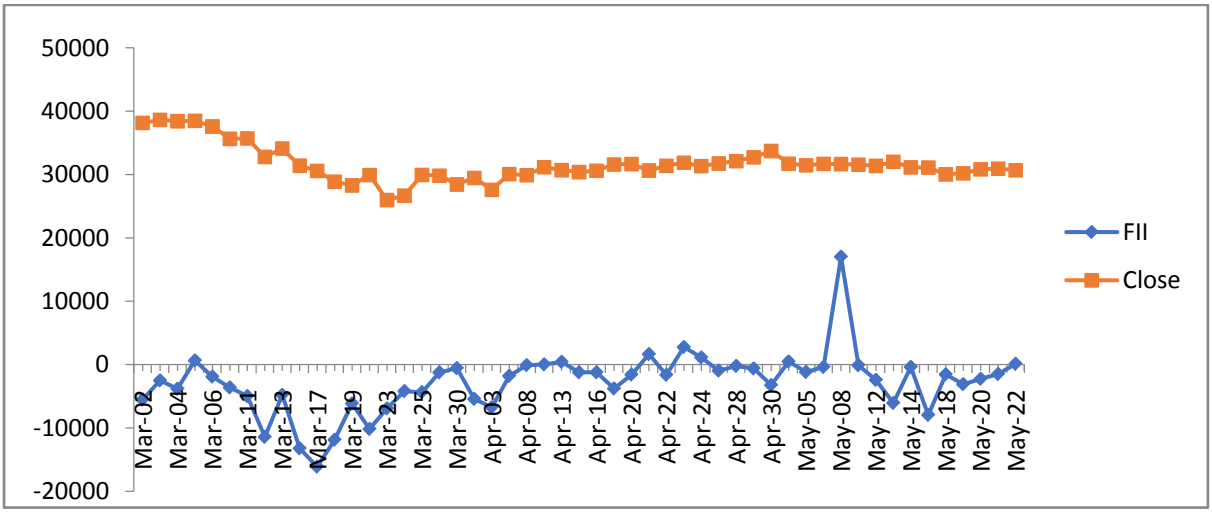


Table 6 reports the results of Johansen Cointegration test between net FII flows and closing price of BSE Sensex. From the Trace statistics we find that there are at most two cointegrating equations between the two sets of variables in Table 6. It indicates that daily net FII flows and stock market performance in India are cointegrated during the pandemic. In other words, there is a long-run equilibrium relationship between these indicators. Before testing for cointegration, we tested for stationarity of the variables by applying several tests such as Augmented-Dickey Fuller test, Phillips-Perron test and Ng-Perron test and obtained that the variables are nonstationary and I(1). However, the results are not reported here for the sake of brevity.

Table 6: Johansen Cointegration test between net FII flows and closing price of BSE Sensex

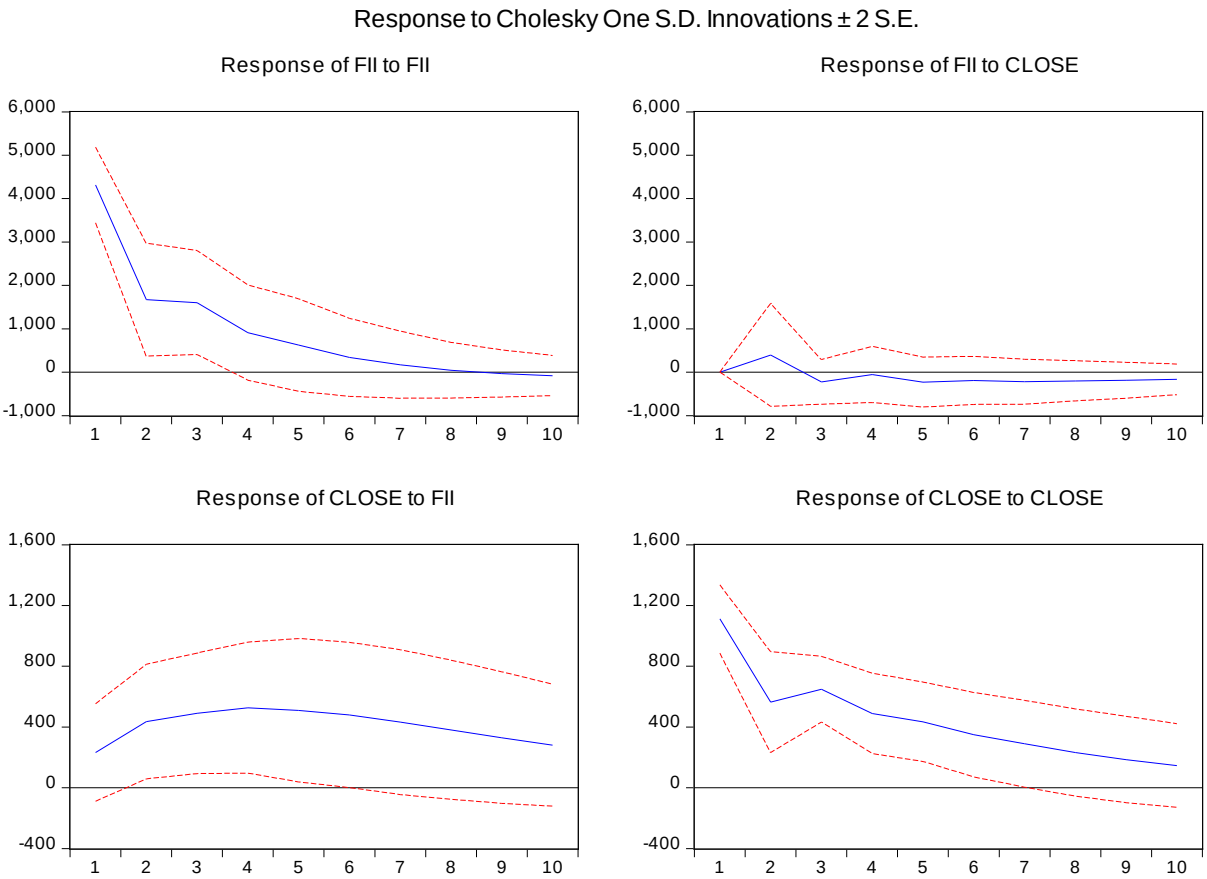
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigen value	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.343751	27.33611	15.49471	0.0005
At most 1 *	0.137816	7.117771	3.841466	0.0076

Note: * denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values

To further investigate the dynamic responses among the variables, the impulse response functions of the VAR have been calculated. The impulse response function traces the time path of the external shock on a variable to other variables in the system. Fig. 3 presents the impulse response functions for the closing price of BSE Sensex due to the external shocks on FII and also the reverse. We observe that due to one standard deviation innovation in the

closing price of BSE Sensex, net FII flows first increase in the following lag and then decline quickly from lag 2 onwards. Thus the external shock on closing price of BSE Sensex has impact on the net FII flows for the next 2 days and then it stabilizes. On the other hand, due to the external shock on FII, closing price of BSE Sensex increases till lag 5 and then slowly decreases but does not stabilize till lag 10. Thus, the effect of external shock on FII has destabilizing impact on the closing price of BSE Sensex till the next 10 days.

Fig.3: Impulse Response Functions of Net FII flows and closing Price of BSE Sensex



We next consider another important indicator of stock market performance viz., the price-earnings ratio (P/E ratio). P/E ratio indicates the future movement in stock prices. It is generally argued that if the P/E ratio is well above its long-term average today it will decline in the years ahead. Conversely, when the P/E ratio has fallen well below its long-term average, there will be a tendency to rise subsequently. There are two ways in which the P/E ratio may go back to its long-term average – either through slower growth in stock prices or faster growth in earnings. The first implies that the investors have a pessimistic outlook for the stock market. Campbell and Shiller (1998) examined the historical record and found that the movements in the P/E ratio back toward the long-term average had occurred mainly

through changes in stock price growth and not through changes in earnings growth. Numerous other studies have shown the systematic tendency for firms with low P/E ratios to earn higher stock returns and firms with high P/E ratios to earn lower stock returns, in the United States and in international markets as well (Campbell and Shiller, 2001; Capaul, Rowley, & Sharpe, 1993; Fama and French, 2002 among others).

Apart from the prediction of stock price growth over the long term by P/E ratio, it has some implication for short-term movement in stock prices too. Short-term stock market performance can be predicted by comparing the inverse of the P/E ratio, which is known as the earnings yield, to some measure of market interest rates. It has been observed that when the spread between the earnings yield and market rates is very low, stock prices generally fall over subsequent weeks or months (Shen, 2000). A low spread indicates that stocks are relatively more expensive than alternative investments such as Treasury bills. Under this circumstance investors would switch from stocks to other assets, which would result in a slower increase in stock prices. However, in this study we have not made any analysis regarding the P/E ratio from its trend over two and a half month period. A fruitful analysis requires data for a historically long period which is beyond the scope of the present study.

4. Covid-19 shock, stock price reactions and firms' resilience

In this section, we examine the relationship between some corporate characteristics prior to 2020 and stock price reactions to the Covid-19 pandemic. Our firm level analysis considers 1373 firms listed in BSE. From a total of 4802 BSE firms, we have dropped those firms having missing information and those which are government corporations. To answer the question how some firms remain resilient to the Covid-19 shock, we have used the percentage change in stock prices of a firm relative to the change in BSE Sensex during March 12, 2020 and July, 2, 2020. The firms which have large increases in stock prices during the stated period, relative to BSE Sensex changes in the same period, seem to be resilient to Covid-19 shocks, since these firms have favourable stock price reactions to shocks. This will be considered as our dependent variable (PERCLOSE) in this analysis, which is computed over 1373 firms on two dates viz., March 12, 2020 and July 2, 2020. We analyse the relationship of this variable to some characteristics of firms to get an answer to our question. Based on the theories of the corporate firms, we consider average values of four characteristics of the firms in the two years prior to 2020: (1) leverage (LEV) (2) profitability (ROA) (3) sales (SALES) and (4) cash flow from operating activities (CFOA). If a firm has

low leverage, and high cash flow from operating activities, it would be able to avoid the problem of liquidity constraints due to the shortage of cash flow, which would help to improve performance of the firm (Harford 1999; Bates, Kahle, and Stulz 2009; Giroud and Mueller 2017). It also shows that the firm has a strong balance sheet which may help to offset the negative demand shock due to covid-19. Similarly, if past performance is higher, (measured by profitability and sales) it would affect positively the stock price (Ding, Levine, Lin and Xie, 2020). Strong past performance would extend the period of survival of a firm in the face of temporary suspension of productive activities and sales during a period of crisis.

Next, we argue that corporate ownership pattern might have some impact on corporate resilience. If the firms are owned by business groups they will have deep-pockets and a long-run commitment to the firm, which may make them resilient in the face of shocks. Stock performance of these firms will be relatively less adversely affected, compared to the stand-alone firms. There are several studies which have looked at corporate ownership pattern to analyse corporate behavior, including Morck, Shleifer, and Vishny (1988), La Porta et al. (1999), Claessens, Djankov, and Lang (2000), Morck, Wolfenzon, and Yeung (2005) among others. We believe the ownership pattern of the firm will have some effect on the stock price reactions in India. Specifically we consider whether a firm belongs to a business group or is a stand-alone and use a dummy variable (DGROUP) which takes value 1 for group-affiliated firms and 0, otherwise.

Finally, we also include three more variables relating to the stock prices of the firms viz. market-to-book ratio, size of the firm and stock liquidity. Market-to-book ratio (MBRATIO) is considered as a proxy for growth opportunities, firm size (SIZE) is measured as the log of market capitalization and stock liquidity (LIQ) is measured as trading volume scaled by the number of shares outstanding. Motivation to include market-to-book ratio follows from the studies by Fama and French, 1993, 1995; Jensen, Johnson, and Mercer 1997, and Yildiz and Karan (2018). Firms having greater MBRATIO would have more uncertain future businesses, which would increase the volatility of their stock returns. Therefore, higher is the MBRATIO, larger would be the stock price changes. Firm size is argued to be inversely related to stock returns because small firms are more sensitive to adverse shocks risk of stock market crash varies with the size of the firm (Roll, 1981; Chan, Chen, and Hsieh, 1985; Yildiz and Karan, 2018). A large number of studies found a positive relationship between trading volume and stock prices (Epps and Epps, 1976; Amihud and Medelson, 1986; Yildiz and Karan, 2018). It

has been argued that the risk of stock price crash increases with stock liquidity as the accumulation of bad news increases over time (Chang, Chen, and Zolotoy, 2017).

The latter variables are considered as lagged values observed in some date prior to the event. We have already discussed that the Indian stock market crashed on March 12, 2020 following the declaration of pandemic by WHO on March 11, 2020. Thus, as a prior date we consider March 11, 2020. Another alternative prior date is January 30, 2020, since the first case of Covid-19 was reported in Kerala on that day. Considering the above characteristics of firms', we will be able to better identify the connection between each characteristic and stock price responses in relation to Covid-19 shock.

Table 7: Characteristics of companies contributing more than 20% to the change in BSE Sensex during March 12 to July 2, 2020

Company Name	Incorporation year	Industry group	Ownership group	PER CLOSE	Ind Prom	For Prom	Non PI	Non PNI
M R F Ltd.	1960	Tyres & tubes	MRF	176.677	27.31	0.57	23.01	49.11
Tasty Bite Eatables Ltd.	1985	Processed foods	Private (Foreign)	79.851	74.22	0.01	4.7	21.07
Shree Cement Ltd.	1979	Cement	Bangur P.D./ B.G.	79.828	62.55	0	23.12	14.32
Bayer Crop science Ltd.	1958	Pesticides	Private (Foreign)	67.689	32.93	38.51	16.08	12.48
D-Link (India) Ltd.	1993	Consumer electronics	Private (Indian)	62.999	36.17	0	36.68	27.15
Dixon Technologies (India) Ltd.	1993	Consumer electronics	Private (Indian)	62.999	36.17	0	36.68	27.15
Abbott India Ltd.	1944	Drugs & pharma ceuticals	Private (Foreign)	62.473	0	74.99	7.72	17.3
Bharat Rasayan Ltd.	1989	Pesticides	Private (Indian)	59.666	74.83	0	0.79	24.38
G M M Pfaudler Ltd.	1962	Industrial machinery	Private (Foreign)	48.614	24.56	50.44	2.39	22.61
Eicher Motors Ltd.	1982	Two & three wheelers	Eicher	47.744	47.05	2.23	38.83	11.75
Astrazeneca Pharma India Ltd.	1979	Wholesale trading	Private (Foreign)	41.969	0	75	4.88	20.12
Nestle India Ltd.	1959	Processed foods	Private (Foreign)	37.926	0	62.76	20.93	16.24
Ruchi Soya Inds. Ltd.	1986	Vegetable oils & products	Ruchi	37.091	98.9	0	0	1.1
Dr. Reddy'S Laboratories Ltd.	1984	Drugs & pharmaceuticals	Dr. Reddy's	34.742	26.75	0	44.74	28.51

Sanofi India Ltd.	1956	Drugs & pharmaceuticals	Aventis (F)	29.523	0	60.4	28.69	10.92
Alkyl Amines Chemicals Ltd.	1979	Organic chemicals	Alkyl Amines	29.128	74.07	0.12	2.4	23.4
Page Industries Ltd.	1994	Readymade garments	Private (Indian)	27.965	0	48.32	39.2	12.21
Hero Motocorp Ltd.	1984	Two & three wheelers	Hero (Munjals)	25.054	34.63	0	54.16	11.21
Aarti Drugs Ltd.	1984	Drugs & pharmaceuticals	Alchemie	24.312	61.44	0	5.89	32.67
Britannia Industries Ltd.	1918	Bakery products	Wadia (Bombay Dyeing)	23.804	0.01	50.62	29.98	19.39
Reliance Industries Ltd.	1973	Refinery	Reliance [Mukesh Ambani]	22.800	50.06	0	37.86	11.87
Procter & Gamble Hygiene & Health Care Ltd.	1964	Cosmetics, toiletries, soaps & detergents	Procter & Gamble (F)	21.671	1.91	68.73	15.66	13.68
Oracle Financial Services Software Ltd.	1989	Computer software	Private (Foreign)	21.611	0	73.42	19.74	6.83

In Table 7 we report some characteristics of companies contributing 20% or more to the change in BSE Sensex during March 12, 2020 to July 2, 2020. There are only 23 companies, out of our total of 1373 companies which have contributed to such an extent during this period. Table 7 reveals that out of the 23 companies, 11 companies are group-affiliated, 7 are foreign-owned private and 4 are Indian-owned private companies. These companies have age between 26 to 102 years. According to the industry categories, these firms mainly belong to the following industries: Drugs and Pharmaceuticals, FMCG, Electronics, Cement, Pesticides, Automobiles and Industrial Machinery. In terms of equity shares, 7 companies have largest shares by Indian promoters and 8 companies have owned by foreign promoters. Only 1 company has largest share by non-promoter institutional and there is no company in the category of non-promoter non-institutional.

Next, we classify 1373 firms according to 2-digit NIC Classification into industries. We observe that these 1373 firms belong to 21 industries. Then we estimate the change in closing price of shares during March 12, 2020 to July 2, 2020 in each industry by averaging over firms belonging to each of these industries. Finally we calculate the per cent share of change in stock prices in each industry to the change in BSE Sensex during the study period. Fig. 4 shows the contribution of different industries in the change in BSE Sensex during the study period. We find that the top contributors are

Transport Equipment industry (10.06%), Pharmaceuticals (5.32%), Electronics (4.5%), Rubber & Plastics (3.93%) and so on. On the other hand, least contribution comes from Employment Activities (-6.11%), Tobacco Products (-3.63%), Security and investigation activities (-3.38%), Financial Services (-1.17%).

Then we estimate an OLS regression on 1373 firms on two prior dates viz., March 11, 2020 and January 30, 2020 using PERCLOSE as the dependent variable and all other explanatory variables as discussed earlier. The results are reported in Table 8. We find that, the average value of sales during the past two years from 2020 (SALESAVG) and market-to-book ratio (MBRATIO) have positive significant effect on PERCLOSE, on both the prior dates. Thus, the higher past performance of firms and better growth opportunities will make them resilient to Covid-19 shock to the stock market.

To get a more disaggregate picture, we categorize all 1373 firms according to the categories of contribution at the level of 10%, 20%, 30%, 40% and 50% and create a categorical variable for PERCLOSE, which takes value 1 for those firms contributing 10% or more and 0, otherwise. In the same way, we create categorical variables for all the categories from 10% to 50%. Then we run a logistic regression for each of these categories separately. The estimation results are reported in Tables 9 and 10 for the prior dates March 11, 2020 and January 30, 2020, respectively. The interpretations of the results follow.

From Table 9 we find that the odds ratio for ROAAVG, MBRATIOAVG and SIZEAVG are positively significant and greater than 1. The estimated odds ratio for ROAAVG is 43.136 which indicates, for each increase in 1 unit of ROAAVG the estimated odds of PERCLOSE being more than 10% increases by a factor of 43, regardless of other characteristics of firms. In other words, if two firms have similar characteristics in respect of other variables but differ on their values of the profitability in the past two years by one unit, then the firm with the higher value of ROAAVG has about 43 times higher odds of stock price increase by one percentage than the firm with lower value of ROAAVG. Similarly the odds ratio of MBRATIOM is 1.065 which implies that 1 unit increase in MBRATIO leads to 6.5% increase in odds of PERCLOSE being more than 10%. Similarly, for PERCLOSE greater than 30%, 40% and 50% the variable DGROUP is negatively significant. For example, the estimated odds ratio for PERCLOSE greater than 30% is 0.339 which indicates that a firm belonging to a business group will have lower odds of PERCLOSE> 30% by -66.1%, compared to a stand-alone firm. Therefore, the stand-alone firms appear to have favourable

stock price reactions to Covid-19 shocks and hence remain more resilient than the business group firms. This finding challenges the conventional belief that the business group firms would remain solvent in the situation of a crisis. Comparing Tables 9 and 10 we get almost similar results. Our findings imply that three things contribute to making a firm resilient to Covid-19 shocks viz., greater past performance in terms of profitability, higher growth opportunities of stocks and being a stand-alone firm.

Fig. 4: Contribution of different industries in the change in BSE Sensex during March 12, 2020 to July 2, 2020

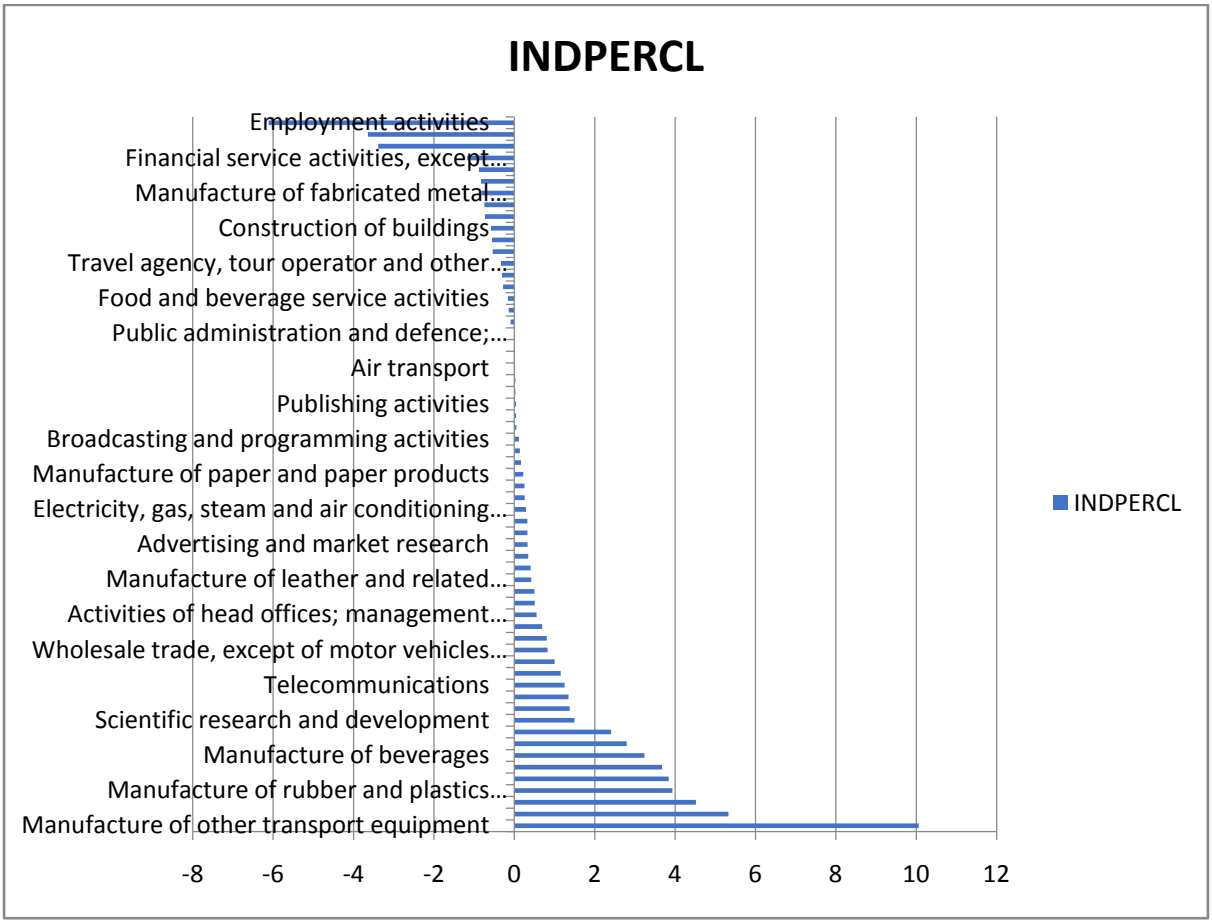


Table 8: Results of OLS Regression w.r.t two alternative prior dates

PERCLOSE	March 11, 2020		January 30,2020	
	Coef.	P>|t|	Coef.	P>|t|
Cons	-0.356 (1.062)	0.738	-0.482 (1.107)	0.663
DGROUP	0.0711 (0.462)	0.878	0.0298 (0.463)	0.949
LEVAVG	-0.739	0.498	-0.762	-2.909

	(1.091)		(1.094)	
ROAAVG	1.480 (2.257)	0.512	1.743 (2.265)	0.442
SALESAVG	5.86e-06* (2.39e-06)	0.014	5.83e-06 * (2.40e-06)	0.015
CFOAAVG	0.00001 (8.77e-06)	0.249	.00001 (8.74e-06)	0.230
MBRATIOM	0.254* (0.062)	0.000		
SIZEM	0.097 (0.124)	0.432		
LIQM	-9.834 (247.223)	0.968		
MBRATIOJ			0.192 * (0.058)	0.001
SIZEJ			0.116 (0.126)	0.360
LIQJ			100.448 (215.744)	0.642
No. Of Obs.	1373		1373	
Adj R^2	0.0332		0.0283	

Note: Standard errors are reported in parentheses. * implies significant at 1% level, 88 implies significant at 5% level and *** implies significant at 10% level.

Table 9: Results of Logistic Regression with prior day March 11, 2020

PERCLOSE	**>10%**		**>20%**		**>30%**		**>40%**		**>50%**	
	Odds ratio	**Z**	**Odds ratio**	**Z**	**Odds ratio**	**Z**	**Odds ratio**	**Z**	**Odds ratio**	**Z**
Cons	0 .0003 (0.000 3)	-7.59 *	0.0002 (0.000 3)*	-5.35 *	0.00006 (0.0001)	-4.91 *	0.0000 2 (0.000 06)	-4.47 *	0.00001 (0.0000 3)	-4.16 *
DGROUP	1.196 (0.410)	0.52	0.643 (0.311)	-0.91	0.332 (0.206)	-1.77 ***	0.232 (0.167)	-2.02 **	0.192 (0.167)	-1.90 **
LEVAVG	0.524 (0.564)	-0.60	0.502 (0.817)	-0.42	0.441 (0.839)	-0.43	0.164 (0.425)	-0.70	0.875 (2.158)	-0.05
ROAAVG	43.136 (79.67 7)	2.04**	30.181 (79.68 2)	1.29	0.505 (1.505)	-0.23	33.393 (141.5 28)	0.83	37.947 (192.03)	0.72
SALESAV G	1.0000 1 (1.01e-06)	0.71	1.0000 01 (1.10e-06)	1.12	0.999 (2.93e-06)	-0.60	0.999 (4.09e-06)	-0.92	0.999 (4.10e-06)	-0.74
CFOAAVG	1.0000 02 (4.40e-06)	0.48	0.999 (5.66e-06)	-0.12	1.00000 3 (8.14e-06)	0.36	1.0000 03 (9.55e-06)	0.27	1.00000 2 (9.36e-06)	0.24
MBRATIO M	1.065 (0.031)	2.17 **	1.109 (0.038)	3.01 *	1.082 (0.037)	2.28**	1.018 (0.028)	0.68 *	1.009 (0.031)	0.32

SIZEM	1.515 (0.148)	4.24 *	1.453 (0.207)	2.62*	1.692 (0.301)	2.95 *	1.850 (0.378)	3.01 *	1.927 (0.453)	2.79*
LIQM	3.6e-153 (1.7e-150)	-0.72	6.4e-208 (5.7e-205)	-0.54	4.7e-116 (4.1e-113)	-0.30	1.7e-122 (1.7e-119)	-0.29	1.8e-201 (2.6e-198)	-0.32
No. Of Obs.	1373		1373		1373		1373		1373	
Pseudo R^2	0.23		0.27		0.24		0.21		0.19	
LR chi2(8)	96.60		65.20		0.761		27.52		0.745	
Prob > chi2	0.000*		0.000*		0.000*		0.0006*		0.013*	

Note: Standard errors are reported in parentheses. * implies significant at 1% level, 88 implies significant at 5% level and *** implies significant at 10% level.

Table 10: Results of Logistic Regression with prior day January 30, 2020

PERCLOSE	**>10%**		**>20%**		**>30%**		**>40%**		**>50%**	
	Odds ratio	**Z**	**Odds ratio**	**Z**	**Odds ratio**	**Z**	**Odds ratio**	**Z**	**Odds ratio**	**Z**
Cons	0.0002 (0.0003)	-7.66 *	0.0002 (0.0004)	-5.42 *	0.00008 (0.0001)	-4.92 *	0.00002 (0.00006)	-4.45 *	0.00001 (0.00003)	-4.17 *
DGROUP	1.166 (0.397)	0.45	0.639 (0.305)	-0.94	0.339 (0.207)	-1.77 ***	0.227 (0.163)	-2.06 **	0.185 (0.161)	-1.94 **
LEVAVG	0.427 (0.459)	-0.79	0.449 (0.723)	-0.50	0.4003 (0.776)	-0.47	0.133 (0.350)	-0.77	0.731 (1.828)	-0.12
ROAAVG	56.691 (96.155)	2.38 *	63.837 (143.671)	01.85 ***	1.738 (5.130)	0.19	40.012 (162.060)	0.91	50.383 (240.544)	0.82
SALESAVG	1.000001 (1.02e-06)	0.63	1.000001 (1.09e-06)	1.03	0.999 (2.76e-06)	-0.57	0.999 (3.91e-06)	-0.89	0.999 (3.95e-06)	-0.72
CFOAAVG	1.000002 (4.50e-06)	0.52	0.999 (5.83e-06)	-0.10	1.000003 (8.40e-06)	0.38	1.000003 (9.64e-06)	0.31	1.000003 (9.64e-06)	0.27
MBRATIOJ	1.051 (0.024)	2.17 **	1.087 (.029)	3.06 *	1.063 (0.028)	2.26 **	1.017 (0.028)	0.61	1.006 (0.033)	0.20
SIZEJ	1.510 (0.147)	4.23 *	1.429 (0.197)	2.58*	1.631 (0.284)	2.81*	1.817 (0.373)	2.90 *	1.9007 (0.450)	2.71 *
LIQJ	1.78e+47 (1.55e+49)	01.25	8.80e-66 (5.24e-63)	-0.25	6.05e+11 (1.70e+14)	0.10	1.94e+32 (4.05e+34)	0.36	6.78e+35 (1.26e+38)	0.44
No. Of Obs.	1373		1373		1373		1373		1373	

Pseudo R^2	0.21	0.25	0.20	0.19	0.17
LR chi2(8)	88.93	58.76	0.923	25.24	0.657
Prob > chi2	0.000*	0.000*	0.000*	0.001*	0.026**

Note: Standard errors are reported in parentheses. * implies significant at 1% level, 88 implies significant at 5% level and *** implies significant at 10% level.

5. Some reflections on herding and short-selling

Given the current volatility in the stock market, following covid-19, there is the possibility of 'herding' by the foreign institutional investors too. 'Herding' is defined as heavy buying or selling of some stocks by a group of investors over a sustained period. In other words, it implies that a group of investors are imitating the behaviour of other investors while buying or selling some stocks over some period of time (Lakonishok et al. 1992; Sias 2004). According to Behavioral Finance, herding refers to the human behaviour to imitate others, which makes identical behaviour of a group of people while taking a decision (Lemieux, 2003-2004). Herding behaviour can be categorized into intentional and unintentional herding. Intentional herding refers to the situation when fund managers ignore their private information and imitate the behaviour of others in order to avoid the risk of losing their reputation while taking the decision relating to some specific securities (Scharfstein and Stein, 1990). On the other hand, in unintentional herding fund managers behave similarly while trading some stocks, as they receive the similar private information by analyzing the same indicators (Froot et al., 1992). The presence of herding behaviour challenges the existence of the Efficient Market Hypothesis, which argues that the investors have identical information and are rational and hence expectation about stock price will be similar (Fama, 1970). However, as evident from the foregoing discussion, herding behaviour challenges all these assumptions and suggests rather that investors behave irrationally in the stock market. When an investor's investment decision is guided by the public information available aggregately rather than private information, the fundamental value of the stock might be lower than its true value. Therefore, herding behaviour indicates the presence of market inefficiency. Thus, herding behaviour may create instability in the stock market by moving away from their fundamental values.

It is widely known that foreign investors' herding tendency is likely to be more profound under market stress (Christie and Huang, 1995; Demirer and Kutan, 2006; Nofsinger and Sias, 1999 among others). It has been observed that, in abnormal periods with volatility and a

lack of proper information regarding the market, investors are likely to herd by ignoring their own information and instead rely on the aggregate market to form their investment decision (Demirer et al., 2007). During the period of global financial crisis, herding by foreign investors was observed in Chinese market which seemed to be due to the contagion effect (Chiang and Zheng, 2010). In contrast, the insignificant herding behaviour in the Indian market during the same period is reported by Lao and Singh (2011). However, it needs a detailed analysis to confirm whether foreign institutional investors are following herding behaviour in Indian stock market following Covid-19, which has the potential to destabilize the stock market further.

In this context, another concern relates to the arbitrage activity in the stock market which is likely to increase due to the heavy downfall in the stock market. As a consequence short selling by arbitrageurs may increase and destabilize the stock market. Existing studies show that many countries imposed ban on short selling during the financial crisis. In India, as stocks experienced sharp falls in the wake of the Covid-19 outbreak, SEBI imposed a ban on short selling since March 23 in an attempt to stabilise the market and maintain investor confidence. It has been reported that the ban on short selling continued till May 28. It has been stated that this ban helped a near 30 per cent recovery in the Sensex and Nifty from very low levels (Business Line, April 20, 2020). However, it has been a controversial issue whether a ban on short selling helps to stabilize the stock market or not. To establish this point, we review some studies in the following section, which have analysed the effects of short selling ban on stock prices in various countries, both theoretically and empirically.

Short selling, an important tool used by speculators to take the advantage of overpriced securities, plays an important role in asset pricing models and the theory of portfolio choice. Short sellers have been blamed for stock market declines, and therefore regulators tend to ban short selling. A large number of studies appeared in the last decade which explored the effects of short sales on the stock market (Luttmer, 1996; Chen, 1995, 2001; He and Modest, 1995; Hansen and Jagannathan, 1997; Jouini and Kallal, 2001; Duffie, Garleanu and Pedersen, 2002 among others). During the financial crisis of 2008, short sellers were blamed for the decline in stock prices. As a result, regulators in the United States imposed two temporary rules to limit short sellers' activity. One important study, in this context, is Diamond and Verrecchia (1987) which developed a model on the effects of short-selling ban and later on many studies applied their model to analyse the effects of short selling ban in U.S during 2008 financial crisis, including Cornelli and Yilmaz (2015), Tian (2014) among

others. Diamond and Verrecchia (1987) modeled the effects of constraints on short sales on the distribution and speed of adjustment to private information of security prices. This model is based on the assumption of rational expectation and consider bid and ask prices offered in the market to analyse the effects of these constraints on private information about stock prices. They argue that short sales constraints have different effects on the diffusion of positive and negative information. They find that the bans were associated with better stock price performance in U.S. Boehmer, Jones, and Zhang (2009) analyse the effects of ban on short sales by comparing the difference between the stocks targeted by the ban and those that were not. Their find that liquidity, measured by spreads, as well as the impact on price deteriorated largely for those stocks which were subject to the ban. This finding was also supported by Kolasinski, Reed, and Thornock (2012) which observed a strong negative relationship between short selling volume and stock returns. Marsh and Payne (2012), analyzing the data for the United Kingdom, find that after the ban on financial stocks, their bid-ask spreads increased and their market depth declined much more than those nonfinancial stocks which were not subject to ban. Beber and Pagano (2013) examine a large number of stocks across countries that are subject to different types of shorting bans. They find that shorting bans increase end-of-day bid-ask spreads which imply a decline in stock liquidity. From the above studies we observe that the effects of short-selling bans on liquidity are ambiguous

Extending the model of Diamond and Verrecchia (1987), some later studies show that short sales constraints can be a direct cause of bubbles and excessive volatility in the stock market too (Abreu and Brunnermeier, 2002, 2003; Scheinkman and Xiong, 2003). Although a substantial number of studies show that short sales restrictions lead to overvaluation of stock prices, it is not clear whether the overvaluation is temporary, or permanent. However, most studies indicate that overvaluation due to short sell bans would have short-term effect. Lim (2011), with a theoretical model, shows that overvaluation cannot persist if short-sale constraints are known to everyone. Berkman et al. (2009) find that, when investors sell on the news that their stocks are overpriced, prices decline and so constraint-induced overvaluation are partially corrected. Their finding suggests that, periodical earnings announcements would reduce divergence of opinion among investors and hence, overvaluation may not be permanent. Diether, Lee, and Werner (2009) argue that short sellers target overvalued stocks and as a result stock prices get corrected. Similarly, Boehmer and Wu (2009) suggest that the price of a stock which has a relatively higher short-sale volume would remain closer to its

fundamental value. These studies suggest that, if shorting is banned, at least some of the stocks would remain overvalued until the shorting ban ends. It appears that several studies have cast doubt on the effectiveness of short-selling ban. Table 11 also reveals that the effectiveness of the ban on short-selling is a contested issue.

Table112: Ban on short-selling and its effect on stock return in different countries

Country	7-Day Returns (%)			15-Day Returns (%)	
	Ban Date	Pre-Ban	Post-Ban	Pre-Ban	Post-Ban
India (NIFTY)	08-03-01	-4.80	-5.86	-5.46	-15.24
UK (FTSE)	19-09-08	-1.95	-4.20	-0.95	-7.12
US (DOW)	19-09-08	-0.29	-2.15	1.79	-7.71
Germany (DAX)	19-09-08	-0.73	-2.04	-1.43	-7.68
France (CAC)	22-09-08	1.31	-6.39	-2.69	-14.01
Belgium (BEL20)	22-09-08	-0.18	-12.74	-5.32	-19.96
Korea (KOSPL)	01-10-08	-3.76	-10.63	3.74	-12.54
Japan (NIKKEL)	30-10-08	6.72	-1.45	-5.42	-11.37
Recent Bans*					
UK (FTSE)	13-03-20	-16.97	-5.74	-21.04	-5.74
Italy (FTSEMIB)	13-03-20	-23.30	-6.34	-30.02	-6.34
Spain (IBEX)	13-03-20	-20.85	-4.63	-26.22	-4.63
Korea (KOSPL)	13-03-20	-12.27	-7.21	-14.36	-7.21

*Post-ban returns till date.

Source: Economic Times, March 19, 2020

6. Conclusion

Many Indian companies were overvalued for quite some time. There was also the absence of earnings growth in the market as well as some decline in quality large caps. Hence, the recent fall may be considered as a step towards correcting the valuations of several companies, and it may attract the long term investors (Business Today, April 2, 2020). So it is possible that the net FII flows may resume its past positive trends in a couple of years.

Some market players forecast that some quality companies will create wealth after the recovery from Covid-19 because even after a sharp decline they will show strength with their stock prices. It has been noted that, “in the long run, when things are under control, markets will recover and the same businesses will be fairly priced again. If we consider our everyday utilities, despite a slowdown we won't stop consuming toothpaste or shampoo. This is exactly where companies like Hindustan Unilever and Colgate come into the picture since they will continue to create wealth as they have been in the past” (Business Today, April 2, 2020).

Fig. 5 shows the trends in Nifty50, which reveals how amazing was the recovery of the stock market following the Swine Flu Panic in April 2009. It is quite likely that after five years,

investors will look back at this time as the opportune moment for buying securities (Business Today, April 2, 2020).

In conclusion, we have to say that the stock market does not represent the real economy. It does not include firms which are not publicly listed or those firms which belong to the micro, small and medium (MSME) sector. In an emerging economy like India, all businesses are not owned by the big corporate firms. A considerable portion of the economic activity comes from the micro, small and medium enterprises (MSME) which accounts for employment of 80 million people, 8% of the GDP and 49% of exports in 2018-19 in India (Report of MSME Ministry). Our analysis of the changes in share prices allows us to see how different industries are affected by COVID-19 shocks in India and it provides only a partial analysis of the all the businesses operated in India. To get a more comprehensive picture about the economic activity in India, we have to consider the MSME sector too, which will be dealt with in a separate paper.

Fig.5: Trends in Nifty50 over time

Source: Business Today, April 2, 2020

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