

Impact of Financial Disruption on Firms' Performance (An Event Study)

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Abstract: - *This study aims to estimate the effect of financial disruption on the performance of pharmaceutical companies listed on Bombay Stock Exchange. The total number of listed pharmaceutical companies on Bombay Stock Exchange is 153 companies, 32 companies were excluded due to non-availability of the quarterly financial reports. Three variables have been taken for exploring the impact of financial disruption on the firms' performance which are: net sales, net profit and earning per share. Data were extracted from interim quarterly financial reports retrieved from the Prowess Q database. Two steps of analysis have been conducted using EViews. First, comparing firm's performance pre disruption period*

second quarter (September, 2016) with firm's performance post disruption period third quarter (December, 2016). Second, comparing the firms' performance post disruption, third quarter (December, 2016) with the same quarter (December, 2015). Descriptive statistics and paired sample T-test were applied to evaluate the effect of the financial disruption on firms' performance. The findings reveal that the financial disruption has no statistically significant impact on the performance of the pharmaceutical companies at level of 5%.

Keywords: - Financial Disruption, Firms' performance, Pharmaceutical industry

1. Introduction



In this inconstant and complexity environment, business units face several kinds of troubles due to financial disruptions that have detrimental impact on its performance, some common disruptions are: financial disruptions and digital technological disruptions. Any unpredictable financial disruption might have significant effect on firm's operations, revenues and reputation. Predicting financial disruptions is meant to minimize any negative implication or effect, which further shows the regulators ability to monitor, collect and analyze potential disruptions which may develop intelligence sharing for informed decision making. The onset of the Global Financial Crisis in 2007 and, more importantly, the deepening of the crisis in 2008 led to a number of disruptions in the financial markets. Ball (as cited in Neuhauser 2015) argues that, although the crisis started in the real estate market, it was

first observed in the financial markets when liquidity problems appeared and credit spreads widened in the summer of 2007. Before these events, dramatically the housing prices fell, particularly in some areas of the USA.

On 8th November 2016, Indian Government announced that all ₹500 and ₹1,000 banknotes are demonetized. The purpose behind that was to curtail the shadow economy, crack down on the use of unlawful and counterfeit cash which is used for funding illegal activities and terrorism and ease the way ahead of cashless economy. India has never experienced anything like demonetization before. There was no proper conceived for the idea and its implementation was very shoddy. It is claimed by the government that everything is all right with the economy. But the real situation is different. Indian administration claims that the move will pave the way for

cashless economy to take precedence over cash economy (Mohanty, 2017). The sudden nature of the announcement and the shortage of cash in the weeks that followed the demonetization created a significant disruption for many sectors and threatened the economic output.

Pharmaceutical industry is one of those industries which got effected by the demonetization process therefore, this paper aims to demonstrate the impact of financial disruption during the demonetization process on the firm's performance of Indian pharmaceutical industry which will provide a brief overview of the linkages between financial management practices and financial disruptions in pharmaceutical industry in India.

2. Literature Review and Hypotheses Development

The global financial crisis brought the world financial system to a grinding halt: the

sudden nature withdrawal of global liquidity led to a catastrophic downturn in the economy of the world. Many scholars have conducted number of studies on different type of financial disruptions that follows any crisis; the following are some of those studies:

Isik & Hassan (2003) aimed to measure the efficiency and productivity of Turkish banking sector between 1992 and 1996 to understand the impact of the crisis on different aspects of bank productivity, in addition to examining how various groups of banks in Turkey were affected by the crisis. The findings revealed that there was a substantial productivity loss of (17%) in 1994, which was attributable to technical regress (10%) rather than efficiency decrease (7%). Furthermore, the study found that foreign banks suffered from the crisis more than public banks which apparently passed through the crisis unharmed. The

study also attempted to explore the relationship between bank size, productivity and crisis and the result showed that even though all sizes banks were dramatically affected by the crisis, but small banks were affected most.

Papadakis (2006) empirically analyzed and shed the light on the financial consequences of supply chain design particularly on the differences between pull and push type of designs. The study was mainly focusing on risk exposure to difficult to anticipate supply disruptions, like those which are resulting from natural and man-made disasters. The findings reveal that the investors associate pull-type supply chains for PCs with minimum profitability after abrupt component price rises. Similar results were not shown by a parallel analysis of push-type producer stock returns. Shelburne (2010) explored how the trade was impacted by the global financial crisis of 2007-2010

in the world and particularly for the European emerging economies. The result showed that the European emerging economies, terms of GDP decline, were the negatively impacted economies in the world and the geographical and sectorial distribution of their trade remained relatively stable. The current account deficits of many of these economies were quite large prior to the crisis were reduced significantly. It was found that the crisis is unlikely to result in major design changes in the world trading system, although the opposite is true for the world financial.

Banker, Chang, & Lee (2010) studied the effect of banking system reforms at the time of a crisis following a period of undisciplined lending. The study brought evidence documenting how Korean commercial bank productivity was differentially affected by the regulatory reforms during 1995–2005. The ratio of



capital adequacy is positively connected with banks' technical efficiency. The ratio of non-performing loans is negatively connected with technical efficiency. Both relations are accentuated at the time of the crisis but weakened after the reforms Neuhauser (2015) aimed to provide an overview of the major findings in the literature about the Global Financial Crisis. The study found that the housing bubble that was driven in part by growing subprime lending and an OTD lending model that depended heavily upon the ability of originators to securitize loans and a failure by the credit rating agencies to correctly assess the risk of MBS and CDO were the main causes of the Financial Crisis in the world. The explosion of the housing bubble finally led to Bear Stearns' failure in 2007 and Lehman Brothers in 2008. During this time, many markets suffered from liquidity problem due to heightened counterparty risk.

Furthermore, the prices of stock bank fell and bank lending was significantly decreased which drove to a contraction in firm investment. Kaithal (2016) attempted to find out the impact of demonetization on Indian economy. The result showed that common people in the rural and urban area, small shopkeepers, and traders, workers of daily wage, small households and traders, small manufacturers suffered more and will continue to suffer till the Resumption of currency notes circulation to be normal in the coming four to five months. The study showed that the rural agriculturists suffered from the dual impact as, their sale of Kharif crop couldn't get the profit and the sowing of Rabi crop has got affected. The study finalized in the long run the economy will improve which will bring, more transparency, less regional disparity and a higher rate of growth of the economy.



Mehta , Patel & Mehta (2016) intended to find out the merits and demerits of demonetization and to investigate its impact on the banking sector in India. The result revealed that the demonetization has a very significant impact on some vulnerable sections of society. It was also found that if the demonetization was properly handled by the administration, it could have changed the face of the economy and that what would make a positive difference. Singh (2016) has evaluated the current immediate impact of demonetization on Indian economy; the study highlighted the probable consequences that would affect various economic variables and entities. Sarangi & Sridevi (2017) attempted to understand the impact of the historical move (Demonetization) on the real estate sector which is the second largest employer after agriculture. The result showed that the demonetization of old notes had opened a new era for the real estate

industry in India which would be transparent, free of corruption and organized. Swain & Verma (2017) sought to provide an overview of the consequences of recession and financial disruption events in emerging Markets. The study found that there are three major aspects that connect with the financial disruption in emerging markets. Firstly, in emerging markets, recessions and financial disruptions, is often costly in advanced countries, Secondly, recessions associated with financial disruption events, like credit crunches, price of the equity doubled and financial crises. Third, the temporal dynamics of macroeconomic and financial variables in emerging markets. The debate above regarding the financial disruption and its impact on the firm's performance enables us to develop the hypothesis of the study. As long as the study is concerned about quarterly data, seasonality checkup is

recommended, therefore the first hypotheses states that:

H0: The financial disruption did not occur in a seasonal period.

While the second hypothesis states that:

H0: Financial disruption (Demonetization process) that occurred in November 2016 has no impact on the performance of pharmaceutical sector.

3. Objectives of the Study

After the announcement of demonetization process, banks and ATMs across India got paralyzed due to cash shortages. The cash shortages had several disadvantages that had an effect on all businesses, agriculture as well as transportation. People wanted to exchange their old banned notes, waiting for long time in long queues; number of deaths was reported due to the difficulty in exchanging cash. Deaths were accounted for the lack of medical facilities or preparations due to

denial of old currency notes by the hospitals. Banks and ATMs ran out of cash only after a few hours of being operational, and about half of the ATMs in the country were not functional. Therefore, the study aims to fulfill the following objectives:

- 1) Finding out whether there was a season in any of the compared quarters (second and third) to make sure that the two quarters are appropriate for the comparison and there will not be any hidden effect.
- 2) Examining the impact of financial disruption during the demonetization process on the quarterly financial performance of Indian pharmaceutical industry.

4. Research Methodology

The review of previous studies has provided us the basic theory on the impact of financial disruption on the firm's performance and how to be measured and analyzed. Data has been gathered from various sources utilizing journals, books, and annual reports. The quarterly financial



data were extracted from published balance sheet and income statement in the annual reports of each individual company taking the advantage of two source of data; Money Control (Indian's leading financial information source)¹ and ProwessQ database (the largest database focusing exclusively on Indian companies' financial performance)².

There are 153 pharmaceutical companies listed on Bombay Stock Exchange and due to non-availability of quarterly financial data of some companies 32 companies were excluded. Thus, the sample of this study consists of 123 pharmaceutical companies. There are two variables; the independent variable is financial disruption which took place on 08th of November 2016 and the dependent variable is firm's performance which was measured by Net Sales = Gross Sales - Sales of Returns and Allowances, Net profit, it is

a useful tool for measuring the overall profitability of the company which is calculated by subtracting a company's total expenses from total revenue and Earnings Per Share which equals to a company's profit divided by its number of common outstanding shares.

In order to find out the impact of financial disruption during the demonetization process on the firms' performance, the study formulated the hypothesis that states: financial disruption (Demonetization process) that occurred in November 2016 has no impact on the performance of pharmaceutical sector. For testing this hypothesis two statistical tolls were used; descriptive statistics and paired sample t test. Finally using graphs to find out in which quarter there is a season so that the study could make sure that there is no hidden effect and the findings will not be miss leading.

5. Findings and Discussion

The study uses different statistical techniques to examine whether the financial disruption caused by demonetization process has an impact on the performance of pharmaceutical sector companies.

5.1 Detecting the Seasonal Effect

During a year there are seasons for almost all industries, in order to examine whether the financial disruption occurred in a seasonal period, the study collected quarterly net sales data for three years (2014, 2015 and 2016) to explore in which quarter the season of pharmaceutical industry occurs, in which sales are at its peak.

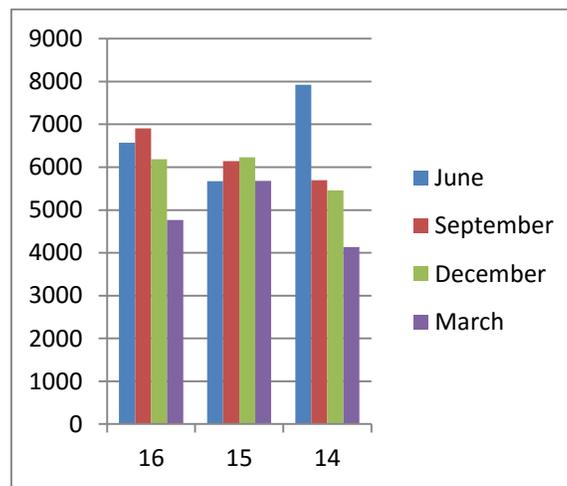


Diagram (1): Quarterly Net sales

It is clear from the diagram (1) that there is no specific quarter at which sales are at their peak. We see that in 2016 sales are at their peak in the second quarter, in 2015 it is in the third quarter and in 2014 in the first quarter.

5.2 Descriptive Statistics

Descriptive statistics include Minimum, Maximum Mean and Standard Deviation, which are computed for each of the respective variables pre and post the financial disruption as shown in the table (1) below.

Table(1) Descriptive Statistics Analysis

Panel A: Third quarter (Sep 2016) versus second quarter (Dec 2016)						
	Net Sales Sep 2016	Net Sales Dec 2016	Net Profit Sep 2016	Net Profit Dec 2016	Earnings Per share _Sep 2016	Earnings Per share _Dec 2016
Mean	394.8251	400.0229	57.08736	51.12620	4.352975	2.599256
Maximum	7764.030	7683.240	2487.890	1729.090	83.73000	40.26000
Minimum	0.110000	0.210000	-109.5100	-185.5500	-13.89000	-36.85000
Std. Dev.	1020.939	1034.723	246.4556	194.2520	9.934252	7.861790
Observations	121	121	121	121	121	121
Panel B: Third quarter (Dec 2015) versus third quarter (Dec 2016)						
	Net Sales Dec 2015	Net Sales Dec 2016	Net Profit Dec 2015	Net Profit Dec 2016	Earnings per share Dec 2015	Earing per share Dec 2016
Mean	363.7818	400.0229	51.48884	51.12620	2.654215	2.599256
Median	63.33000	60.83000	2.770000	1.660000	1.320000	1.520000
Maximum	7087.070	7683.240	1951.260	1729.090	52.09000	40.26000
Minimum	1.940000	0.210000	-178.6400	-185.5500	-28.86000	-36.85000
Std. Dev.	934.0826	1034.723	206.6388	194.2520	8.428291	7.861790
Observations	121	121	121	121	121	121

Table 1 shows the descriptive statistics analysis for some variables that represent firms' performance. Panel A demonstrates that there is a small variation in the performance of the selected companies in the periods, pre and post the financial

disruption. Further, the results reveal that the mean value of net sales before the financial disruption is 394.8251 and the standard deviation is 1020.939, while the mean value after the financial disruption is 400.0229 and the standard deviation is 1034.723 which

indicate that there is a slight difference in net sales pre and post the financial disruption, that can be attributed to the necessity of medicine as it cannot be dispensed with, at any time no matter what the situation is. On the contrary, the mean and standard deviation values of net profit and earning per share pre financial disruption are higher than post financial disruption as shown in the panel (A), which indicates that the financial disruption has a slight impact on the performance of pharmaceutical sector companies, which would be explained by inability of paying its liabilities and acquiring additional interest or inability of collecting its debt from its customers.

However, the panel (B) reveals that, there is a considerable difference between

net sales in the third quarter 2015 and third quarter 2016, That might be due to the advantage of using ATM sweep machines and E-payments by the listed companies for generating sales in comparison to the small units and non-listed companies whom they lost their market share during the financial disruption. On the other side, the mean and standard deviation values of net profit and earning per share during the third quarter 2015 and third quarter 2016 are quite similar.

5.3 Paired Sample T-test

This test is used for examining whether there is a significant difference between the performance of pharmaceutical industry pre financial disruption and post financial disruption that was caused by the demonetization process in November 2016.

Table (2) Paired Sample T-test

Panel A : Second quarter (Sep 2016) versus third quarter (Dec 2016)					
Variables	Sample	Sample Mean	Sample Std. Dev.	t-statistic	Probability
Pair 1 Net Sales pre- Net Sales Post	121	5.197769	61.96793	0.922662	0.358
Pair 2 Net Profit pre – Net profit Post	121	5.961157	79.09307	0.829058	0.4087
Pair 3 Earning Per Share pre - Earning Per Share Post	121	1.753719	10.77589	1.790192	0.0759
Panel B: Third quarter (Dec 2015) versus third quarter (Dec 2016)					
Pair 1 Net Sales pre- Net Sales Post	121	36.20901	155.8736	2.55527	0.0119
Pair 2 Net Profit pre – Net profit Post	121	0.362645	55.99224	0.071244	0.9433
Pair 3 Earning Per Share pre - Earning Per Share post	121	0.054959	6.55873	0.092174	0.9267

Panel (A) shows that the firms' performance pre disruption period is not statistically and significantly different from post disruption period. The p value of all three variables is more than 0.05 ($P > 0.05$) which means that, there is insignificant impact of the financial disruption on the financial performance measures. Therefore, the financial disruption (introduction of demonetization policy) did not affect the

performance of pharmaceutical companies listed on Bombay Stock Exchange. This leads to the acceptance of the null hypothesis which states that: Financial disruption (Demonetization process) that occurred in November 2016 has no impact on the performance of pharmaceutical sector's companies in India.

Findings in panel (B) reveal that net sales in the third quarter (Dec 2015) is



statistically and significantly different from net sales in the third quarter Dec 2016 (post disruption period). The p value is less than 0.05 ($P > 0.05$) which means that, demonetization process has a significant impact on firm's performance measured by net sales. That might be attributed to taking the market share of small units which are not using ATM sweep machines and E-payments for generating sales. Whereas, net profit Dec 2015 and earnings per share Dec 2015 (pre disruption period) are not statistically and significantly different from earnings per share Dec 2016 and net profit Dec 2016 (post disruption period). The p value is more than 0.05 ($P > 0.05$) which means that, demonetization process has no significant impact on firm's performance measured by net profit and earnings per share.

6. Conclusion

The study sought to evaluate the impact of the financial disruption on the performance of Indian pharmaceutical industry by comparing the quarterly financial performance pre and post the financial disruption that occurred on 8th November 2016. The study took three variables to measure the performance of selected pharmaceutical companies (Net Sales, Net Profit and Earning Per Share). Two statistical techniques were applied namely: descriptive statistics and paired sample T-test. When the study compared the performance of second quarter (Sep 2016) with the performance of the third quarter (Dec 2016) it was found that the overall performance of Indian pharmaceutical companies was not significantly affected by the financial disruption during the demonetization process. But when the study examined whether there is a significant difference between the third quarter

performance (Dec 2016) and the third quarter performance (Dec 2015), results showed that net sales Dec 2015 (pre demonetization period) is statistically and significantly different from net sales Dec 2016 (post disruption period).whereas, net profit and

earning per share Dec 2015 (pre demonetization period) are not statistically and significantly different from net profit and earning per share Dec 2016 (post demonetization period).

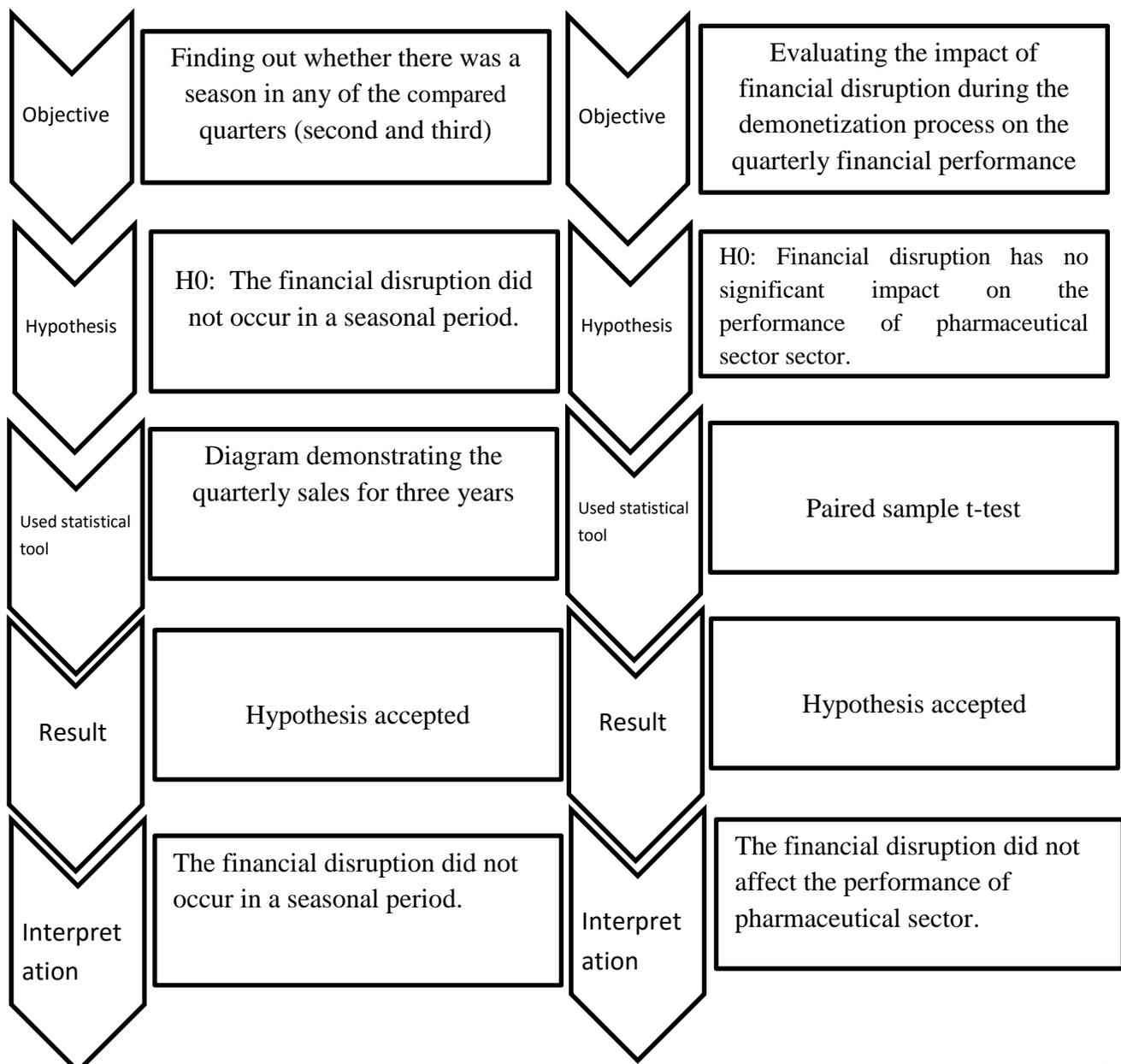


Diagram (2): conclusion

7. Limitations and future directions

This study is limited to the companies listed on BSE, therefore the findings of this research can only be generalized to pharmaceutical companies which are similar to those companies which are listed and have the same nature. Indian Pharmaceutical industry is the third in the world and has more than 20,000 registered units. Despite the fragmentation and price competition, the leading 250 pharmaceutical companies control 70% of the market (Mehra, 2013). Future research is suggested to investigate the impact of financial disruption on the performance of pharmaceutical sector as a whole which includes small and medium

units to make a generalization of the findings. In addition, it is suggested for more studies to be conducted for investigating the advantages and disadvantages of the cashless economy on the pharmaceutical industry which is not possible to be conducted now because of non-availability of data.

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