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An Analysis of the Impact of Demonetization on Stock Prices and Quarterly Performance of BSE 50 Companies

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Abstract:

The objective of this study is to analyze the impact of demonetization by the Indian government on the stock prices of top 50 BSE companies (based on market capitalization). The authors use event study methodology to calculate abnormal stock returns up to 20 days post-demonetization. It is observed that 54 percent of the companies showed positive impact to demonetization in their stock prices up to the 20th day post demonetization. The quarterly performance of these top 50 companies is analyzed by segregating these 50 companies across 6 sectors and paired sample t-test methodology is applied to assess the quarterly performance pre and post demonetization. Although there have been several viewpoints expressed on demonetization as theoretical and conceptual articles, to the best knowledge of the authors this is the first paper that does an empirical analysis on the top 50 companies by market capitalization for the effect of demonetization.

Keywords: AAR, ROE, ROC, FMCG

I. INTRODUCTION

On 8th November, 2016, the Government of India conducted a surgical strike on corruption and money by announcing the demonetization of the currency notes of INR500 and 1000 denominations. By definition, demonetization happens when a currency is stripped of its status as a legal tender. The demonetization of currency was introduced with the objectives of eradicating corruption over time, tackling issue of counterfeit money and terrorism funding and also bring about digitalization in the economy. .

Several articles and reviews have been written on the woes of demonetization to the common man and pressures faced by the banking system in functioning over the process. This article focuses of the impact of this move by the government on stock prices of 50 BSE companies (based on market capitalization).

The authors have applied event study to calculate abnormal returns on these 50 BSE companies. Event study methodology is used primarily to test the null hypothesis that the market is efficient in terms of information efficiency and second within the ambit of market efficiency to examine the impact of demonetization announcement on the security prices and thus wealth creation for the shareholders. The date of announcement was denoted as the 'event day', and the days surrounding the event day (20 days before and 20 days after the event) were denoted as 'event window'. Up to a 365-day period prior to the first day of the event window (-365 to -21 days) was considered as the 'estimation window'.

The BSE 500 index returns were taken as proxy for the market returns of 360 days during the estimation window and the respective shares were regressed against the proxy to determine the constant and the regression coefficient to calculate the expected returns during the event window (Market Model). The difference between the actual return and the expected return during the event window is considered as the Abnormal Returns (AR). The Average Abnormal Returns (AARs) were calculated for each day during the event window across securities for analyzing the ARs around the event. The percentage returns for the securities have been taken as the core data for analysis. The difference between the actual return and the expected return during the event window is considered as the Abnormal Returns (AR).

AR = Actual return of security at day – Expected return of security at day. The Average Abnormal Returns (AARs) were also calculated for each day during the event window across securities for analyzing the ARs around the event.

$\text{AAR} = \frac{1}{n} \sum \text{Abnormal Returns around the event.}$

The Cumulative Average Abnormal Returns (CAARs) were also calculated for analyzing the price adjustment process. CAAR is the sum of daily AARs during the event window.

Cumulative Average Abnormal Return (CAAR) = $\sum$ (t-k to +k) AAR_t

It can be observed from the table below that 27 companies exhibited positive returns on the day of announcement, and 11 companies showed returns up to 5% on the 1st day, post announcement. This number came down to 7 companies, on the 10th day of announcement,. The companies with positive returns outnumbered those with negative returns such that no company of the 50 showed negative returns of 5 %. From Table-2 it is evident that 54% of the total number of companies continued to show positive returns up to 20th day after announcement showing that stock market reacted favorably to the event.

II.

Table 1:Company-wise changes in stock prices up to 20 days of buyback announcement

Return	-20th day	-10th day	-5th day	-1st day	0th day	+1st day	+5TH day	+10th day	+20th day
<-5%	0	0	0	0	0	0	0	0	1
-2% to -5%	0	0	0	2	10	9	4	4	1
-2% to 0%	27	27	0	22	13	12	19	17	21
0% to 2%	22	22	0	23	19	16	22	19	26
2.01% to 5%	1	1	0	2	6	11	4	7	1
5.01% to 20%	0	0	0	1	2	2	1	1	0
>20.00%	0	0	0	0	0	0	0	0	0

Table 2: Stock Analysis in comparison with the market

With Respect to Market		
Day	Positive (%)	Negative (%)
1	50	50
2 TO 5	60	40
6 TO 15	64	36
16 TO 30	54	46

Here we have made a comparison between the market movement and the movement of each stock after the announcement of demonetization by the government. Here too, on the first day after the announcement, we see that the number of companies whose share prices were positively or negatively impacted were the same. For the period, Day 2 to Day 5, we see that 60% of the companies were in tandem with the movement of the market. 60% of the share prices of the companies moved according to what the market had moved. When we move on to the next period (Day 6 to Day 15), we see a difference from what we noticed in the individual share price movements. Here, 64% companies' share prices are moving according to the market movements. Only 36% companies are not in line with the market movements, a stark contrast to what we saw in the standalone stock analysis. Here too, we notice a contrast when compared to the standalone stock analysis. We see that the share prices of 54% of the companies are in line with the market movements.

An analysis of the quarterly performance of companies post demonetization

As per the Fundamental Analysis, we have considered five parameters for analyzing the quarterly performance of BSE 50 companies. These parameters are:

- Revenue
- Operating Profits
- Net Profits
- Return on Equity (ROE)
- Return on Capital Employed (ROC)

Null Hypothesis and Alternate Hypothesis for fundamental analysis

(Null Hypothesis) H0:	**The mean of two paired samples are equal**
(Alternate Hypo) H1:	The means of two paired samples are not equal
Significance level	0.05

An overall analysis of Q3 results reported by BSE companies showed that Indian firms fathomed the worst of the fallout from demonetization. We have segregated the companies into 9 sectors to analyze the quarterly performance. These sectors are shown in the first column of the table below.

Table 3: Analysis of Q2 17 with Q3 17 (t-test; p-value)

	OPERATING PROFIT	NET PROFIT	REVENUE	ROE	ROC
BANKING	.182	.181	.171	.119	.478
AUTO	.248	.952	.357	.695	.151
IT	.348	.318	.371	.625	.948
FMCG	.942	.174	.484	.232	.480
OIL	.08*	.63	.05**	.398	.08*
ENERGY, POWER	.167	.273	.315	.371	.27
CEMENT	.193	.996	.864	.704	.406
PHARMA	.785	.525	.945	.516	.745
OTHERS	.390	.386	.505	.168	.366

****significant at 5%**
***significant at 10%**
*****significant at 1%**

Table 4: Analysis of financial performance sector-wise: Q3 17 VS Q3 16 (t-test; p-value)

	OPERATING PROFIT	NET PROFIT	REVENUE	ROE	ROC
BANKING	.16	.55	.16	.02**	.07*
AUTO	0.90*	.54	.42	.32	.58
IT	.40	.94	.09*	.11	.32
FMCG	.88	.28	.62	.26	.11
OIL	.01***	.48	.04***	.48	.01***
ENERGY, POWER	.63	.41	.01***	.47	.79
CEMENT	.56	.52	.86	.85	.51
PHARMA	.58	.52	.32	.44	.91
OTHERS	.65	.43	.57	.38	.29

****significant at 5%**
***significant at 10%**
*****significant at 1%**

Table 5: Analysis of financial performance sector-wise: Q3 17 VS Q4 17 (t-test; p-value)

	OPERATING PROFIT	NET PROFIT	REVENUE	ROE	ROC
BANKING	.56	.26	.55	.11	.40
AUTO	.17	.35	.17	.41	.48
IT	.23	.25	.27	.24	.23
FMCG	.13	.03	.12	.21	.27
OIL	.59	.61	.03**	.18	.19

ENERGY, POWER	.59	.36	.11	.31	.67
CEMENT	.07*	.43	.20	.75	.42
PHARMA	.07*	.11	.16	.02**	.06*
OTHERS	.32	.38	.37	.78	.12

****significant at 5%**

***significant at 10%**

*****significant at 1%**

1. Banking sector

Though the announcement of demonetization was a big jolt to the Indian economy, it led to a surge in bank deposits with the Banking sector the beneficiary. This is evident in the increased ROE and ROC for the Q3 of 2017, as compared to the Q3 of the previous year. However,a high and rising proportion of banks stressed loans, and a consequent increase in provisioning for non-performing assets (NPAs) continued to weigh on credit growth reflecting their lower risk appetite and stressed financial position. While HDFC Bank, Kotak Bank and SBI showed improved performance in revenue and profits from Q3 to Q4 and the corresponding quarter previous year, ICICI Bank continued to show declining revenue and profits. Casa deposit growth witnessed a surge as compared to the corresponding quarter of the previous year largely attributable to the demonetization exercise. However, credit offtake was low due to demonetization. There was a decline in loans QoQ which was largely an outcome of fewer project financing and the reluctance of banks to lend to the industry and infrastructure sectors. Rising NPAs of ICICI Bank elevated the problems further. The situation was further exacerbated by the waiver of fees on ATMs, transactions and use of cards. In the fourth quarter, provisioning of bad loans coupled with merger of SBI all led to less than improved performance in the banking sector, though there was surge in deposits.

2. IT Sector

The IT sector performance was better in terms of topline growth although demonetization did hit the companies with declining margins. The December quarter (Q3) is a seasonally weak quarter.The reasons for the declining performance were declining exports, recent appreciation in rupee. The firms were also under pressure owing to increased investments in building digital capabilities. . The recent appreciation in the rupee is likely to worsen matters for Indian IT companies. Profit margins have already been under pressure, owing to the increased investments in building digital capabilities and thanks to pricing pressure in the traditional application maintenance work. Besides, all of the noise against H1B visas in the US may result in new laws that increase costs of providing on-site services. Underperformance in the sector, specifically Wipro can be attributed to delays in deal closures during the quarter, and a decline in business from one of its largest customers. TCS outperformed the sector in the fourth quarter and its performance in the previous quarter. HCL also exhibited positive results on the parameters, so it can be said that the overall decline is more a function of the combined numbers and specific issues relating to Infosys.The sector continued to face pressures from muted global macroeconomic factors, risks of adverse visa rules in the US and transition of existing businesses to new technologies.

3. Auto sector

Auto firms' performance in the Q3 2017 were hot by demonetization. Net revenue of leading auto firms, therefore, declined slightly from the year-ago quarter, with the biggest impact being on two-wheelers. The country's largest car manufacturer Maruti Suzuki India Ltd saw dull growth with its exposure to rural markets with entry-level cars. Tata Motors showed dismal performance owing to dismal global sales and operating performance by its UK subsidiary and cash cow, Jaguar Land Rover Automotive Plc. During the Q4, while four wheeler companies seem to be positing growth in net profit, for two-wheeler companies it seem to be a bad quarter. The industry saw a slow recovery from the impact of demonetization to be suddenly be hit by another catastrophe, i.e. the Bharat Stage III vehicle ban by the Supreme Court. Hero MotoCorp'sdecline in net profit was attributed to the huge discounts after the BS-III verdict of the Supreme Court on the ban of the vehicles.

4. FMCG Sector

Volume growth was affected Q3 not only by demonetization but also by price hikes taken by firms to compensate for an increase in the price of inputs. Growth was slack even prior to the government's move. The BSE FMCG Index declined 4.8% in the December quarter. Consumption was briefly affected but revived as modern trade outlets stepped in and consumers switched to digital currency. However, rural markets were affected as most companies use wholesalers to service relatively smaller outlets and markets, and this channel was adversely affected.By how much farm incomes improve and to what extent non-farm incomes revive will determine rural consumption trends in the medium term.

5. Pharma Sector

The pharmaceutical sector had a difficult time in Q3, with the BSE Healthcare index falling 10.6%. It has done relatively better in the quarter so far, with the index gaining 5%. The declining trends were an outcome of pricing pressure, stiff competition and a relatively slow pace of approvals. Although demonetization did impact Q3 in a small way, Q4 results showed improved returns. US FDA regulation and slowdown of US business showed its impact on the performance of Sun Pharma.

6. Cement Sector

Cement demand and profitability in the Q3 was impacted by demonetization in most parts of the country.However, the impact of demonetization has subsided and the demand scenario s improved, though the retail demand remains low. A pick-up in government spending on infrastructure and affordable housing projects may lead to a sequential demand uptick, but y-o-y demand would decline mainly due to a high base since demand growth in the fourth quarter of fiscal year 2016 was strong. Though input costs rose, the March quarter showed improved operating profits.

7. Oil Sector

This is one sector which outshone other sectors discussed in this paper for all the quarters analyzed. An improvement in gross refining margin (GRM) led to improved returns for the companies in the sector. GRM is the realization from turning every barrel of crude oil into finished products and is an important measure of profitability for refining firms.Bharat Petroleum Corp. Ltd (BPCL), Hindustan Petroleum Corp. Ltd (HPCL) and India Oil Corp. Ltd (IOCL)delivered moderate and positive performance. Further, firming up of crude prices improved earnings of Oil and Natural Gas Corp. Ltd (ONGC) and Oil India Ltd.

8. Energy and Power

NTPC exhibited decline in profits due to a normalization of its tax rate. Coal India showed lower production as against the targeted. Tata Power's coal business venture did well. But high coal prices affected profitability of its Mundra plant. Adani Power reported a higher-than-expected loss on low volume off-take and shortage of domestic coal. JSW Energy Ltd reported an even steeper drop in profit on high costs and low realizations. The absence of negative surprises proved to be good news for power utilities. Against an 8% rise in the Sensex, the BSE Power index gained 10% in the first two months of 2017 even as the companies reported a lacklustre performance for the December quarter.For Vedanta, the decline in revenue was an outcome of the fall in oil and metal prices.

9. Miscellaneous

Among the remaining companies clubbed together, Bosch reported an above estimate performance on the top-line with a growth of 13.3% yoy. For L&T, Government-led investments have raised domestic market prospects, but conviction about immediate earnings growth trajectory is low right now, say analysts.

III. CONCLUSION

Tt is observed that the oil sector outperformed in its topline growth (revenue) as also its profit margins. Banks witnessed a growth in time and current account deposits, but the rising provisioning of NPAs led to lackluster performance of this sector. The FMCG sector was easily the worst hit with a decline in all the financial parameters.For most consumer goods companies, volumes fell, reversing the trend of single-digit growth in previous quarters. In the Pharma sector, the December quarter was soft and adverse sales mix drove gross margin to multi-year low, and impacted profitability. Auto firms' performance in the December quarter was under stress on account of the ban on high-value banknotes that crippled sales for almost half the quarter. Net revenue of leading auto firms, therefore, declined slightly from the year-ago quarter, with the biggest impact being on two-wheelers.Order inflows at capital goods companies declined, compared with decent growth in the previous quarter. At the same time, the revenue of these companies increased. While the growth in revenue is heartening, unless the size of the order book picks up, growth of the sector will be muted. Companies in some sectors such as metals and energy did well, attributable to favorable commodity prices.

IV. OUTLOOK FOR THE INDUSTRY

The move towards a less cash economy will incentivize increased digital mode of transactions. The ability of the government to use the database of Aadhaar coupled with Jan Dhan accounts presents a huge opportunity for banks in the near future. The infusion of capital to public sector banks who are grappling with NPAs though will remain a crucial issue for banks.

The demand for cement is closely linked to the overall economic growth, particularly the housing and infrastructure sector. Thus, higher government spending on infrastructure and housing, and rising per capita incomes will be key growth drivers for the cement industry. From a long-term point of view, overall pick-up observed in the infrastructure spending by the Government and downward trend in the interest rates is expected to revive the demand across sectors. However, while weak commodity prices may adversely impact the metals and oil and gas sectors, a stronger-than-expected exchange rate may negate earnings growth of the IT, metals, oil and gas, and pharmaceuticals companies in future.

Governments thrust for renewable energy with core focus on solar power dominated the power sector in the fiscal year 2016. The SEBs are facing high power tariffs and are shifting to purchase cheaper power from the power exchanges. This could put into jeopardy the massive renewable projects that are scheduled to come up going forward. However, SEBs are saddled with huge debts which are being transferred to the respective state governments which will eventually reduce their interest costs. A lower deficit along with low inflation, low interest rates and GST will eventually move the economy into long-term growth state

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