



RESEARCH ARTICLE

HOLIDAY EFFECT AND INDIAN FESTIVALS: EVIDENCE FROM THE INDIAN STOCK MARKET

Advik Harlalka

Manuscript Info

Manuscript History

Received: 15 July 2023

Final Accepted: 19 August 2023

Published: September 2023

Abstract

Copy Right, IJAR, 2023,. All rights reserved.

Introduction:-

The efficient market hypothesis states that asset prices reflect all available information available about them. Moreover, consumers are rational and seek to maximise their utility. They do not act upon behavioral biases such as over-confidence, superstitions, fear, or greed. No market in the real world, however, is perfectly efficient.

One of the reasons that stock markets are not perfectly efficient is the presence of calendar anomalies. Calendar anomalies occur when stock prices are systematically higher or lower during a particular date or period. There are multiple calendar anomalies recorded in stock markets across the globe, namely January Effect, Halloween Effect, and Day-of-week Effect.

One category of calendar anomalies is the "Holiday Effect". Here, stocks show abnormally higher returns closer to holidays. Furthermore, this can be divided into two types- the pre-holiday effect and the post-holiday effect. In the pre-holiday effect, stock returns are abnormally higher on days preceding a holiday. On the other hand, the post-holiday effect shows that stock returns are abnormally higher on days succeeding a holiday. However, the post-holiday effect has been rarely observed in recent evidences.

In spiritual countries such as India, festivals and religious sentiments have a large role to play in economic activities. For example, Friday new moons in India result in lower equity stock returns. This is because many Hindus consider new moons inauspicious as per the Garuda Purana, which suggests that Indians take time off work and focus on spirituality on new moon days.

On the contrary, Diwali, a festival that takes place on a new moon, is regarded as one of the most auspicious festivals in India. On this day, Lakshmi, the goddess of prosperity and wealth, is worshipped. Making investments during this time period is thought to be an auspicious start to the new Hindu year. Although Diwali is a holiday, stock exchanges accommodate this consumer sentiment and open a one-hour trading window. Trading at this time is known as Muharat trading. Investors who buy stocks on Muharat trading may hold them for a long time period. Studies have shown that there are abnormally high returns in stock prices a few days before and after Muharat trading.

Holi, celebrated in the month of March, is one of the most famous Hindu festivals in India. It is celebrated as a way to welcome spring. The festival of Holi is seen as a new beginning, where people can let go of their self-consciousness and start fresh. A popular superstition pertaining to this festival is that gods turn a blind eye during this time. This

allows even the most devout Hindus to let loose. While the colours Holi is played with represent a new life, washing them off afterward signifies the commitment to living well.

Eid ul-fitr, celebrated in the month of April, is one of the most important festivals of the Muslim community. It signals the end of the holy month of Ramadan. Eid ul-fitr is considered a day of charity and symbolises virtues such as fortitude, piety, and godliness. Exchanging gifts, greetings, and wishes is a big part of Eid ul-fitr celebrations.

Independence Day, celebrated on 15th August, marks the day India declared independence from the British Raj. This is a festival that is celebrated by different religions and cultures throughout the country.

Literature Review:-

Calendar anomalies were first reported as a seasonality by Sidney B Watchel in 1942. Multiple studies have been conducted since, confirming the existence of multiple types of calendar anomalies.

In the context of India, earlier studies such as by Sharma and Kennedy (1977) and Choudhury (1991) could not provide substantial proof of calendar anomalies. Broca (1992) was the first to present data on the day-of-week effect. He studied the daily returns of the BSE NATEX and concluded that Wednesday had mean returns that were the lowest in the week. Furthermore, Sarma (2004) used the SENSEX, BSE200, and NATEX and studied them for a period starting from 1996 to 2002. He noticed that all 3 indices had the highest positive variance from Monday to Friday, suggesting that an individual can profit the most by buying stocks on Mondays and selling them on Fridays. Sah (2008) studied the NIFTY and NIFTY Junior indexes for the period 2005 to 2008. He found the presence of day-of-week as well as month-of-year effects. By studying the BSE 500 and NSE 500 for the period 1999 to 2007, Patel (2008) also found two distinct effects: He observed that the months November to December showed significantly higher mean returns than other months. He also found that the months March, April, and May showed lower mean returns than other months.

The Holiday effect was first identified by Merrill (1966). For the period 1897 to 1965, he studied the Dow Jones Industrial Average to discover abnormally high returns on days preceding and succeeding public holidays. Since then, several studies have been conducted, examining the Holiday effect. These studies have not only been undertaken in USA but countries such as Italy (Barone, 1990), Japan (Ziemba, 1993), South Africa (Bhana, 1994), and China (Wu, 2013) to name a few.

Research conducted on Holiday effects has provided mixed results.

Coutts and Sheikh (2002) observed the All Gold Index on the Johannesburg Stock Exchange for the period 1987-1997. This study concluded the lack of any calendar anomalies and rather suggested a probe into the reasons behind this observation. Studies by Vergin and McGinnis (1999) and Keef and Roush (2005) have concluded the disappearance of the Holiday effect for large businesses and the diminishing magnitude of the Holiday effect in small cap stocks. Worthington (2008) used 12 different stock indices from the period 1996 to 2006 to conclude that Australian stock markets did experience a pre-holiday effect but not a post-holiday effect. Karim et al. (2012) studied the Malaysian stock market from the period 2001 to 2009. The study concluded that there was no difference in the average returns of the rest of the period and the pre-holiday period.

In the Indian context, there are a very limited number of studies conducted on the Holiday effect. Lu et al. (2016) concluded the presence of the post-holiday effect on public holidays. Hawaldar et al. (2009) took the December 2001 quarter earnings announcement as an event or holiday and studied the stock returns of 152 companies. It was concluded that this event had an insignificant effect on stock returns. Shakila et al. (2020) examined the occurrence of Holiday effect by taking samples in the textile industry of India for the time period 2010-2019. It was concluded that there was no presence of a Holiday effect in their study.

Kumar (2011) studied the 7 days preceding, Muharat trading day, and the 7 days after Muharat trading using the S&P CNX NIFTY Index as a substitute index for the Indian stock market. The observations concluded that the average returns of stocks post-Muharat trading is higher than the average return of stocks pre-Muharat trading. Srikanth et al. (2013) studied all the companies in the BSE-100 index. They studied the average stock returns of the 10 working days before and 10 working days after diwali for the year 2011. The results found that stock returns are significantly higher only on the day of Diwali and one day after the festival. This increase is, however, not significant statistically. It was concluded that Muharat trading is rather a tradition and does not influence the stock

market to a great extent. As stated by Morgner (2014), “Although festivals have a religious or mythological origin, their celebration at a societal level involves phenomenal exchange of resources”.

Researchers have found many reasons regarding consumer behaviour and calendar anomalies. Namely, social mood (DeBondt and Thaler, 1995), religious belief (Al-Ississ, 2015), individual mood (Cao and Wei, 2005), and socio-cultural norms (Nofsinger, 2005).

Research and Methodolgy:-

In India, festivals play a major role in economic activity. As previously mentioned, limited research has been conducted on the Holiday effect in the context of India. The aim of this research is to identify the existence of pre-holiday and post-holiday effect in the Indian stock market. The holidays observed in this research are Holi, Independence Day, and Eid ul-fitr. By choosing Independence Day, a non-religious holiday, the difference between religious and non-religious holidays and their impacts on the stock market can be observed. The research studies the percentage change of the value of the SENSEX from its opening value to its closing value one day before and one day after the holiday, for the period of 2009-2019. Percentage changes greater than 1% will be regarded as significant changes in the stock market. Percentage changes lesser than 1% will be regarded as insignificant changes. SENSEX is considered as the benchmark for the Indian stock market. All data has been incorporated from the BSE SENSEX database.

Pre-holiday data:

Holi, Table 1

Year	Pre-holiday	Open	High	Low	Close	% change
2009	9th March	8259.22	8259.22	8110.1	8160.4	-1.20%
2010	26th February	16,255.33	16,669.25	16,249.67	16,429.55	1.07%
2011	18th March	18,251.18	18,259.61	17,849.53	17,878.81	-2.04%
2012	7 March	17,127.18	17,239.35	17,008.77	17,145.52	0.11%
2013	26 March	18,645.09	18,758.88	18,612.37	18,704.53	0.01%
2014	14 March	21,648.05	21,853.32	21,573.48	21,809.80	0.75%
2015	5 March	29,436.77	29,518.32	29,162.47	29,448.95	0.04%
2016	23 March	25,322.10	25,367.81	25,156.82	25,337.56	0.02%
2017	10 March	29,006.00	29,076.63	28,851.04	28,946.23	-0.21%
2018	1 March	34,141.22	34,278.63	34,015.79	34,046.94	-0.28%
2019	20 March	38,433.86	38,489.81	38,316.21	38,386.75	-0.12%

Eid ul-fitr, Table 2

Year	Pre-holiday	Open	High	Low	Close	% change
2009	18 September	16,650.05	16,765.03	16,610.05	16,741.30	0.55%
2010	9 September	18,669.12	18,823.17	18,669.12	18,799.66	0.70%
2011	30 August	16,585.10	16,714.70	16,443.35	16,676.75	0.55%
2012	17 August	17,701.20	17,801.39	17,622.62	17,691.08	-0.06%
2013	8 August	18,687.30	18,829.26	18,621.67	18,789.34	0.55%
2014	28 July	26,173.47	26,181.83	25,900.25	25,991.23	-0.70%
2015	17 July	28,480.92	28,576.32	28,417.46	28,463.31	-0.06%
2016	5 July	27,340.72	27,348.66	27,127.30	27,166.87	-0.64%
2017	23 June	31,352.57	31,365.39	31,110.39	31,138.21	0.01%
2018	15 June	35,656.26	35,675.20	35,419.68	35,622.14	-0.10%
2019	4 June	40,196.00	40,312.07	40,031.05	40,083.54	-0.28%

Independence Day, Table 3

Year	Pre-holiday	Open	High	Low	Close	% change
2009	14 August	15,530.38	15,535.47	15,367.61	15,411.63	-0.76%
2010	13 August	18,080.29	18,260.39	18,050.42	18,167.03	0.48%
2011	12 August	17,246.88	17,246.88	16,784.56	16,839.63	-2.36%
2012	14 August	17,631.64	17,753.43	17,572.34	17,728.20	0.55%
2013	14 August	19,299.42	19,392.56	19,203.63	19,367.59	0.35%
2014	14 August	25,948.30	26,135.00	25,945.35	26,103.23	0.60%
2015	14 August	27,668.06	28,100.64	27,643.20	28,067.31	1.44%
2016	12 August	27,919.95	28,203.27	27,900.91	28,152.40	0.83%
2017	14 August	31,299.52	31,526.40	31,298.90	31,449.03	0.70%
2018	14 August	37,749.59	37,932.40	37,689.71	37,852.00	0.27%
2019	14 August	37,233.50	37,473.61	37,000.77	37,311.53	0.21%

Table 1 shows historical data of the SENSEX, from the time period 2009 to 2019, one day prior to Holi. 2009 records a 1.20% decrease in the value of SENSEX. 2010 records a 1.07% increase in the value of SENSEX. 2011 records a 2.04% decrease in the value of the SENSEX. From the time period 2012 to 2019, the change in the value of SENSEX is below 1%. There is no significant increase or decrease in the value of the SENSEX. The first three years do experience significant changes in the value of the SENSEX one day prior to the holiday. However, since two out of the three significant changes experience a decrease in value of the SENSEX while the other experiences an increase, no conclusion can be drawn as to whether a positive or negative correlation exists between the holiday and stock returns one day prior to the holiday. Moreover, seven out of the ten years do not experience any significant changes in the value of the SENSEX. Therefore, it can be concluded that there is no correlation between a holiday and stock returns one day prior to the holiday.

Table 2 shows historical data of the SENSEX, from the time period 2009 to 2019, one day prior to Eid ul-fitr. From the time period 2009 to 2019, the change in the value of SENSEX is below 1%. There is no significant increase or decrease in the value of the SENSEX. One day prior to the festival of Eid ul-fitr, none of the years experience significant changes in the value of the SENSEX. Therefore, it can be concluded that there is no correlation between a holiday and stock returns one day prior to the holiday.

Table 3 shows historical data of the SENSEX, from the time period 2009 to 2019, one day prior to Independence Day. From the time period 2009 to 2019, the change in the value of SENSEX is below 1% in most years. There is no significant increase or decrease in the value of the SENSEX. The year 2011 records a decrease of 2.36% in the value of the SENSEX the day prior to Independence day. The year 2015 records an increase of 1.44% in the value of the SENSEX the day prior to Independence Day. One day prior to Independence Day, two of the ten years do experience a significant change in the value of the SENSEX. However, since one year experiences a decrease whereas the other experiences an increase, no conclusion can be drawn as to whether a positive or negative correlation exists between the holiday and stock returns one day prior to the holiday. Moreover, eight out of the ten years do not experience any significant changes in the value of the SENSEX. Therefore, it can be concluded that there is no correlation between a holiday and stock returns one day prior to the holiday.

**Post-holiday data:
Holi, Table 4**

Year	Post-holiday	Open	High	Low	Close	% change
2009	12th March	8,274.78	8,439.71	8,274.78	8,343.75	0.83%
2010	2nd March	16,438.45	16,808.49	16,438.45	16,772.56	-0.51%
2011	21st March	17,984.72	18,007.73	17,792.17	17,839.05	-0.81%
2012	9 March	17,325.82	17,531.62	17,325.82	17,503.24	1.02%
2013	28 March	18,702.46	18,882.54	18,568.43	18,835.77	0.71%
2014	18 March	21,849.65	22,040.72	21,785.38	21,832.61	-0.01%
2015	9 March	29,316.54	29,321.06	28,799.76	28,844.78	-1.61%
2016	28 March	25,417.11	25,432.94	24,895.49	24,966.40	-1.77%
2017	14 March	29,437.23	29,561.93	29,356.05	29,442.63	0.02%
2018	5 March	34,034.28	34,034.28	33,653.41	33,746.78	-0.85%
2019	22 March	38,452.47	38,564.71	38,089.36	38,164.61	-0.75%

Eid ul-fitr, Table 5

Year	Post-holiday	Open	High	Low	Close	% change
2009	22 September	16,805.22	16,943.49	16,763.78	16,886.43	0.48%
2010	13 September	18,845.31	19,243.44	18,845.31	19,208.33	1.93%
2011	2 September	16,963.67	16,989.86	16,688.06	16,821.46	-0.84%
2012	21. August	17,705.14	17,898.35	17,705.14	17,885.26	1.02%
2013	12 August	18,898.94	19,066.97	18,796.01	18,946.98	0.25%
2014	30 July	26,005.14	26,113.48	25,850.04	26,087.42	0.32%
2015	20 July	28,544.28	28,549.13	28,319.83	28,420.12	-0.43%
2016	7 July	27,209.97	27,288.22	27,146.95	27,201.49	-0.03%
2017	27 June	31,194.68	31,294.96	30,847.08	30,958.25	-0.76%
2018	18 June	35,698.43	35,721.55	35,518.73	35,548.26	-0.42%
2019	6 June	40,136.43	40,159.26	39,481.15	39,529.72	-1.51%

Independence Day, Table 6

Year	Post-holiday	Open	High	Low	Close	% change
2009	17 August	15,284.23	15,284.23	14,740.63	14,784.92	-3.27%
2010	16 August	18,169.80	18,203.92	17,997.46	18,050.78	-0.66%
2011	16 August	17,015.99	17,035.49	16,673.52	16,730.94	-1.68%
2012	16 August	17,752.22	17,763.59	17,640.62	17,657.21	-0.54%
2013	16 August	19,297.11	19,310.95	18,559.65	18,598.18	-3.62%
2014	18 August	26,123.69	26,413.11	26,075.28	26,390.96	1.02%
2015	17 August	28,093.54	28,095.97	27,739.13	27,878.27	-0.77%
2016	16 August	28,190.04	28,199.10	27,942.65	28,064.61	-0.44%
2017	16 August	31,566.24	31,805.99	31,399.35	31,770.89	0.65%
2018	16 August	37,796.01	37,891.92	37,634.13	37,663.56	-0.43%
2019	16 August	37,383.00	37,444.45	36,974.41	37,350.33	-0.09%

Table 4 shows historical data of the SENSEX, from the time period 2009 to 2019, one day after Holi. The years 2009 to 2011 record a change of below 1%, therefore being categorised as insignificant changes. 2012 records an increase of 1.02% one day after Holi. The years 2013 and 2014 record a change of below 1%, therefore being categorised as insignificant changes. 2015 and 2016 both record decreases of 1.61% and 1.77% respectively. The years 2017 to 2019 record a change of below 1%, therefore being categorised as insignificant changes. One day after Holi, three of the ten years do experience a significant change in the value of the SENSEX. However, since one year experiences an increase whereas the other two experience a decrease, no conclusion can be drawn as to whether a positive or

negative correlation exists between the holiday and stock returns one day after the holiday. Moreover, seven out of the ten years do not experience any significant changes in the value of the SENSEX. Therefore, it can be concluded that there is no correlation between a holiday and stock returns one day after the holiday.

Table 5 shows historical data of the SENSEX, from the time period 2009 to 2019, one day after Eid ul-fitr. 2009 records a change of below 1%, therefore being categorised as an insignificant change. 2010 records an increase of 1.93% one day after Eid ul-fitr. 2011 records a change of below 1%, therefore being categorised as an insignificant change. 2012 records an increase of 1.02% one day after Eid ul-fitr. The years 2013 to 2018 record a change of below 1%, therefore being categorised as insignificant changes. 2019 records a decrease of 1.51% one day after Eid ul-fitr. One day after Eid ul-fitr, three of the ten years do experience a significant change in the value of the SENSEX. However, since one year experiences a decrease whereas the other two experience an increase, no conclusion can be drawn as to whether a positive or negative correlation exists between the holiday and stock returns one day after the holiday. Moreover, seven out of the ten years do not experience any significant changes in the value of the SENSEX. Therefore, it can be concluded that there is no correlation between a holiday and stock returns one day after the holiday.

Table 6 shows historical data of the SENSEX, from the time period 2009 to 2019, one day after Independence Day. 2009 records a decrease of 3.27% one day after Independence Day. 2010 records a change of below 1%, therefore being categorised as an insignificant change. 2011 records a decrease of 1.68% one day after Independence Day. 2012 records a change of below 1%, therefore being categorised as an insignificant change. 2013 records a decrease of 3.62% one day after Independence Day. 2014 records an increase of 1.02% one day after Independence Day. The years 2015 to 2019 record a change of below 1%, therefore being categorised as insignificant changes. One day after Independence Day, 4 years do experience a significant change in the value of the SENSEX. However, since one year experiences an increase whereas the other four experience a decrease, no conclusion can be drawn to whether a positive or negative correlation exists between the holiday and stock returns one day after the holiday. Moreover, six out of ten years do not experience any significant changes in the value of the SENSEX. Therefore, it can be concluded that there is no correlation between a holiday and stock returns one day after the holiday.

Conclusion:-

The years that display a significant change in the stock market may have experienced events which have not been reflected in the value of the SENSEX, as a result of which these outliers have occurred. Further research needs to be conducted on these specific years in order to reach a conclusion as to why these years have experienced such drastic changes in the value of the SENSEX in just one day. Across the different festivals, most of the samples display insignificant changes in the value of the SENSEX a day prior to the holiday. It can therefore be concluded that pre-holiday effect does not exist in India. This also seems to be the case with the SENSEX values one day after the holiday, concluding that post-holiday effect as well, does not exist in India. Most of the years display insignificant changes in the value of the SENSEX and an investigation needs to be conducted on the few years that do display a significant change in the value of the SENSEX. This will help explain these outliers and reach a more informed conclusion as to the reasons behind the outliers. Moreover, the significant changes displayed by the data show positive as well as negative changes. This further dismisses the existence of Holiday effect in India. It can therefore be concluded that Holiday effect does not exist in India.

The non-religious festival, Independence Day, experiences more significant changes the day after the holiday, as compared to other festivals. However, the number of insignificant changes are far too great to conclude the presence of a Holiday effect. Moreover, these changes are positive as well as negative changes. Further research needs to be conducted focusing on the reasons behind the irregularities of the SENSEX values preceding and succeeding Independence Day.

Extensive research on other holidays in India and taking a larger data sample, in terms of years of data as well as number of days preceding and succeeding the holiday, will make the findings more accurate and reliable.

Citations:-

1. (2023). Efficient Market Hypothesis (EMH): Definition and Critique. Investopedia
2. Ghalke, Avinash. et al. (2023). New moon day anomalies of Amavasya and Muhurat trading: Gestalting the role of culture and institutions. IIBM Management Review. 2. 137-148.

3. (2022). What is Holi and Why is it celebrated. Volunteer Forever.
4. (2022). Eid ul Fitr 2023, Meaning, History, Significance, And Facts. Zamzam.com
5. Prakash, Pinto. et al. (2022). Holiday Effect and Stock Returns: Evidence from Stock Exchanges of Gulf Cooperation Council. International Journal of Financial Studies. 4.
6. Cristi, Spulbar. et al. (2020). The holiday effects in stock returns: a challenge for the textile and clothing industry of India. Industria Textila. 4. 327-333.
7. Kumar, Harish. et al. (2017). Efficient Market Hypothesis And Calendar Effects: Empirical Evidences From The Indian Stock Markets. Business Analyst. 145-160.
8. Goyal, Sumit. et al. (2016). A study on the impact of Indian festivals on the stock market indices of BRICS countries. Amity Journal of Management. 4. 20-27.
9. Srikanth, Potharla., Ram, Maloth. (2013). Economic Impact of Festivals: Evidence from Diwali Effect on Indian Stock Market. ResearchGate. 1-12.
10. Hawaldar, T, Iqbal. et al. (2009). Indian Stock Market Reaction to the Quarterly Earnings Information. Indian Journal of Finance. 7. 43-50.
11. Patel, B, Jayen. (2008). Calendar Effects In The Indian Stock Market. International Business & Economics Research Journal. 7. 3.
12. Marrett, J. George. et al. (2008). An empirical note on the holiday effect in the Australian stock market, 1996–2006. Applied Economics Letters. 17. 1769-1772.<https://www.bseindia.com/Indices/IndexArchiveData.html>.