

Month of the Year Effect in Stocks: Literary Evidence from Developed and Emerging Markets

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Abstract

Month of the year effect occurs when average returns on traded assets significantly differ in different months of the year. This effect is sometimes commonly called as January effect as most of the empirical evidence cites that average trading returns during January are significantly positive as compared to average returns during rest of the year. The purpose of this paper is to review the research efforts on month of the year effect in stocks. The study highlights the available literature on month of the year effect in stock returns in stock markets of India and stock markets of various developed and emerging countries. The empirical studies documents different results for different countries at different time periods. While December effect is found to be prominent in Indian stock markets, January effect in US, April effect in Australia, June effect in Bangladesh, February effect in China has been widely reported. The study concludes that the investors must design their own trading strategies taking into consideration the month of the year effect in particular stock market.

Keywords: Month of the Year Effect, January Effect, April Effect, Efficient Market Hypothesis, Calendar Anomalies, Seasonality in Stocks.

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1. Introduction

Market efficiency implies the ability of financial markets in processing information with respect to speed and quality. Thus if the markets are totally efficient, the asset returns cannot be predicted on the basis of historical prices and other market information. But if such inefficiency exists, this will result in violating the concept of Efficient Market Hypothesis (EMH). EMH assumes that at any given point of time asset prices fully reflect all the available information (Malkiel, 2003) and thus it is difficult to predict the asset prices on the basis of current knowledge and information. The subsequent price changes are independent of each other and are due to chance. Thus, EMH has also been stated in terms of Random Walk Theory (Fama, 1965).

Number of studies has been conducted to test the predictive ability of stock returns in various developed and emerging countries. The results of these studies have revealed that there are situations when assets perform opposite to the notion of market efficiency and thereby open up the opportunities for the market participants to earn abnormal returns by formulating effective trading strategies. These variations in asset returns follow certain patterns that may be cross-sectional or time-dimensional and are referred to as anomalies. The significant periodic irregularities in asset returns over a period of time are known as calendar anomalies. Literary evidence has well documented persistence of calendar anomalies in financial markets and researchers are always interested in finding its causes and consequences.

Calendar anomalies include day of the week effect, month of the year effect, week of the month effect, January effect, weekend effect, turn of the year effect, tax year effect and holiday effect. The empirical studies have documented that average returns on traded assets are different in different months of the year widely referred to as month of the year effect (Rozeff & Kinney, 1976; Haug & Hirschey, 2006; Gu, 2015). Most of the studies have reported that on average, stock returns in January are significantly higher in comparison to other months of the year (Keim, 1983; Agrawal & Tandon, 1994; Pandey, 2002). Thus, this effect is commonly called as January effect (Keim, 1983; Barone, 1990) and year end effect (Clark & Ziemba, 1987). This effect was first reported for the US stock market by Wachtel (1942), subsequently by Haug & Hirschey (2006), and by various researchers for developed nations like Europe and in UK (Barone, 1990, Lucey, 1994). January effect is much prevalent in small capitalized firms (Roll, 1983;

Pearce, 1996; Greenstone & Oyer, 2000) highlighting the presence of size effect within monthly effect. This effect has been mainly attributed to tax-loss selling hypothesis especially relevant to developed economies.

There are other month of the year effects also like February effect (Gao & Kling, 2005), March effect (Pandey, 2002), April effect (Wickremasinghe, 2007), May effect in Damascus Securities Exchange (Mouselli & Al-Samman, 2016), June effect in Jamaica (Ramcharran, 1997), June effect in Bangladesh (Ahsan & Sarkar, 2013); July effect in Kuwait (Al-Saad & Moosa, 2005), September effect, November effect (Patel, 2008), and December effect (Patel, 2008). Different explanations have been given for these different effects.

The purpose of this paper is to summarize the available literature on January effect and other month of the year effects to understand its evolution over time, around the world. The literature review in this paper is divided into two. The first category is related to studies based on Indian stock market and the second category is related to studies based on stock markets of other developed and emerging countries.

2. Literature Review

Numerous studies have documented that stock returns significantly differ in different months of the year, commonly known as month of the year effect. The existence of this monthly seasonality casts doubt on the efficiency of equity market. This section provides review of the previous studies relating to month of the year effect, and in particular January effect, in Indian stock market and stock markets of other developed and emerging nations. The section also summarizes their findings based on different sub-periods.

2.1 Month of the year effect in Indian stock market: Indian stock market is one of the emerging stock markets in the world and is generally considered to be the Asia's oldest stock market. Bombay Stock Exchange (BSE) and National Stock Exchange (NSE) are the two major stock exchanges in India and almost entire volume of the stock trading in Indian stock market takes place through these two stock exchanges. Hundreds of empirical studies have been conducted to test efficiency of these stock exchanges. Various researchers have documented the presence of seasonality in Indian stock market. The empirical studies have reported the presence of different calendar effects like day of the week effect, weekend effect, month of the year effect, January effect,

April effect, turn of the year effect, holiday effect etc. in the Indian stock market. This section highlights the review of the studies related to month of the year effect in Indian stock market and has been divided on the basis of two sub-periods. The sub-period 1 considers the studies conducted up to the year 2010 and sub-period 2 considers the studies conducted after 2010.

2.1.1 Literary Evidence for Month of the Year Effect up to 2010:

Table 1 highlights the findings of the studies undertaken till 2010.

Table 1: Month of the Year Effect in Indian Stock Market up to 2010

Sl. No.	Researcher(s) & Year	Index Used	Period of Study	Findings
1	Pandey (2002)	SENSEX	1991-2002	Significant positive abnormal returns in the month of January.
2	Kaur (2004)	SENSEX, S&P 500, Nifty and NASDAQ Composite Index	1993-2003	Significant positive abnormal returns in the month of February.
3	Patel (2008)	BSE 500 and NSE S&P CNX 500 (NSE 500) Index	1999-2007	Significant positive abnormal returns in the months of November-December.
4	Parikh (2009)	S&P CNX Nifty Index	1999-2008	Significant abnormal returns in the month of December.
5	Sah (2009)	S&P CNX Nifty Index	1997-2009	Significantly abnormal returns in the months of December, January, June, July and September.

Source: Compiled by the Authors from Literature.

From Table 1 it is evident that different monthly effects have been confirmed by various researchers. Some studies on month of the year effect have reported positive December and January effect (Pandey, 2002; Patel, 2008; Parikh, 2009 & Sah, 2009) thereby confirming the existence of monthly seasonality in Indian

stock market. The studies pinpointing significant positive month of the year effect, particularly in the months of December and January, may be attributed to tax-loss selling hypothesis in the Indian stock market.

2.1.2 Literary Evidence for Month of the Year Effect after 2010:

Table 2 highlights the findings of studies conducted on month of the year effect after the year 2010.

Table 2: Month of the Year Effect in Indian Stock Market after 2010

Sl. No.	Researcher(s) & Year	Index Used	Period of Study	Findings
1	Dash et. al. (2011)	SENSEX	1999-2007	Positive August, November and December effects and negative March effect
2	Debasish (2012)	Selected companies	2006-2010	February, August and September effects
3	Ray (2012)	SENSEX	1991-2010	Presence of January effect in Indian stock market
4	Pathak (2013)	S&P CNX Nifty Index	2002-2012	Absence of month of the year effect
5	Sahoo (2014)	S&P BSE-100 Index	2003-2013	Absence of month of the year effect
6	Sharma &Deo (2014)	CNX 500 Index, S&P CNX Nifty Index, CNX Nifty Junior Index, CNX Mid Cap Index And CNX Small Cap Index	1994-2012	Positive April effect in CNX Small Cap and CNX Midcap Indices and a strong positive December effect in all other indices.
7	Sharma et al. (2014)	S&P CNX Nifty, S&P CNX Nifty Junior and Daily closing values of top 9 companies of each Index	2004-2013	Returns for the month at the end of each quarter were significantly different from returns for other months of the year
8	Kumar and Jawa (2017)	S&P CNX NIFTY Index	1995-2015	A significant December effect

Source:Compiled by the Authors from Literature.

From Table 2 it is evident that different monthly effects have been found in this sub-period also. January and December effects have been confirmed in this sub-period along with other monthly effects like March, April, August, September, and November effects in the Indian stock market. The average returns have been found to be significantly different for the month at the end of each quarter like March, June, September and December. Among eight studies conducted during this period with regard to month of the year effect, six confirmed the presence of month of the year effect, while two confirmed the absence of month of the year effect in Indian stock market, indicating the disappearance of this anomaly with the passage of time.

2.2 Month of the Year Effect in other Stock Markets: The evidence from other developed and emerging markets suggested different patterns in month of the year effect. Month of the year effect in US stock markets was first documented by Wachtel (1942) in United States and was further investigated by many researchers for various developed and emerging stock markets. Most of the studies for US stock market reported higher average returns in January and commonly called it as January effect (Wachtel, 1942; Keim, 1983). Some of the studies documented the relationship between abnormal returns and size effect and thus reported the presence of January effect in small capitalized firms (Rozeff & Kinney, 1976; Keim 1983). This effect has been found not only in stock returns but also in returns of non-investment-grade bonds (Maxwell, 1998). But there are evidences which reported that January effect does not exist in US and some other international stock markets of Asia-Pacific, Europe & Latin-America during periods of high as well as moderate volatility and even when market conditions are bullish or bearish (Patel, 2016). Apart from January effect, other month of the year effects like April, November and December effects have also been found in US and other developed equity markets. Seasonality in monthly returns has also been investigated in other developed countries like Australia (Brown et al. 1983; Liu & Li, 2011), UK (Gultekin & Gultekin, 1983), Germany (Choudhry, 2001), Japan (Chia & Liew, 2012) and in various other emerging countries like China (Gao & Kling, 2005), Singapore/Malaysia (Boudreaux, 1995; Wenhui et al. 2009), Maritius (Agathee, 2008), Colombia (Wickremsinghe, 2007) etc.

This section highlights the review of the studies related to month of the year effect in developed and emerging stock markets of the world other than India and has further been divided on the basis of 5 sub-periods. The sub-period 1 includes studies conducted up to the year 1990; sub-period 2 includes studies conducted between the years 1991 and 2000; sub-period 3 includes studies conducted between the years 2001 and 2010; sub-period 4 includes studies conducted between the years 2011 and 2014; and sub-period 5 includes studies conducted after 2014.

2.2.1 Literary Evidence for Month of the Year Effect in other stock markets up to 1990: Table 3 highlights findings of the studies related to month of the year effect in various developed and developing markets other than India up to the year 1990

Table 3: Month of the Year Effect in Other Markets up to 1990

Sl. No.	Researcher (s) & Year	Markets Studied	Index Used	Period of Study	Findings
1	Wachtel (1942)	U.S. stock markets	DJIA	1927-1942	Positive January effect
2	Rozeff&Kinney (1976)	NYSE	Equally weighted Index of NYSE	1904-1974	Positive January effect
3	Brown et. al. (1983)	Australian stock Market	Australian stocks	1958-1981	December-January and July-August effects
4	Gultekin&Gultekin (1983)	Stock markets of 17 major industrialized countries.	Selected indices	1947-1979	Positive January effect in all countries and positive April effect in the UK
5	Keim (1983)	NYSE and AMEX stocks	CRSP daily files	1963-1979	Highest mean returns during January
6	Reinganum (1983)	NYSE and AMEX	CRSP daily files	1962-1980	Positive January effect especially with respect to small stocks
7	Van Den Bergh &Wessels (1985)	Dutch stock market	61 selected stocks	1966-1982	Positive January effect
8	Barone (1990)	Italian stock market	MIB Index	1975-1989	Positive January effect

Source:Compiled by the Authors from Literature.

From Table 3 it is evident that month of the year effect has also been found in markets of various developed countries like US, UK, Australia, Italy and some other developing markets before 1990. In the studies discussed above, January effect is found to be prominent. Some of the studies documented that the average returns were more in January especially during first few trading days in case of

small firms. Apart from January effect other monthly effects like July, August and December effects were also found in Australian stock markets.

2.2.2 Literary Evidence for Month of the Year Effect in other stock markets between 1991 and 2000: Some studies have also been conducted in the last decade of the 20th century i.e. between 1991 and 2000. The scope of these studies has further been extended to various emerging countries like Denmark, Germany, Norway, Singapore/Malaysia, Switzerland etc. Table 4 highlights the findings of the studies related to month of the year effect in various developed and developing markets other than India based on sub-period 2 i.e. between 1991 and 2000.

Table 4: Month of the Year Effect in Other Markets between 1991& 2000

Sl. No.	Researcher (s) & Years	Markets Studied	Index Used	Period of Study	Findings
1	Kohers & Kohli (1991)	NYSE	Selected Indices	1930-1988	Positive January effect in the large firms.
2	Clark et. al. (1992)	NYSE	Data of 540 stocks listed on NYSE	1982-1987	Positive January effect
3	Agrawal & Tandon (1994)	Stock markets of eighteen Countries	Selected Value-Weighted Indices	1971-1987	Positive January effect and month of the year effect
4	Boudreaux (1995)	Denmark, France, Germany, Norway, Singapore /Malaysi, Spain and Switzerland	Morgan Stanley Capital International Perspective (CIP) reported Index values	1978-1992	Month of the year effect in Denmark, Germany and Norway; inverted January effect in Pacific basin market of Singapore/ Malaysia
5	Maxwell (1998)	US Corporate Bond Market	Selected Bond Indices	1987-1997	Positive January effect
6	Coutts & Sheikh (2000)	Johannesburg Stock Exchange	All Gold Index	1987-1997	No January effect and Month of the year effect

Source: Compiled by the Authors from Literature.

From Table 4 it is evident that January effect was also found to be prominent in other developed and developing countries in between 1991 and 2000 indicating the presence of month of the year anomaly in these countries. Apart from stocks, this effect has also been studied in bonds and this effect has been found in non-investment-grade bonds with significantly higher returns in the month of January. However this effect was found to be non-existent in All Gold Index of Johannesburg Stock Exchange

2.2.3 Literary Evidence for Month of the Year Effect in other stock markets between 2001 and 2010: Calendar anomalies have also been widely studied in the first decade of the 21st century. Various studies have reported the presence of month of the year effect during this period for various developed and emerging economies. Table 5 highlights the findings of the studies related to month of the year effect in stock markets of various developed and developing markets other than India based on sub-period 3 i.e. between 2001 and 2010.

Table 5: Month of the Year Effect in Other Markets between 2001&2010

Sl. No.	Researcher (s) & Years	Markets Studied	Index Used	Period of Study	Findings
1	Choudhry (2001)	Germany, UK & US	Selected Indices	1870-1913	Month of the year effect in all the countries, January effect in UK & US only
2	Al-Saad and Moosa (2005)	Kuwait Stock Exchange (KSE)	General Index of KSE	1984-2000	July effect
3	Gao and Kling (2005)	Shanghai stock exchange and Shenzhen stock exchange of China	Shanghai and Shenzhen stock exchange Indices	1990-2002	February effect in both the stock exchanges
4	Davidsson (2006)	US stock market	S&P 500 Index	1970-2005	Positive December and negative September effects

5	Haug and Hirschey (2006)	US stock market	Selected Indices	1802-2004	Positive January effect especially for small stocks
6	Wickremsinghe (2007)	Colombo stock exchange	Daily and monthly share prices of 75 companies	1987-1999	Positive April effect and negative May effect
7	Agathe (2008)	Mauritius stock market	SEMDEX	1989-2006	Returns were highest in the month of June and lowest in the month of March
8	Giovanis (2009)	55 stock markets	55 stock market Indices from 51 different countries	final period for all is December 31, 2008	Month of the year effect in all stock markets with positive December effect.
9	Wenhui et al. (2009)	Malaysian stock market	FTSE Bursa Malaysia (FBMHS) Index	1999-2007	Positive January effect

Source: Compiled by the Authors from Literature.

From Table 5 it is clear that in sub-period 3, the studies related to month of the year effect have been extended to sectoral indices rather than few leading stock indices of the markets of various developed and developing countries. Apart from positive January effect, other monthly effects were found with significantly positive returns in the months of February, May, June, July and September. Moreover, the average returns were also found to be significantly negative in the months of March and May. Various explanations have been given for different monthly effects. The presence of February effect in China has been attributed to year-end effect in China and July effect in Kuwait stock market has been attributed to summer holiday effect.

2.2.4 Literary Evidence for Month of the Year Effect in other Stock Markets between 2011 and 2014: The studies on month of the year effect conducted between 2011 and 2014 have mainly focused on both developed and emerging economies. The following table 6 highlights the findings of the studies related to month of the year effect in various developed and developing markets other than India based on sub-period 4 i.e. between 2011 and 2014.

Table 6: Month of the Year Effect in Other Markets between 2011 & 2014

Sl. No.	Researcher(s) & Years	Markets Studied	Index Used	Period of Study	Findings
1	Liu and Li (2011)	Australian stock market	Monthly closing prices of the top 50 companies	1980-2010	Positive April and December effects
2	Marrett and Worthington (2011)	Australian stock market	12 different Stock Indices of Australian Stock Exchange (ASX)	Each index series started from September 9, 1996.	Significantly higher returns during April, July and December, Returns were significantly higher for small cap firms in January, August, and December
3	Rahman and Amin (2011)	Dhaka Stock Exchange (DSE) of Bangladesh	DSE All Share Price Index (DSI), DSE 20 Index and DSE General Index (DGEN)	2001-2010	Significant positive returns during May and June
4	Chia and Liew (2012)	Tokyo Stock Exchange (TSE)	Nikkei 225 Index	2000-2009	Significant positive returns for the month of November
5	Ahsan and Sarkar (2013)	Dhaka Stock Exchange (DSE) of Bangladesh	DSE All Share Price Index (DSI)	1987-2012	Positive June effect
6	Alagidede (2013)	African stock Markets	Selected Indices	1990-2009	Positive January and February effects
7	Panait (2013)	Bucharest Stock Exchange	Selected Indices	2007-2013	Absence of January effect and other month-of-the-year effects
8	Thushara and Perera (2013)	Colombo Stock Exchange	All Share Price Index (ASPI)	2002-2011	Month of the year effect

Source:Compiled by the Authors from Literature.

Table 6 depicts month of the year effect in developed and developing economies around the globe between the years 2011 and 2014. Most of the studies have found positive January effect, some also found market cap interacting with month of the year effect (wherein small cap has been mainly found to be more prominent). Other month of the year effects with positive and significant abnormal returns have been found for the months of February, April, July, November and December.

2.2.5 Literary Evidence for Month of the Year Effect in other Stock Markets after 2014: Recent studies on month of the year effect have been conducted for various developing economies and some regions of developed countries. Table 7 highlights the findings of the studies related to month of the year effect in stock markets of various developed and developing markets other than India based on sub-period 5 i.e. after 2014

Table 7: Month of the Year Effect in Other Markets after 2014

Sl. No.	Researcher(s) & Years	Markets Studied	Index Used	Period of Study	Findings
1	Abedin et al. (2015)	Dhaka Stock Exchange (DSE), Bangladesh	Selected Indices	2000-2012	Presence of month of the year effect in Dhaka Stock Exchange
2	Friday and Hoang (2015)	Vietnam Stock Market	VN-Index	2000-2010	Positive April effect and negative July effect
3	Gu (2015)	US stock market	Selected Indices	2001-2013	Positive April effect and negative June effect
4	Mouselli and Al-Samman (2016)	Damascus Securities Exchange	DSE Value-Weighted Index	2010-2015	Positive May effect
5	Patel (2016)	U.S. and other international stock markets	Selected Indices	1995-2014	Absence of January effect in stock returns.
6	Xiao (2016)	American stock market	Russell 3000 Index	2000-2015	Negative January and Positive December effects

7	Perez (2018)	Five regions namely Americas, Eastern Europe, Western Europe, Middle East & Africa and Asia & Oceania.	106 Indices covering 86 countries and jurisdictions	15 years of values as of end of June 2017	Inverted January Effect with lower returns in January in several markets
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Source: Compiled by the Authors from Literature.

From Table 7 it is evident that different monthly effects have been found in various developing economies and some regions of developed countries like America, Eastern Europe, Western Europe, Middle East & Africa and Asia & Oceania during the recent years. The average trading returns were found to be positive in the months of April, May and December. Some of the studies found January effect to be negative or non-existent. Moreover, negative and significant abnormal returns were found in the months of June and July.

The finding of the review revealed mixed results for all months except January, where significant positive returns have been found in large number of studies. Therefore different patterns have been found regarding month of the year effect for different countries around the world and various explanations have been given by the researchers ranging from 'tax-loss selling hypothesis' in case of January effect to dividend month premium in month of May.

3. Conclusion

Market efficiency plays a very important role in understanding the working of the financial markets and the irregularities in stock prices over different time periods indicates inefficiency in these markets. Month of the year effect occurs when the average returns of the traded assets significantly differ among the different months of the year. This effect has been observed in various developed and emerging countries but the results vary for different countries at different time periods. Most of the researchers around the globe have found positive January effect when the average returns are found to be significantly higher in the month of January than average returns during rest of the year. The January effect has been generally attributed to tax-loss selling hypothesis (Dyl, 1977) which states that the investors tend to sell their stocks at the year end to reduce the burden of taxation due to incurring of capital losses and start reinvesting these sale proceeds during January. The increased selling pressure in December results in lowering the stock prices and the increased buying pressure in January leads to an upward trend in stock price movements thereby providing opportunities to the investors to gain abnormal

returns during January. But there are evidences that suggest different patterns in month of the year effects. For instance, February effect in Shanghai Shenzhen stock exchanges of China, April effect (Wickremasinghe, 2007), May effect in Damascus Securities Exchange (Mouselli & Al-Samman, 2016), June effect in Bangladesh (Ahsan & Sarkar, 2013); July effect in Kuwait (Al-Saad & Moosa, 2005), September effect, November effect (Patel, 2008), and December effect (Patel, 2008). The other reasons for month of the year anomaly have been attributed to bid-ask spread (Keim, 1983), turn of the year liquidity hypothesis (Ogden, 1990), window dressing hypothesis (Ritter & Chopra, 1989), accounting information hypothesis (Rozeff & Kinney, 1976; Arsad & Coutts, 1997), risk shifting hypothesis (Ng & Wang, 2004) or investors' psychological factors (Anderson et al., 2007). Thus, it can be concluded that, calendar anomalies like month of the year effect and January effect provide an opportunity to the investor to earn abnormal profits especially during month of January.

The implications of the study are that the stock returns do not properly follow a random walk and thus may not be efficient as depicted by literature reviewed. Thus, investors must formulate their own trading strategies based on the trading behavior of the markets especially calendar anomalies.

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