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The Impact of Covid'19 Pandemic on the Liquidity of BSE Listed SMEs in India

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Abstract
Covid'19 had a devastating impact on the global economy. Needless to say, Indian businesses were also impacted. There were numerous studies and announcements which said that MSMEs had been badly hit and there was a liquidity crunch.
This paper takes a leaf from such news and announcements and existing literature on impact of Covid'19 on MSMEs in India. The study is focused on SMEs listed on the BSE's SME EXCHANGE of India. 202 firms were listed as on 31st March 2022. For this study, these firms were broadly classified into manufacturing and service-oriented businesses and were analysed separately. The paper studied the liquidity of these firms using current ratio and quick ratio as the chief measures of liquidity.
The study explores the impact of Covid'19 on the liquidity of listed SMEs at aggregate and individual level. Current ratio and Quick ratio were calculated for 9 years i.e., from 2013 to 2021. For the aggregate level study, hypotheses were tested using single factor ANOVA. Whereas for the individual level study, t-test was applied to find out the differences in mean values.
The study shows that in all the six cases i.e., current ratio and quick ratio analysis of both the manufacturing and service companies, the P value is greater than the alpha level of 0.05, We, thus, fail to reject the null hypothesis. Therefore, there is no significant difference among the forecasted values and actual values of current ratio and quick ratio for manufacturing as well as service-oriented businesses, at the aggregate as well as the individual level. Hence it was concluded that Covid'19 pandemic has not had a significant impact on the liquidity of the companies listed on the BSE SME Exchange.

Keywords:*Covid'19, MSME, liquidity, ANOVA,manufacturing companies, service companies.*

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I. Introduction

Covid'19 was not the first pandemic where the world was struggling to save human lives. Various other diseases like influenza, Spanish flu, Asian flu, AIDS have already been declared as a pandemic by WHO in the past. But Covid'19 would always be remembered as a major economic disruptor.

Dev&Sengupta (2020), India reported the first case of coronavirus on 30th January, 2020. The government of India announced countrywide lockdown on 25th March, 2020 to avoid the outbreak of the pandemic in India. During the lockdown, the whole economy had come to a stand-still for a given period of time. The travel and tourism industry, transportation industry, construction industry or any other manufacturing sector; almost every segment of the economy had started to decline rapidly. Contrastingly, according to Sidhu et.al (2020) some industries recorded outstanding growth during the pandemic such as the news, finance, health-care and food industry.

The economy was recovering from the 2008-09 crisis and (Sahoo& Ashwani,2020) it was expected that due to the pandemic the global economy could contract by – 4.9% in 2020 which would be much worse than the destruction caused during 2008-09 crisis. It has been found that the effect of the pandemic was different for each

sector. As per Guerini et.al, (2020) solvency rate would be higher in micro and large enterprises as compared to small and medium enterprises.

Liquidity, the composition of current assets and current liabilities is an important part of any business. It is the ability of the firm to pay current liabilities using current assets (Chamber &Lacey, 2011). The pandemic led to the closure of all types of economic activity which resulted in declining sales. But the fixed expenses which had to be paid irrespective of opening or closing of businesses needed to be paid during the pandemic too. These led to the liquidity crisis among firms. Shortage of cash during Covid'19 was one of the major problems faced by the businesses (Ahmed, 2020). Among various businesses, industries, segments of the economy the stock market was also one which was hit by the pandemic. But the results of the pandemic are both in favour and against the stock market. Study by some authors found that the pandemic declined the performance of the stock market while some found it in favour in the form of more trading, more demat accounts, etc.(Shen, 2020) (Agrawal &Saigal, 2020).

The role played by MSMEs have been significant and the magnitude of its importance keeps growing with every passing year, as given to understand from the economic survey and the increased impetus in the Union Budget. MSMEs in India contribute around 36% in the GDP and around 45% in India's exports (Economic Survey of India, 2023). The pandemic had affected every segment of the economy, but the sector which was affected the most was the SME sector (Islam et.al (2020), Alsamhi et.al (2022), Zimon et.al (2021), Amah et.al (2020).

Various studies have been done on the impact of Covid'19 across several stock markets. Both NSE and BSE listed companies have been studied. But the results show heterogeneous impact. Some researchers found positive effect of the pandemic on the stock market and some found negative impact (Ganie et.al (2022), Agarwal &Saigal (2020), Alsamhi et. al (2022), Ahmed (2020), Shen et.al (2020). So, it was important to study whether SMEs listed on the Bombay Stock Exchange (BSE) were positively impacted or negatively impacted by the pandemic. Hence the objective of the current paper is to study the impact of the pandemic on the SMEs listed in the Bombay Stock Exchange (BSE).

II. Review of Literature

Composition of various forms of current assets and current liabilities is termed as liquidity. Company's liquidity depends upon the ability of the company to raise cash at the time of need *(Chamber &Lacey, 2011)*. According to *Shapiro (1990)* liquidity is a state of an enterprise where whether an enterprise is able to meet its current liabilities using its current assets or not is known and the level of liquidity totally depends upon its working capital management. A higher working capital position highlights higher liquidity for a company.

Pinches (1994) an enterprise should always be ready to tackle uncertainty and crisis. Effective managers' planning involves protective liquidity so that at the time of crisis unexpected cash demand can be fulfilled using liquid resources.

The pandemic struck the nation and all economic activities were affected for a considerable period of time. The lockdowns, migration of workers, closure of business activities all led to reduction in sales. About 84% of firms found reduced sales*(Amah et.al (2020)*. Smaller firms faced greater financial constraints as compared to larger firms. The reduction in sales led to a shortage of cash. As a result, many sound companies also faced liquidity constraints and a World Bank report feared that it may graduate into a solvency problem*(World Bank group, WP,2020)*. Despite lockdowns, the fixed expenses incurred by the firms needed to be paid.On the other side, sales and cash flows that were used to meet these expenses had contracted leading to a shortage of cash *(OECD, 2020).(Alexander et.al, 2020)*More than 5800 small firms were surveyed between March 28 and April 4,2020. The results concluded that three-fourth of the respondents had only so much cash in hand that would have lasted 2 months or less.

Liquidity and profitability are positively interlinked. A poor liquidity ratio deteriorated the profitability of the businesses. After the emergence of the pandemic Covid'19, there was a decline in the liquidity position of the listed banks in Bangladesh *(Karim et.al, 2021)*. Also, without any policy interruption, it was anticipated that almost 38% firms would face liquidity inadequacy, after 10 months of the pandemic *(OECD, 2021)*.

Dev&Sengupta (2020) The Covid'19 pandemic is an unforgettable shock as it hit the economy when it was already in an unsteady stage. Every sector of the economy was hit by the pandemic but the sector which was hit the most was trade, manufacturing and the MSME sector.*(Economic survey 2021-22)*On the other hand, agriculture and related sectors had been least affected by the pandemic. "Barbell strategy" which is a combination of safety measures to minimize the impact of the pandemic was adopted by the government of India. Under barbell strategy government focused on two pillars of supply side, one by bringing flexibility in the Indian economy through various reforms and second by building resilience through PLI, Atmanirbhar Bharat Abhiyan and many more.

The impact of the pandemic could be analysed from the above review of literature. Whether it is manufacturing, trade, MSME, tourism, hospitality or the capital market, each of these segments of the economy

performed differently during and after the pandemic. After putting some sight on the performance of the capital market the results highlighted that the capital market has performed unexpectedly well during the pandemic.

Focusing on the firms listed on the Bombay Stock Exchange (BSE), there has been a significant difference in the performance of tourism, hospitality and consumer sectors.On the other side, there has been no significant difference in the performance of construction and food sectors before and after the pandemic *(Economic Survey 2021-22) (Alsamhi et.al, 2022)*. According to a study on the stock markets of China and Pakistan, Covid'19 recoveries were affecting the performance of the Pakistani stock market and daily positive cases and fatalities were not affecting their performance.Also, the pandemic had a negative impact on the performance of the listed Chinese companies *(Ahmed, 2020)(Shen, 2020)*. The pandemic affected the financial market drastically. Six affected countries India, USA, Brazil, Russia, Mexico & Spain were studied. The results revealed that Brazilian stock indices declined by more than 50% and Mexican indices declined by 30% which were the highest and lowest respectively*(Rashid et.al, 2022)*. It could be concluded that stock market was affected by the pandemic. On the other side, according to *Agrawal &Saigal (2020)* the Indian stock market behaved well during the pandemic.

Undoubtedly, the economy contracted more than ever imagined due to the sudden emergence of the Covid'19 pandemic. The pandemic has shaken the economy and it would take years to recover from it. As per an S&P analysis, whenever the economy declines by more than 20%, on an average it would take 536 days to recover from it. After the pandemic, the economy had declined by more than 20% in 17 days and we have no idea how much more it would fall *(Sidhu et.al, 2020)*. According to an IMF WP, 2021, if designed policies have been implemented, it would have reduced liquidity shortfalls. Policies are important, but along with policies, it has been found that entrepreneurs with high self-efficacy and resilience were capable of managing their firm's performance during the pandemic *(Islam et.al, 2020)*.

III. Research Gap and Research Objective

Most Covid'19 related studies are at a macro-level. This leaves room for micro studies in specific segments and sectors. MSME, which has been acknowledged as the key sector for several economies, has had limited Covid'19 related studies. It is thus that the researchers in this paper strived to establish the impact of Covid'19 on listed SMEs in India. Specifically, to examine the impact of the pandemic on the liquidity of listed SMEs on the BSE's SME EXCHANGEof India. Further the study also analysed impact of Covid'19 on individual companies by comparing the mean differences.

Research Questions

I. Did Covid'19 pandemic impact the liquidity of manufacturing companies?
II. Did Covid'19 pandemic impact the liquidity of service oriented companies?

In order justify the above research questions, following objectives have been framed;

Research Objectives

I. To analyse the differences between actual and forecasted current ratios and quick ratios of manufacturing companies at an aggregate level.
II. To analyse the differences between actual and forecasted current ratios and quick ratios of service oriented companies at an aggregate level.
III. To analyse the impact of Covid'19 pandemic on current and quick ratios of individual manufacturing companies.
IV. To analyse the impact of Covid'19 pandemic on current and quick ratios of individual service oriented companies.

Research Hypothesis

To achieve objective I and II, the following hypotheses have been developed:

H_{01}: There is no significant difference in theforecastedcurrent ratios and actual current ratios of manufacturing companies at an aggregate level.

H_{02}: There is no significant difference in the forecasted quick ratios and actual quick ratios of manufacturing companies at an aggregate level.

H_{03}:There is no significant difference in the forecasted current ratios and actual current ratios of service-oriented companies at an aggregate level.

H_{04}: There is no significant difference in the forecasted quick ratios and actual quick ratios of service-oriented companies at an aggregate level.

IV. Methodology

A total of 202 companies were listed on 31stMarch 2022 on BSE SME EXCHANGE. Among these 202 companies, 62 manufacturing companies and 52 service-oriented companies were selected for the study

usingstratified sampling. Subsequently, based on the data available for 9 years,25 manufacturing and 29 service-orientedcompanies were shortlisted for the study. These companies were eligible for trading on BSE SME EXCHANGE on 31st March, 2022. The secondary data for this study was collected from the website of BSE SME EXCHANGE and annual reports of various companies listed on the BSE SME EXCHANGE for the period 2013 to 2021. As a measure of liquidity, current ratio and quick ratio has been calculated using data from the balance sheet of both manufacturing and service companies. For each particular year, on the basis of the calculated ratios, using 'forecast' formula on the MS-Excel, the forecasted values of 2021 have been calculated.The study was based on the comparison of forecasted and actual values and since there was only one independent factor,hypothesis was tested using single factor ANOVA at 5% significance level.

Further, in order to examine the impact of the Covid'19 pandemic on individual companies, t-test was applied to find out the differences in mean values of current and quick ratios of manufacturing and service oriented companiesbetween the pre and during/post pandemic period. For this purpose, period from 2016-2019 has been considered as pre Covid'19 duration and the period from 2020-2023has been taken as during/post Covid'19 pandemic period.

The paper concentrates upon examining the actual and projected values at an aggregate level and analyses mean differences of current and quick ratios of individual companies. It does not cover internal factors affecting the liquidity of manufacturing and service oriented companies.

V. Results and Discussions

Table 1 exhibits descriptive statistics of current ratios of manufacturing companies. CV of nine companies is more than the average CVs (0.37) of all twenty nine companies. This may be the indication of more volatility in liquidity of these nine companies.

Table-1: Descriptive Statistics of Current Ratios of listed Manufacturing SMEs (2013-2021)

Company	Mean	Median	Standard Deviation	Coefficient of Variation
SMAUTO	1.93	1.92	0.76	0.40
MACH	1.89	1.84	0.51	0.27
GANGAPHARM	10.07	9.28	3.49	0.35
CTCL	2.08	2.09	0.28	0.13
DECCAN	1.44	1.41	0.35	0.24
LEX	1.99	1.89	0.34	0.17
AKSHAR	2.06	1.94	0.54	0.26
YUG	2.44	2.43	0.36	0.15
CHEMCRUX	2.10	1.99	0.57	0.27
EVANS	3.52	2.97	1.41	0.40
TANVI	6.34	7.53	2.49	0.39
GMPL	1.43	1.29	0.49	0.34
RMC	2.30	2.18	0.56	0.24
AKM	76.42	13.86	96.70	1.27
CAPPIPES	1.51	1.44	0.30	0.20
POLYMAC	20.97	12.40	22.46	1.07
RELICAB	3.62	3.27	1.49	0.41
SPRAYKING	10.89	7.68	7.94	0.73
PJL	11.13	11.87	3.56	0.32
ATAM	6.44	6.38	2.19	0.34
UNIAUTO	2.21	2.26	0.20	0.09
SHIVAEXPO	3.82	4.19	1.46	0.38
RSTL	10.31	10.11	2.72	0.26
KMSMEDI	2.95	2.64	0.96	0.32
MANOMAY	2.06	2.07	0.39	0.19
TITAANIUM	7.80	5.57	6.12	0.78
SKL	3.45	2.92	1.49	0.43
BINDALEXPO	4.74	4.26	1.32	0.28
FILTRA	1.69	1.71	0.16	0.10
Avg				***0.37***

Source:*The Authors*

Table 2 exhibits descriptive statistics of quick ratios of manufacturing companies. Average CV of these companies is 0.41. Eight companies have been observed to have more than average CVs indicating that these companies were more exposed to liquidity variations as compared to others during the study period.

Table-2: Descriptive Statistics of Quick Ratios of Listed Manufacturing SMEs (2013-2021)				
Company	**Mean**	**Median**	**Standard Deviation**	**Coefficient of Variation**
SMAUTO	1.21	1.27	0.56	0.47
MACH	1.51	1.38	0.40	0.27
GANGAPHARM	8.18	7.57	2.95	0.36
CTCL	1.54	1.61	0.29	0.19
DECCAN	0.98	0.83	0.37	0.38
LEX	1.09	1.01	0.37	0.34
AKSHAR	1.48	1.33	0.43	0.29
YUG	2.13	2.15	0.33	0.15
CHEMCRUX	1.52	1.64	0.50	0.33
EVANS	3.20	2.76	1.26	0.40
TANVI	1.95	2.19	0.81	0.42
GMPL	1.20	1.06	0.41	0.34
RMC	1.90	1.76	0.52	0.27
AKM	68.84	13.86	95.37	1.39
CAPPIPES	0.76	0.67	0.26	0.34
POLYMAC	17.08	10.26	19.96	1.17
RELICAB	1.70	1.29	0.80	0.47
SPRAYKING	5.09	3.22	4.57	0.90
PJL	6.72	7.97	2.43	0.36
ATAM	2.71	2.40	0.91	0.34
UNIAUTO	1.79	1.83	0.17	0.10
SHIVAEXPO	2.94	3.01	1.25	0.43
RSTL	6.93	6.55	1.94	0.28
KMSMEDI	2.60	2.47	0.82	0.32
MANOMAY	1.35	1.37	0.28	0.20
TITAANIUM	6.96	5.00	5.44	0.78
SKL	1.67	1.64	0.33	0.20
BINDALEXPO	3.11	2.92	0.69	0.22
FILTRA	1.06	1.09	0.19	0.18
Avg.				***0.41***
Source:*The Authors*				

Table 3 and 4 displays descriptive statistics of current and quick ratios of service oriented companies. From table 3, average CVs of current ratios is 0.79. Eleven companies reported more than average CV which indicates these companies might have experienced more deviations in their liquidity as compared to other companies.

Table-3: Descriptive statistics of Current Ratios of listed Service-oriented SMEs (2013-2021)				
Company	**Mean**	**Median**	**Standard Deviation**	**Coefficient of Variation**
ACML	8.88	6.72	3.98	0.45
ALSL	6.13	5.72	2.64	0.43
AMRAFIN	300.97	271.83	170.67	0.57
ARYACAPM	52.83	26.53	54.81	1.04
BVL	33.24	13.85	48.19	1.45
CPML	1.59	1.53	1.46	0.92
DRA	2.63	2.66	0.79	0.30
EKI	6.00	3.43	4.92	0.82
FRANKLIN	31.75	26.88	26.62	0.84
GCMCOMM	10.69	1.97	26.58	2.49
GCMSECU	30.36	19.42	30.09	0.99
GROWINGTON	22.46	20.32	12.16	0.54
KCSL	10.40	10.68	2.24	0.22
MHEL	2.14	2.11	0.28	0.13
MRSS	4.64	4.27	2.00	0.43
NAYSAA	42.37	24.33	50.93	1.20
PECOS	5.01	5.09	1.69	0.34
POBS	3.42	3.07	1.33	0.39
PYXISFIN	23.34	24.19	14.84	0.64
SECMARK	4.27	3.31	3.40	0.80
SIROHIA	71.85	29.00	81.13	1.13
SRGSFL	31.72	38.13	12.84	0.40
STELLAR	82.37	17.70	141.85	1.72
Avg.				**0.79**
Source: *The Authors*				

As indicated by table 4, average CVs of quick ratios of service oriented companies is 0.82. Nine companies reported to have greater CVs than that of others which implies that liquidity position of these companies were less consistent compared to other companies.

Table-4: Descriptive statistics of Quick Ratios of listed Service-oriented SMEs (2013-2021)				
Company	**Mean**	**Median**	**Standard Deviation**	**Coefficient of Variation**
ACML	2.51	2.66	0.93	0.37
ALSL	4.51	4.05	1.95	0.43
AMRAFIN	299.58	271.83	171.50	0.57
ARYACAPM	22.61	9.70	38.68	1.71
BVL	16.55	6.10	24.77	1.50
CPML	1.59	1.53	1.46	0.92
DRA	2.63	2.66	0.79	0.30
EKI	6.00	3.43	4.92	0.82
FRANKLIN	31.46	26.53	26.50	0.84
GCMCOMM	10.56	1.91	26.31	2.49
GCMSECU	27.15	17.63	26.05	0.96
GROWINGTON	22.46	20.32	12.16	0.54
KCSL	10.12	10.10	2.13	0.21
MHEL	0.73	0.76	0.20	0.28
MRSS	4.64	4.27	2.00	0.43
NAYSAA	30.65	10.18	36.63	1.20
PECOS	4.84	4.85	1.67	0.34
POBS	3.42	3.07	1.33	0.39
PYXISFIN	22.75	24.19	14.49	0.64
SECMARK	4.27	3.31	3.40	0.80
SIROHIA	71.15	28.78	80.86	1.14
SRGSFL	31.72	38.13	12.84	0.40
STELLAR	79.28	17.47	135.35	1.71
Avg.				***0.82***
Source: *The Authors*				

In Table 5, we have two values, the actual value and the forecasted value. Applying single factor ANNOVA using MS-Excel, the actual and forecasted values have been compared to establish whether there was a significant difference between the values or not.

Table-5: Forecasted & Actual Current Ratios & Quick Ratios of listed Manufacturing SMEs				
Company	**Forecasted Current Ratio**	**Actual Current Ratio**	**Forecasted Quick Ratio**	**Actual Quick Ratio**
	2021	**2021**	**2021**	**2021**
SMAUTO	3.06	1.46	2.18	1.01
MACH	2.00	2.99	1.70	2.19
GANGAPHARM	9.73	12.23	8.46	10.21
CTCL	2.40	2.09	1.92	1.73
DECCAN	1.53	2.09	1.17	1.74
LEX	2.40	1.63	0.96	0.66
AKSHAR	2.80	1.94	1.88	1.01
YUG	2.79	2.09	2.44	1.81
CHEMCRUX	2.44	2.85	2.09	1.78
EVANS	5.94	4.52	5.33	4.19
TANVI	9.17	4.63	2.65	1.21
GMPL	1.45	2.69	1.15	2.27
RMC	2.59	3.55	2.30	2.95
AKM	22.89	4.73	-1.01	2.98
CAPPIPES	1.05	1.34	0.30	0.67
POLYMAC	7.49	35.35	5.31	25.55
RELICAB	4.82	2.84	2.19	1.21
SPRAYKING	22.06	13.80	8.74	13.71
PJL	12.61	11.37	6.07	7.97
ATAM	7.01	4.02	2.99	1.71

UNIAUTO	1.97	2.09	1.60	1.69
SHIVAEXPO	5.75	4.59	4.77	3.85
RSTL	11.44	8.97	8.26	5.46
KMSMEDI	3.81	4.13	3.05	3.77
MANOMAY	2.55	2.66	1.68	1.72
TITAANIUM	14.90	5.55	13.45	5.00
SKL	3.67	7.25	1.54	2.46
BINDALEXPO	3.56	3.76	2.75	2.62
FILTRA	1.83	1.84	0.91	0.85
Source:*Compiled through company's annual reports and https://www.screener.in/*				

In table 6, the value of F critical is 4.0130 which is greater than F statistics 0.1230, also the P value 0.7272 is greater than the 5% significance level. The results exhibit that in case of current ratios of manufacturing companies, actual and project values did not exhibit significant differences at an aggregate level.

Table-6: Difference between Actual and Forecasted Current Ratios of Manufacturing Companies

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	4.7720	1	4.7720	0.1230	0.7272	4.0130
Within Groups	2173.3640	56	38.8101			
Total	2178.1360	57				

Source: *The Authors*

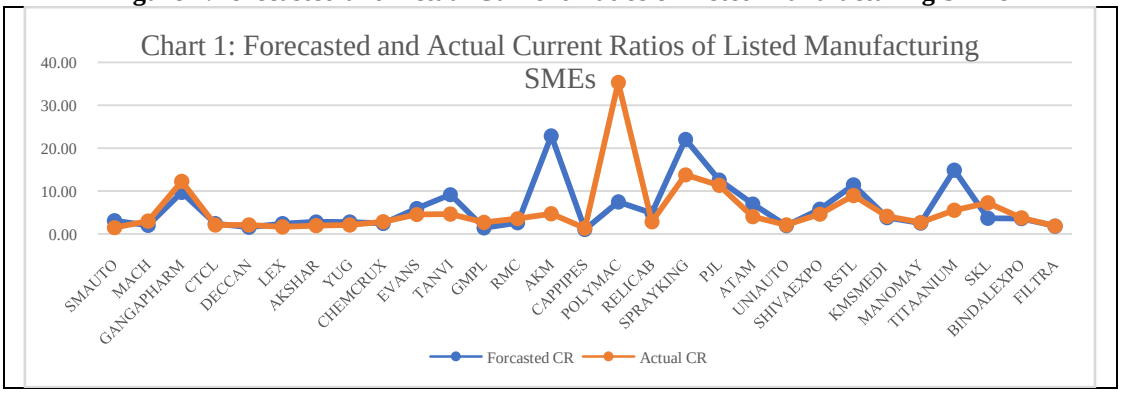
In table 7, the value of F critical is 4.0130 which is greater than F statistics 0.2850, also the P value 0.5955 is greater than the 5% significance level. In case of quick ratios, it has been observed that statistically, actual and projected values do not differ at an aggregate level in case of service oriented companies.

Table-7: Difference between Actual and Forecasted Quick Ratios of Manufacturing Companies

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	5.0983	1	5.0983	0.2850	0.5955	4.0130
Within Groups	1001.7184	56	17.8878			
Total	1006.8167	57				

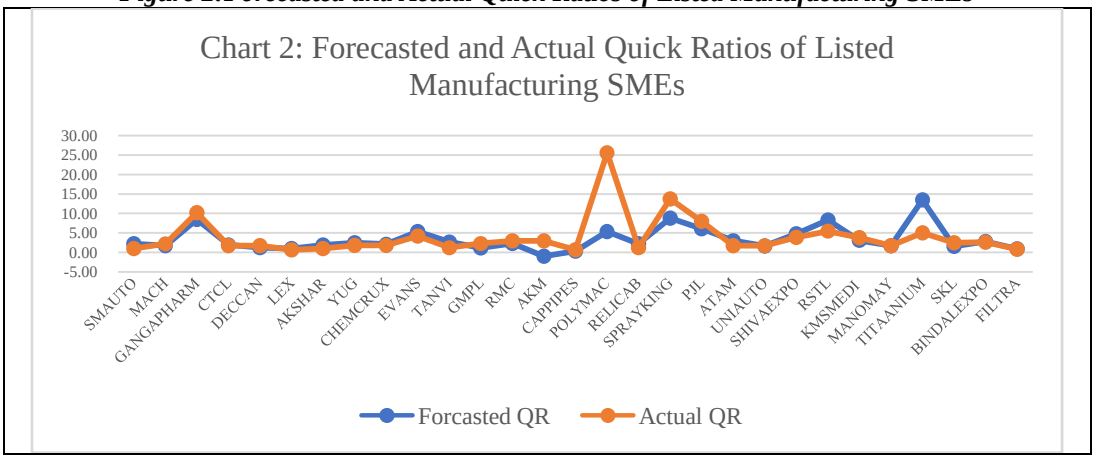
Source: *The Authors*

Figure 1:Forecasted and Actual Current Ratios of Listed Manufacturing SMEs



Source: *The Authors*

Figure 2:Forecasted and Actual Quick Ratios of Listed Manufacturing SMEs



Source:*The Authors*

In Table 8, we have forecasted and actual values of the service-oriented companies. Applying single factor ANNOVA using MS-Excel, the actual and forecasted values have been compared to see if there was any significant difference between the values or not.

Table-8: Forecasted & Actual Current Ratios & Quick Ratios of listed Service-Oriented SMEs

Company	Forecasted Current Ratio	Actual Current Ratio	Forecasted Quick Ratio	Actual Quick Ratio
	2021	2021	2021	2021
ACML	2.65	6.72	2.53	3.35
ALSL	6.99	6.22	4.30	3.45
AMRAFIN	171.80	191.03	170.15	191.03
ARYACAPM	54.87	44.26	-12.71	14.28
BVL	60.19	24.25	34.80	23.92
CPML	3.45	2.03	3.45	2.03
DRA	3.41	2.20	3.41	2.20
EKI	5.45	2.54	5.45	2.54
FRANKLIN	29.33	43.49	29.04	43.17
GCMCOMM	-18.29	1.63	-18.10	1.60
GCMSECU	37.48	1.97	33.22	1.60
GROWINGTON	42.45	9.71	42.45	9.71
KCSL	7.99	8.81	8.41	8.74
MHEL	2.48	2.30	0.89	0.89
MRSS	2.75	1.93	2.75	1.93
NAYSAA	61.91	89.55	35.48	61.55
PECOS	5.44	5.18	5.18	5.16
POBS	3.97	3.73	3.97	3.73
SRGSFL	21.95	18.55	21.95	18.55
STELLAR	-42.90	14.79	-40.33	14.28

Source: *compiled through company's annual reports and https://www.screener.in/*

In table 9, the value of F critical 4.0617 which is greater than F statistics 0.2803, also the P value 0.5992 is greater than the 5% significance level. This indicates that, statistically there is no significant difference between actual values and projected values of current ratios of service-oriented companies.

Table-9: Difference between Actual and Forecasted Current Ratios of Service-Oriented Companies

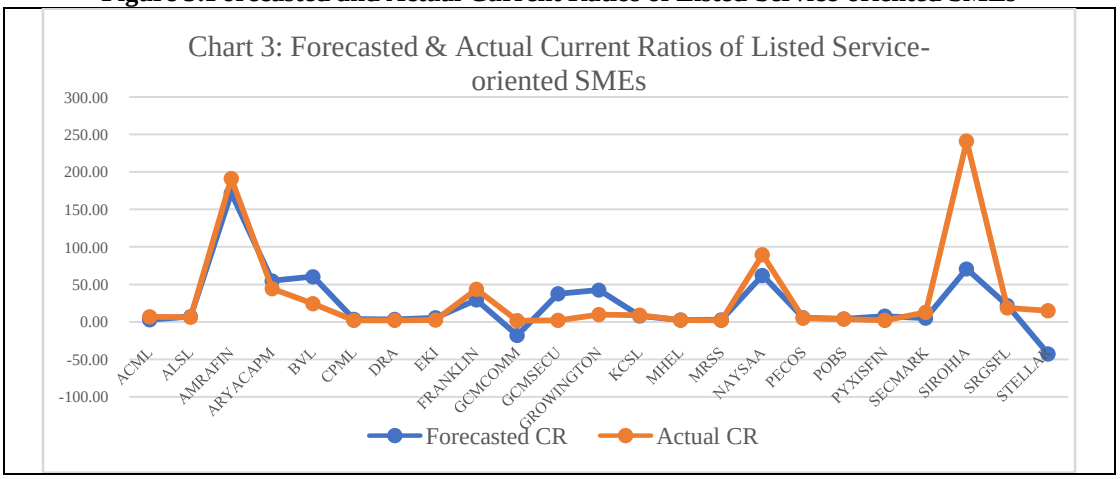
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	787.0884	1	787.0884	0.2803	0.5992	4.0617
Within Groups	123559.5587	44	2808.1718			

Total	124346.6471	45				
Source: *The Authors*						

In table 10, the value of F critical 4.0617 which is greater than F statistics 0.5018, also the P value 0.4825 is greater than the 5% significance level. This implies that, statistically there is no significant difference between actual values and projected values of current ratios of service companies.

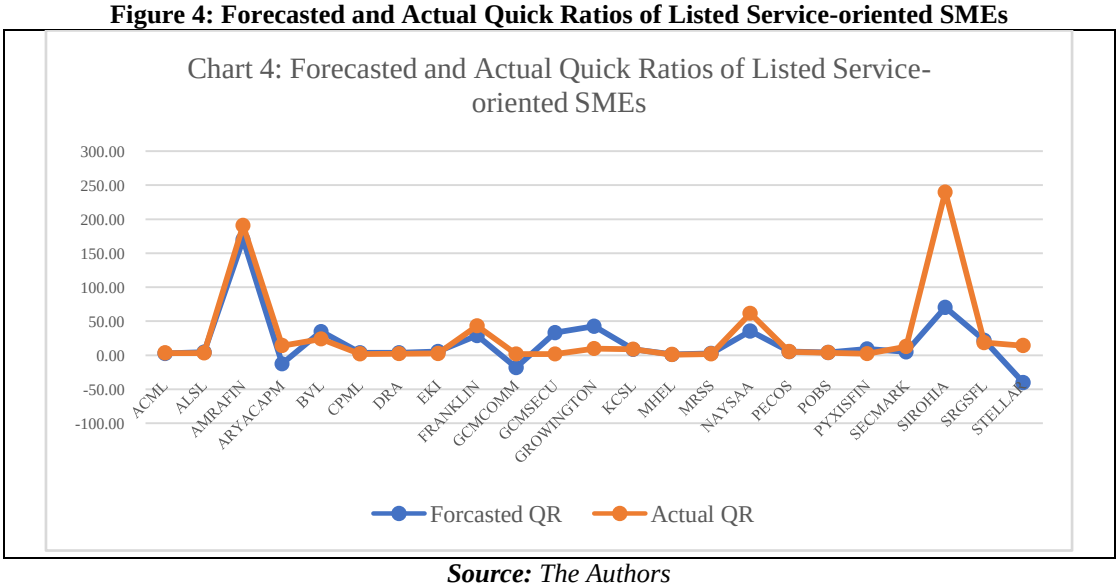
Table-10: Difference between Actual and Forecasted Quick Ratios of Service Oriented Companies						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	1339.7721	1	1339.7721	0.5018	0.4825	4.0617
Within Groups	117481.9961	44	2670.0454			
Total	118821.7682	45				
Source: *The Authors*						

Figure 3:Forecasted and Actual Current Ratios of Listed Service-oriented SMEs



Source: *The Authors*

Figure 4: Forecasted and Actual Quick Ratios of Listed Service-oriented SMEs



Source: *The Authors*

The hypotheses have been tested at 5% significance level. This implies that for the rejection of null hypothesis the P value must be less than or equal to 0.05. But in all the four cases, discussed above, the P value is greater than the alpha level of 0.05 so, we fail to reject all the fournull hypotheses.

Also, if the F statistic is greater than F critical than we reject the null hypothesis. But in all the four cases of current ratios' and quick ratios' analysis of manufacturing and service-oriented SMEs, the F critical is greater than F statistic and hence we fail to reject the null hypotheses again.

Hence it has been concluded that there is no significant difference between the forecasted and actual values of current ratios and quick ratios of manufacturing companies and also, there is no significant difference between the forecasted and actual values of current ratios and quick ratios of service-oriented companies.

Table-11: Mean Differences of Current Ratio and Quick Ratio of Manufacturing Companies on Pre Covid'19 (2016-2019) and During /Post Covid'19 (2020-2023)

Company	Current Ratio		Quick Ratio	
	P Value	T Value	P Value	T Value
SMAUTO	0.04*	5.19	0.47	0.88
MACH	0.22	-1.74	0.86	0.19
GANGAPHARM	0.20	-1.88	0.19	-1.97
CTCL	0.98	0.03	0.58	-0.65
DECCAN	0.07	-3.62	0.07	-3.45
LEX	0.15	2.25	0.00*	14.45
AKSHAR	0.58	0.65	0.21	1.81
YUG	0.00*	16.45	0.01*	10.52
CHEMCRUX	0.22	-1.75	0.67	-0.49
EVANS	0.97	-0.04	0.99	0.02
TANVI	0.00*	10.54	0.87	0.18
GMPL	0.09	-3.10	0.89	-3.13
RMC	0.00*	-14.20	0.52	-4.19
AKM	0.90	-0.14	0.73	-0.40
CAPPIPES	0.48	-0.87	0.23	-1.69
POLYMAC	0.30	-1.37	0.28	-1.45
RELICAB	0.06	3.86	0.57	0.67
SPRAYKING	0.04*	-4.60	0.01*	-8.19
PJL	0.84	0.23	0.42	-1.02
ATAM	0.04*	4.46	0.19	1.94
UNIAUTO	0.49	-0.83	0.61	-0.59
SHIVAEXPO	0.14	2.39	0.37	1.14
RSTL	0.76	-0.36	0.76	-0.36
KMSMEDI	0.15	-2.28	0.18	-2.03
MANOMAY	0.05	-4.30	0.23	-1.72
TITAANIUM	0.34	-1.24	0.35	-1.20
SKL	0.19	-1.92	0.45	-0.92
BINDALEXPO	0.42	1.01	0.64	-0.55
FILTRA	0.27	-1.50	0.79	-0.30

**Significant at 5% level*
***Source:** The Authors*

While comparing pre-Covid'19 and during/post-Covid'19 period, as indicated by table -11, only six companies out of twenty-nine companies have been observed to havesignificant difference in their current ratios. However, in case of quick ratio, only three companies were identifiedas having significant difference in their mean values. This indicates that as far as the impact of the pandemic on current and quick ratios is concerned, only a few companies were observed to be vulnerable to theCovid'19 risks. However, this difference may exist due to the internal circumstances of the concerned companies.

Table-12: Mean Differences of Current Ratio and Quick Ratio of Service Companies on Pre-Covid'19 (2016-2019) and During /Post-Covid'19 (2020-2023)

Company	Current Ratio		Quick Ratio	
	P Value	T Value	P Value	T Value
ACML	0.07	3.64	0.49	0.83
ALSL	0.34	-1.24	0.52	-0.78
AMRAFIN	0.57	0.68	0.56	0.69
ARYACAPM	0.72	-0.41	0.03*	-5.24
BVL	0.86	0.20	0.23	-1.72
CPML	0.53	0.74	0.53	0.74

DRA	0.72	0.42	0.72	0.42
EKI	0.89	0.16	0.22	1.76
FRANKLIN	0.38	-1.13	0.37	-1.14
GCMCOMM	0.74	-0.39	0.90	-0.14
GCMSECU	0.25	1.61	0.23	1.72
GROWINGTON	0.01*	8.42	0.01*	8.42
KCSL	0.66	-0.52	0.66	-0.52
MHEL	0.07	-3.67	0.14	-2.35
MRSS	0.04*	4.83	0.04*	4.83
NAYSAA	0.83	-0.25	0.78	0.31
PECOS	0.42	-1.01	0.35	-1.19
POBS	0.68	0.48	0.68	0.48
PYXISFIN	0.78	0.32	0.78	-0.32
SECMARK	0.14	-2.36	0.14	-2.36
SIROHIA	0.13	-2.47	0.13	-2.48
SRGSFL	0.33	1.26	0.33	1.26
STELLAR	0.41	-1.03	0.41	-1.02

**Significant at 5% level*
Source: *The Authors*

In the context of the impact of Covid'19 pandemic on current and quick ratios of service-oriented companies, table-12 exhibits that only two companies were found with significant mean differences while comparing current ratios before and during/post Covid'19 pandemic. In case of quick ratios, only three companies were observed to have noteworthy mean differences of quick ratio.

VI. Conclusion

Covid'19 pandemic has been declared as a disaster that had a devastating impact on the global economy. The outbreak is unforgettable as it took millions of lives, imbalanced the economy, leading to closure of many businesses. Several segments of the economy were impacted by the pandemic. The impact was heterogeneous in nature as some segments were positively impacted and some were negatively impacted. The MSME sector was the one which was hit the most.

Thisstudyfocussed on the liquidityof SMEs listed on the BSE SME EXCHANGE. The study was conducted at an aggregate level as well as individual level using single factor ANOVA and comparison of means respectively.

At the aggregate and individual level, the study found that Covid'19 did not have a statistically significant impact on the liquidity of listed SMEs. The forecasted values and actual values were not significantly different. As such, it can be concluded that the Covid'19 pandemic did not impact the liquidity condition of manufacturing as well as service-oriented companies listed on the BSE's SME Exchange.

VII. Future scope of the study

It is well known that the economy was affected by the outbreak of the pandemic. Every segment was impacted and the problem which has been faced the most by the companies was the liquidity problem. But our study shows that SMEs listed in the BSE SME EXCHANGE didn't face the liquidity problem. A subsequent study is required in this area to understand the reasons as to why the companies did not face any liquidity problem, despite the pandemic and related lockdowns.

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