

Day-of-the-week and weekend effects on stock market returns: an investigation through review of literature

Gaurav KUMAR

Mizoram University, Aizawl, India
gauravchaudhary.gk@gmail.com

Prof. Bhartendu SINGH

Mizoram University, Aizawl, India
bsingh@mzu.edu.in

Abstract. *The weak-form of market efficiency states that stock price reflects all the historical price data thus abnormal return cannot be earned based on historical price. Many studies observed a pattern in generating returns over the week, where Fridays have been documented as a day providing significantly higher returns while Mondays as a day providing the lowest or negative return. The presence of a such pattern in the return violates the efficient market hypothesis in the weak form which provide a golden opportunity for smart and knowledgeable investors to exploit such a pattern and generate an abnormal return. This paper tries to critically review and synthesize the relevant research in the field of the days of the week and weekend effect by using a systematic literature review approach, from 1973 to 2023. This study concluded that the direction and magnitude of the days-of-the-week and weekend effects, for different stock markets across different periods are not the same, it may be due to different institutional arrangements, and religious and cultural beliefs.*

Keywords: days of the week anomaly, efficient market hypothesis, Monday effect, calendar anomalies, secondary market, trend and present status.

JEL Classification: D53.

1. Introduction

According to Mandelbrot (1963) the term “efficient market” was first coined by Bachelier (1900), in his PhD thesis “The theory of speculation”. It was recognised by him that past, present, and discounted future events are reflected in market price, but often show no clear relation to price changes. Market efficiency consists of informational efficiency, structural efficiency, and administrative efficiency or operational efficiency. Efficiency means how quickly stock prices absorb information or changes. Market efficiency states that stock price incorporates all the previous information so usually stocks trade around their intrinsic value. Fama (1970) stated an efficient market is a market where the current market prices of the stocks reflect all the available information. Fama (1965) stated that stock prices move randomly and take an unpredictable path, so by using past information stock prices cannot be predicted by employing technical analysis and fundamental analysis. Therefore, when the stock market is efficient, no one can beat the market and earn abnormal risk-adjusted returns consistently. There are little chances of mispricing when the market is efficient. However, when the market is inefficient the stock price will not quickly absorb the information and stock may be mispriced, which will provide an opportunity to smart and knowledgeable investors to beat the market and earn some abnormal return. Fama (1970) advocated three forms of informational efficiency, viz., weak form, semi-strong form, and strong form respectively. In the weak form efficient market, the current market prices of stock reflect all past information, move randomly, and bear no relation with its past prices therefore, it would be impossible to outperform the market by forecasting the future stock prices through market timing or smart stock selection. The technical analysis becomes useless in the weak form efficient market so, investors can generate abnormal returns only by investing their hard-earned money in riskier stocks. In the semi-strong form, all past and publicly available information is reflected in the stock prices, therefore fundamental and technical analysis becomes useless. In the semi-strong form efficient market, one can beat the market only by having some private or inside information. In strong form, stock prices reflect all information even inside information cannot help in earning abnormal returns. The antagonist of the efficient market hypothesis argued that stock prices are mostly determined based on investor expectation and behavioural bias, so stock prices will not randomly walk and show a trend where past stock price movement can be used for generating abnormal returns. The presence of a trend in stock returns in any form assists in the prediction of future stock prices and gives birth to anomalous behaviour in the capital market which contradicts any of the three forms of the Efficient Market Hypothesis (Mohanty, 2018). When a stock or group of stocks perform against the notion of the efficient market hypothesis then it is described as a stock market anomaly (Canady, 2011). Kuhn (1970) described an anomaly as a violation of the ‘paradigm-induced expectations that govern normal science’. Bowman and Buchanan (1995) stated anomalies are the result of shortcomings in the model used to determine market efficiency rather than the inefficiency of the market. Brennan and Xia (2001) described anomaly as a statistically significant deviation between the average realized return and normal return, which is predicted by using a particular asset pricing model. According to Frankfurter and McGoun (2001) anomaly refers to irregularity or a deviation from common or natural order or an exceptional condition. Schwert (2002) described anomalies as empirical outcomes, which

are not consistent with the standard theory of assets pricing model. He also stated that anomalies are either signs of an inefficient market or shortcomings in the model applied for estimating the return.

In the existing literature broadly stock market anomalies have been classified into three parts viz., Fundamental anomalies, Technical anomalies and Calendar or seasonal anomalies. The focus of this study is on Day-of-the-Week and Weekend Effects, which are a major part of the calendar anomalies. When seasonality in stock returns are related to a particular period then it is termed as a calendar anomaly. Apart from Day-of-the-Week and Weekend Effects, the turn-of-the-month effect, turn-of-the-year effect, January effect, and month-of-the-year effect are the prominent calendar anomalies. The day-of-the-week effect also known as the day of the week anomaly refers to the presence of a trend in return over different trading days of a week. Many of the earlier researchers documented the day-of-the-week effect as a phenomenon that the mean returns are not the same on each trading day over the week, which means returns are extremely high or too low on a particular day of the week (Cross, 1973; Gibbons and Hess, 1981; Lakonishok and Levi 1982; Lakonishok and Smidt, 1988; Cai *et al.*, 2006; Narayan *et al.*, 2014; Chiah and Zhong, 2019). Whereas in the existing literature, the weekend effect is documented as a phenomenon where stock returns on Mondays are usually much lower than those of the preceding Friday (French, 1980). For days of the week and weekend effect, mostly Fridays have been documented as the day which provides the highest return and Mondays have been documented as the day which provides the lowest or even negative return on investment (Lakonishok and Levi 1982; Agrawal and Tondon, 1994; Amanulla and Thiripalraju, 2001; Gbeda and Pephrah, 2018). The weekend effect is also known as the Monday effect/weekend anomaly. Recognition of days of the week and weekend anomalies motivated several studies to test whether Efficient Market Hypotheses (EMH) hold true or not. Many studies have investigated various calendar anomalies which contradict the concept of efficient market hypotheses and assets pricing model, e.g., day of the week effect, weekend effect or Monday effect, etc (Cross, 1973; French, 1980; Gibbons and Hess, 1981; Keim and Stambaugh, 1984; Arumugam, 1988-89; Barone, 1990; Chaudhary, 1991; Agrawal and Tondon, 1994; Poshakwale, 1996; Anshuman and Goswami, 2000; Amanulla and Thiripalraju, 2001; Raj and Kumari, 2006; Aly *et. al.*, 2009; Rahman, 2009; Selvakumar, 2011; Sharma, 2011; Hussain *et. al.*, 2011; Srinivasan and Kalaivani, 2013; Khanna, 2014; Archana, Safeer and Kevin, 2014; Mitra, 2016). Many academicians and practitioners in various stock markets around the world have investigated the days of the week and weekend effects and have given various possible explanations towards the occurrence of these anomalies. For example, window dressing, measurement errors, settlement effect, and strategy of individual investors (Anshuman and Goswami, 2000; Draper and Paudyal, 2002), and release of negative or bad news at the weekend (Berument and Kiymaz, 2001). Pessimistic behaviour and high selling pressure on Mondays as well as higher buying patterns on Fridays' lead to variation in return over the trading days in a week (Mitra, 2016). However, still, we do not have a unanimous and satisfactory explanation. During the 1980s, the day-of-the-week effect was evident in many developed markets. For instance, Kohers *et al.*, (2006) found the presence of the day of the week effect in eleven out of twelve countries viz., Australia, Canada, France, Germany, Italy, Japan, Netherlands, Switzerland,

United Kingdom, and U.S. Kamath and Chusanachoti, (2002) found significant presence of weekend effect in Korea. In contrast, many studies also reported that over time market efficiency improved which caused fade away of these anomalies. For example, during the 1990s, Kohers *et al.*, (2006) reported the disappearance of the day-of-the-week effect in all select countries except for Japan, Steeley (2001) reported, weekend effects anomaly vanished in the United Kingdom, and Kamath and Chusanachoti, (2002) in Korea. Singh and Das (2020) found the absence of weekend effect in the Indian stock market during 2010-2019.

Further research in this area is both important and inevitable, because of ambiguous results regarding the persistence of the day of the week and weekend effects throughout different periods and nations. The objective of this paper is to critically review and synthesize the existing literature on the day of the week and weekend effects. Hence, this research directly contributes to the existing literature in two way. First, it will provide a concrete evidence on persistence on the “day of the week and week end effect” throughout different period and nations. Second, the present study highlights the magnitude of the day of the week and weekend effects from 1973 to 2023. The remaining study is arranged in the following manner. The second section deals with the systematic review of literature on the days-of-the-week effect and weekend effect. The third section describes the research methodology. The last section of this study deals with discussion, conclusions, and insight for future study.

2. Review of literature

The speed of knowledge creation and dissemination accelerated tremendously over the recent period and became more disintegrated and interdisciplinary. This makes it difficult to stay updated on cutting-edge research, development over the period and access the collective evidence in a specific research area (Snyder, 2019). As a result, conducting a literature review is more important than ever. A literature review can be described as the systematic approach of collecting and synthesizing past studies (Baumeister and Leary, 1997; Tranfield *et al.*, 2003). An effective and systematic review lays down a strong foundation for advancing knowledge and facilitating theory development (Webster and Watson, 2002). By adopting systematic literature review approach (SLR), empirical evidence of select prominent past research related to this study has been presented in Table 1.

Table 1. Empirical evidence related to days of the week and weekend effect

Sl. No.	Author	Market and Index	Duration of study	Main findings
1	Cross, 1973	USA, S&P composite index	1953-1970	Higher return on Friday Lower return on Monday
2	French, 1980	USA, S&P composite portfolio	1953-1977	Negative return on Monday
2	Gibbons and Hess, 1981	USA, value and equal weighted portfolio and S&P 500 index	1962-1978	Higher return on Friday Negative return on Monday
4	Keim and Stambaugh, 1984	USA, S&P Composite index	1928-1982	Highest return on Friday
5	Arumugam, 1988-89	India, BSE SENSEX	1979-1997	Friday's return positive and Monday's return negative during bear phase

Sl. No.	Author	Market and Index	Duration of study	Main findings
6	Barone, 1990	Italy, MIB storico stock index	1975-1989	Lowest return on Monday
7	Chaudhary, 1991	India, BSE SENSEX	1988-1990	Presence of weekend effect
8	Agrawal and Tondon, 1994	18 countries	1971-1987	Highest return on Friday and negative return on Monday and Tuesday
9	Poshakwale, 1996	India, BSE National index	1987-1994	Higher return on Friday Non-random of stock price
10	Anshuman and Goswami, 2000	India	1991-1996	Highest return on Friday Negative Tuesday's return
11	Amanulla and Thiripalraju, 2001	India, BSE SENSEX, BSE 100, CNX NIFTY and 82 frequently traded stock	1990-1999	Negative return on Tuesday
12	Aly <i>et al.</i> , 2004	Egypt, Capital Market Authority Index (CMA)	1998-2001	Significantly positive Monday's return
13	Raj and Kumari, 2006	India, SENSEX & NIFTY	During 80s and 90s decades	Positive return on Monday and negative return on Tuesday
14	Rahman, 2009	Bangladesh, DSI, DSI-20 & DGEN index	2005-2008	Statistically significant positive return on Thursday, and negative return on Sunday and Monday
15	Selvakumar, 2011	India, BSE SENSEX and CNX NIFTY	1992-2005	Highest return on Friday and negative return on Monday and Tuesday
16	Sharma, 2011	India, SENSEX and NIFTY	2008-2009	Absence of days of the week anomaly
17	Hussain <i>et al.</i> , 2011	Pakistan, KSE 100 index	2006-2010	Highest return on Tuesday and no negative Monday's return
18	Srinivasan and Kalaivani, 2013	India, SENSEX and NIFTY	1997-2012	Statistically significant highest return on Monday and lower return on Thursday, highest volatility on Wednesday
19	Khanna, 2014	India, SENSEX	2006-2010	Higher positive return on Tuesday.
20	Archana, Safeer and Kevin, 2014	India, SENSEX	2008-2012	Positive return on all days and lowest return on Monday.
21	Mitra, 2016	India, SENSEX and NIFTY	2000-2015	Absence of days of the week effect.
22	Paital and Panda, 2018	India, Nifty fifty, Nifty midcap fifty and Nifty small cap Index	2005-2018	Statistically significant higher return on Monday and negative return on Tuesday.
23	Gbeda and Peprah, 2018	Ghana and Nairobi	2005-2014	Significantly highest return and volatility on Friday in the Nairobi stock market. Absence of Days of the week effect in the Ghana Stock market
24	Singh and Das, 2020	India, BSE IT & BANK indices	2010-2019	Absence of weekend effect
25	Patjoshi and Nandini, 2020	India, BSE SENSEX, BSE 500, BSE 200, and BSE 100	2000-2018	Highest return on Wednesday and lowest return on Tuesday however, the results become controversial when they applied GARCH (1,1) model.
26	Sahoo, 2021	India, CNX Nifty, Nifty 100, Nifty 200, Nifty mid-cap fifty, Nifty 100 mid cap and Nifty 100 small cap	2015-2020	Absence of weekend effect before covid 19 period and presence of weekend effect during covid period. Tuesday effect was present across the study period.
27	Khan <i>et al.</i> , 2021	Major Indices of the Asian stock market including India	2013-2019	Presence of days of week effect in majority of stock markets except for the Indian and Malaysian stock market
28.	Kang and Cho, 2022	The MSCI: All Country World Index(ACWI), World Index (DM), Emerging Market Index(EM), and the Standard & Poor's 500 Index(S&P 500)	2003-2021	examined day of the week effect in volatility. Found low volatility on Tuesday for all index during Covid-19.
29.	Aggarwal and Jha (2023)	India, Nifty	1990-2022	Found presence of days of the week effect

Cross (1973) investigated the distribution of changes in price on Mondays and Fridays as well as the relationship that present in the price changes between these two days by using the S&P Composite Index of the New York Stock Exchange (NYSE Composite Index). The results of the study show more advancement in stock prices on Fridays in comparison to other trading days of the week, however in general, the advancement was least on Mondays. Further, the direction of changes in index on Monday was more, when there was a hike in the index on preceding Fridays. However, the chances of increase and decrease in index was almost same. But, the advancement in Index was very low on Mondays, if there is a decline in index on Fridays. French (1980) examined the return-generating process for a long time series of data from 1953 to 1977 and for five sub-periods of five years each for the same time frame. He used the 'Standard & Poor's' composite portfolio for this study. He tested the returns-generating process by applying two models, viz., trading and calendar time respectively. His results for the trading model show that average returns were not equal for each trading day over the week, and for the calendar model, average returns on Mondays were found negative as against the expectation of three times of mean returns of other days. This study fails to accept the trading and calendar time model hypothesis. Further, he tested the closed market effect and concluded negative Monday returns are caused by the weekend effect, not due to the closed market effect. Gibbons and Hess (1981) investigated the days-of-the-week effect in the US stock market by using value and equal-weighted portfolio created by the Centre for Research in Security Price and 'Standard & Poor's 500 Index'. Their findings show returns were not the same over days of the week for each Index considered for this study. The annual Mondays returns were negative for the entire study period and even for the sub-study period also, however, the returns were highest on Fridays over other days of the week, which are consistent with other empirical studies on days of the week effects (Keim and Stambaugh, 1981; Cross, 1973; Aly *et. al.*, 2004 etc). To enhance the credibility of the result and avoid the non-trading problem, they further selected the 30 most actively traded stocks of the 'Dow Jones 30' index and used appropriate tools to test hypotheses, however, their findings show similar results for each stock during the entire and sub-period, as that was earlier for selected index. Keim and Stambaugh (1984) investigated the weekend effect using the S&P Composite index for a long-time horizon of 55 years in the US stock market and their findings confirm the persistence of the weekend effect in all size firm's portfolios. However, small-size firms have a tendency of more high returns on Fridays. They found no relation between negative Mondays with firm size, but as the week progressed Monday onward average return for all size firms start increasing, however, this tendency was more in small-size firms. Fridays recorded the highest return for all-size firms. Further, they concluded that the highest Fridays returns are the outcome of the firm's size, which contradicts the earlier theory of biasness in releasing negative information. Arumugam (1988-89) investigated the weekend effect using BSE SENSEX during April 1979 to March 1997 by applying multiple regression model to test the hypothesis. His findings indicate positive Fridays and negative Mondays return during the bear phase of the market. Barone (1990) found a huge fall in stocks price in the US on Mondays. He also found huge fall in stock prices in Italy, Japan, as well as Australia, has taken place on the first two days of the week. His findings indicate that the average Monday return is lower in comparison to other trading days. Chaudhary (1991) studied the weekend effect during 1988 to 1990 by using BSE SENSEX Index and

found the presence of the weekend effect in the Indian stock market, he applied Kruskal Wallis -test for the said study. Agrawal and Tondon (1994) found negative Mondays return in nine countries out of eighteen countries during 1971 to 1987, however, they also found negative return on Tuesdays instead of Mondays in eight countries. Further, his findings indicate positive and higher returns on Fridays in seventeen countries out of the total countries studied. His findings also indicated Monday's return was abnormally low if the stock market declines in previous trading days, however, negative return on Mondays was not found in any country other than the UK, when there is a rise in the market in the previous week. The generalised theoretical explanation for the aforesaid phenomena is yet to come. Poshakvale (1996) examined the presence of days of the week effect and weak form efficiency in his paper titled "Evidence on Weak Form Efficiency and Days of the Week Effect in the Indian Stock Market". The study was carried out during the year 1987-1994 by using the BSE national index. He converted the Indian BSE national index into Dollar value. Further, he used Morgan Stanley World Dollar Index, for comparing the results against the world portfolio. He employed several statistical tools for testing the hypothesis, such as he used "Kolmogorov Smirnov Goodness of fit test" to check the distribution of the data series, to test the randomness of stock price he employed "Runs" test which are free from the assumptions of normality as well as constant variance of the data. Further to test EMH in its weak form efficiency he applied "Serial Correlation Coefficient test" His findings show the presence of first-order autocorrelation in the Indian stock market which indicates that the stock prices are not random. Further, his findings supported the presence of the days of the week effect in the Indian stock market, as his findings show that the returns are higher on Fridays which is statistically significant. Anshuman and Goswami (2000) examined days of the week anomaly in the Bombay stock exchange during 1991-1996. Results of their study show the highest statistically significant return on Friday, which are similar to the findings of (Poshakwale, 1996; Selvakumar, 2011), who carried out studies in the context of the Indian stock market. They attributed the highest Fridays return are associated with the firm's size. However, they did not find negative return on Mondays. Statistically significant negative returns were found on Tuesday instead of Monday, which are similar to the results of (Amanulla and Thiripalraju, 2001; Patjoshi and Nandini, 2020; Raj and Kumari, 2006; Paital and Panda, 2018). Further, the findings of Anshuman and Goswami (2000) are inconsistent with the findings (Khanna, 2014) who find the statistically significant highest positive return on Tuesday. Amanulla and Thiripalraju (2001) studied the weekend effect during 1990 to 1999 by using the BSE Sensitive Index, S&P CNX Nifty and BSE National Index, however, they concluded negative return on Tuesdays and positive return on Wednesdays. Further, they studied 70 frequently traded stocks on BSE during the period 1990-1999, and found negative returns on Tuesdays and positive returns on Fridays. They further highlighted that the reason for variation in return can be due to accumulation and delayed processing of the information as the stock market remains closed on Saturdays and Sundays. Some researchers also argued that if some negative news is published after the closer of the stock market on Friday, which causes variation in return or even negative return on Monday (Patel and Wolfson, 1982; Penman, 1987; Dyl and Maberlay, 1988). Raj and Kumari (2006) found positive Mondays and negative Tuesdays -returns during the 1980s and 90s which is contradictory to the earlier studies in the Indian stock market. Aly *et al.*, (2009) investigated

the days of the week effect in an emerging “Egyptian stock market” during 26th April 1998 to 6th June 2001 and they did not find any negative Monday returns. Returns on Monday were found positive and significant. Further, their findings show Monday's returns were not significantly different from returns of the other days of the week. However, due to the short period of the study result may not be too much reliable. Rahman (2009) investigated the three key major index of the Dhaka Stock Market, viz., DSI, DSI-20 & DGEN respectively and he found the presence of days-of-the-week effect, however, his findings show the highest return on Thursday, and returns on Sundays and Mondays were found negative. Dhaka stock exchange remains open for trading from Sunday to Thursday, while the stock exchange remains closed on Friday and Saturday. The findings support Friday and Monday effect as the last trading day is Thursday and the first trading day is Sunday. His findings indicate that the Dhaka stock exchange violates the weak form of market efficiency. He highlighted that the presence of such effect may be due to coming of positive and negative news at the end and beginning of the week respectively. Selvakumar (2011) investigated the week-day effect during 1992 to 2005 by using BSE SENSEX & NSE NIFTY index and found higher returns on Fridays and negative returns on Mondays and Tuesdays. The finding support Monday and Friday effects. Sharma (2011) investigated days-of-the-week anomaly by considering two major indexes of the Indian stock market, viz., Sensex & Nifty Indices. The outcome of the study indicates absence of days-of-the-week anomaly in the Indian stock market, and the Indian stock market was found informationally efficient during the study period. However, the duration of the study was only two years (2008-2009) which may not reflect the true picture of the Indian stock market. The findings of this study are inconsistent with the findings of Arumugam, 1988-89; Selvakumar, 2011; Chaudhary, 1991. Hussain *et al.*, (2011) examined the days-of-the-week effect by using the KSE 100 index of an emerging ‘Pakistan Stock Exchange’ during 1st January 2006 to 31st December 2010. Tuesday returns were found highest and returns on other days were almost equal. Their findings show the presence of the Tuesday effect. Srinivasan and Kalaivani (2013) examine the ‘days-of-the-week anomaly’ in the Indian stock market by employing different variants of GARCH models, viz., GARCH (1.1), EGARCH (1.1) and TGARCH (1.1). They used two major Indian stock market indices viz, BSE-Sensex and NSE-Nifty for this study. For both index returns on Monday were found highest and statistically significant. Returns on Thursdays for both the indexes were lowest. Monday returns were not found negative. Monday's returns were positive and highest which contradicts the earlier findings, that Monday's returns are lowest and negative in the Indian stock market. As far as volatility is concerned, it was highest on Wednesdays for both indices used in this study. In this way, the findings of this paper contradict the general paradigm regarding the ‘days-of-the-week anomaly’ in the Indian stock market and stock markets around the world that Fridays have the highest returns and Mondays have the lowest or even negative returns. Khanna (2014) also found a higher positive average return on Tuesdays that revealed Indian stock market poses some seasonality in return. Sharma (2014) illustrated various stock market anomalies that contradicted the efficient market hypothesis and concluded due to this some anomalies exist for some time in the stock market and then it vanishes. This situation exists several times for a small period. Archana, Safeer and Kevin (2014) studied the BSE SENSEX index from 2008-2012 and found the return on all trading days was positive, however, return on Mondays was lower in

comparison to other trading days. Rossi (2015) presented a systematic review of the existing literature on calendar anomalies (January effect, the days of the week effect, turn of the month effect, etc.), where some results were against the efficient market hypothesis, somehow possible to predict stock prices and able to earn abnormal profits (called anomalies). Some studies on different country's financial markets found no calendar effect to EMH. Mitra (2016) studied the BSE Sensex index and NSE Nifty 50 index during January 2000 to December 2015. However, the findings do not show any days-of-the-week effect on stock return. Paital and Panda (2018) examined the Nifty 50, Nifty 50 midcap and Nifty Small Cap indices during 1st April 2005 to 29th June 2018, to test the presence of 'day-of-the-week and week-end-effect' on the returns as well as the volatility of select indices. They applied GARCH (1,1) and dummy variable regression models to achieve their objectives. The findings of this study reflect that index returns were positive and highest on Monday and negative on Tuesday, which both were statistically significant. This finding contradicts the traditional belief and empirical evidence as to day-of-the-week and weekend effects, which highlighted generally Monday returns as low or negative and Friday returns as highest. Further, the study shows higher volatility on Monday and lower on Tuesday. Gbede and Peprah (2018) investigated the days of the week effect in returns and its volatility in two stock market viz., Ghana and Nairobi stock market. This study was carried out during 2005-2014 by employing OLS regression and different variants of GARCH models, viz., GARCH (1,1), EGARCH (1,1), & TGARCH (1,1). Their findings reflect the presence of day-of-the-week effect in the Nairobi stock market, where returns on Fridays were highest and statistically significant. However, the overall risk (standard deviation) for the Nairobi stock market was also highest on Friday. They did not find a negative Monday return for Nairobi Stock Market, However, instead of negative returns on Monday, they found returns on Wednesday were highly negative. Further, their findings revealed no presence of days-of-the-week effect in the stock market of Ghana. This study states that Ghana Stock Market is weak-form efficient, where investing through adopting days-of-the-week strategies will not result in abnormal returns. Singh and Das (2020) studied the calendar effect in the Indian stock market. They examined BSE IT and BSE Bank indices during 2010-2019. Different variants of GARCH models and OLS regression models were employed in this study. Their findings show positive return on Monday which confirms no presence of Monday or weekend effect in the Indian stock market. Further presence of turn-of-the-month effect and January effect was found for IT sector indices and only turn-of-the-month effect was persistent in BSE Bankex (an index following banking companies). The findings of this study are in line with the finding of Raj and Kumari (2006), who also found no evidence for the presence of the Mondays or days-of-the-week effect and January effect in the Indian stock market. Patjoshi and Nandini (2020) investigated BSE SENSEX, BSE 100, BSE 200 and BSE 500 indices, to check the presence of days-of-the-week effect in the Indian stock market. The period of study was from 3rd June 2000 to 31st June 2018. Parametric tests, viz., 't-test' and GARCH (1,1) model were employed to test the hypothesis. The findings of this study confirm the seasonality pattern in the Indian stock market. When the 't-test' was applied results show that the return for all the select indices was highest on Wednesdays while returns were low on Tuesdays. The findings of the study become inconsistent when GARCH (1,1) model was used since the findings show the highest return on Friday and the lowest return on Monday after the

application of the GARCH (1,1) model. Sahoo (2021) examined the 'days-of-the-week effect' in the Indian stock market during 1st April 2015 to May 14, 2020. He examined the days of the week effect by employing several indices of NSE such as CNX Nifty, Nifty 100, Nifty 200, Nifty fifty mid-cap, Nifty 100 mid-cap and Nifty 100 small-cap respectively. The study period was divided into two parts; pre-covid and during the covid-19 period. The dummy regression variable and GARCH model were employed in this study. Results of this study show that returns on Mondays were positive before the covid-19 period, however, during the covid-19 period it was negative. Tuesday effect was present in all select indices during covid-19 crisis. Khan *et.al.*, (2021) examined days-of-the-week anomalies in the developing Asian stock market including India. This study was carried out during July 2013 to March 2019. They used OLS and GARCH models to process the data. Their findings show the presence of days-of-the-week anomaly in several Asian stock markets viz, China, Taiwan, Thailand, South Korea, Indonesia, and Pakistan, however, such anomaly was not significantly present in the Indian and Malaysian stock markets. The findings of this study regarding India approve the findings of earlier research such as Raj and Kumari (2006) and Singh and Das (2020), whose findings also show no negative returns on Mondays and the highest returns on Fridays. Kang and Cho (2022) examined day of the week effect on stock market volatility from January 2003 to March 2021, considering four MSCI index viz., All Country World Index (ACWI), World Index (DM), Emerging Market Index(EM), and the Standard & Poor's 500 Index(S&P 500). They used the EWMA approach to calculate market volatility and the ANOVA, Tukey's pairwise comparison test, and the GARCH model, to examine the differences in mean volatility throughout trading days of the week. The findings of the study show highly significant low volatility on Tuesday during the Covid-19 period. By using different variants of the GARCH model, Aggarwal and Jha (2023) investigated the days of the week effect in the Indian stock market, from 3rd July 1990 to 31st March 2022. Their findings approved the presence of day-of-the-week effects on stock returns and volatility of the Indian stock market, which are contrary to the Efficient Market Hypothesis.

Many researchers tried to find out the reasons for weekend effect anomalies, their findings indicate several reasons, viz., window dressing, measurement errors, settlement effect, and strategy of individual investors (Anshuman and Goswami, 2000; Draper and Paudyal 2002). Pessimistic behaviour and high selling pressure on Mondays as well as higher buying pattern on Fridays lead to variation in return over the trading days in a week (Mitra, 2016).

3. Research methodology

This study used a systematic literature review approach to review the selected relevant research articles available in the public domain on calendar anomalies; especially on the days of the week and weekend effects. The present study used google scholar, a search engine and Emerald, Scopus, and Taylor & Francis Online databases to research the relevant literature that is currently available in the field of the days of the week effect and weekend effect. To search the research articles for the review keywords such as Efficient Market Hypothesis, Seasonality in returns, days of the week effect, days of the week

anomaly, weekend effect, weekend anomaly, Monday effect, weekend effect on stock returns and possible reasons for weekend effects etc. were searched in the above-mentioned searched engine and database. The present study included selected 59 relevant articles which were in the English language and published between 1973 and 2023.

4. Discussion, conclusion, and insight for future study

The present study observed majority of the earlier studies regarding the days-of-the-week and weekend effect give consistency in results, where most of the earlier studies documented higher returns on Fridays and lowest or even negative returns on Mondays. However, recent studies show either reversal of such a pattern or the vanishing of the days-of-the-week and weekend effect from the stock market. Empirical evidence from some recent studies shows the highest positive return on Mondays and the lowest on Fridays or even negative on Tuesdays which indicates the reversal of anomalous behaviour. Further, some recent studies show the absence of the days-of-the-week effect, which indicate due to the advancement of information system around the world, the market may become informationally efficient. The available literature on the days-of-the-week and weekend effect shows a mix empirical evidence and a uniform and definitive explanation are yet to come.

Available literature shows that before the year 2000s, most of the studies were carried out in developed countries, however, in recent years studies are growing in emerging Asian and African stock markets as well. Further, in the context of Indian stock market literature show several recent empirical studies which fail to give a common narrative explanation of the presence of days-of-the-week and weekend effects in the Indian stock market. Except for a few, most of the studies in the Indian stock market are limited to short time series data, where research can be conducted by considering long time series data which may give new insight. The review of the existing body of knowledge shows that the majority of the studies in the Indian stock market are based on two major indices viz, SENSEX and NIFTY therefore, future studies can be carried out by considering different sectoral indices of the Indian stock market, to test whether sectoral indices are free from such anomalous pattern or not. This paper also finds very few studies based on Penal data considering the Indian stock market so future studies can be carried out by considering Penal data also. This paper observes that there does not exist a sound presence of days of the week and weekend effects in the Indian capital market, hence traders and short-term investors should focus on another strategy for abnormal gain.

Finally, this paper concluded that the direction and magnitude of the days-of-the-week and weekend effects are not the same for various stock markets over different periods, it may be due to different institutional arrangements, and religious and cultural beliefs.

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