



ORIGINAL CONTRIBUTION

Calendar anomalies: Review of literature**Hira Irshad ^{1*}, Hasniza Mohd Taib ²**^{1, 2} School of Economics Finance and Banking, Universiti Utara, Changlun, Malaysia**Keywords**

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Abstract. The objective of the current study is to review the prior studies regarding calendar anomalies. For this purpose, the current study has adopted the review methodology and identified the most important studies in this area. Furthermore, the findings of these studies have been reviewed and summarized. By reviewing the previous studies, the current study has noted the growing inclination of recent studies to examine these anomalies. Also, the prevalence of these anomalies is documented in recent studies. The current study is among the first of those studies which have provided a comprehensive review of the previous studies conducted on the calendar anomalies. These summarized reviews of previous research findings may help future research studies hold a basic understanding of the existence of calendar anomalies in the world equity markets.

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INTRODUCTION
Background of the Study

The concept of market efficiency indicates that share prices are adjusted in response to the relevant available information. The concept of market efficiency is divided into three hypotheses such as weak, semi strong and strong form of efficient market hypotheses. The weak form of the efficient market hypothesis specifies that share prices are accustomed to the historical share prices data. The second sub hypothesis is semi-strong form of the efficient market hypothesis which specifies that share prices are accustomed to the existing public information which may include the company's specific information and the macro indicators which may relate to stock prices. The strong form of the efficient market hypothesis specifies that share prices are accustomed to all the existing information such as historical prices information, public information and inside information.

Many studies have examined the existence of weak form of EMH in the past (Chakraborty, 2006; Guidi *et al.*, 2011; Irshad and Sarwar, 2012; Mobarek and Fiorante, 2014; Nawaz *et al.*, 2013; Omar *et al.*, 2013; Ryaly *et al.*, 2017). However, the findings of these studies were mixed. The semi strong form of EMH has been tested and mixed findings were reported (Ali *et al.*, 2001; Hussin *et al.*, 2010; Hsu and Utami, 2016; Khan and Ikram, 2010). Likewise, previous research has tested the strong form of efficient market hypothesis (Finnerty, 1976; Rozeff and Zaman, 1988). However, later studies have indicated many anomalous evidences regarding the efficient market hypothesis. Market anomaly refers

* Corresponding author: Hira Irshad

† Email: hiraharoon48@gmail.com

when investors can generate abnormal returns having market knowledge superior to others (Al-Hajieh *et al.*, 2011; Białkowski *et al.*, 2013; Cao and Wei, 2005; Kinata, 2016; Stulz and Williamson, 2003).

One of the most discussed areas regarding anomalies is the calendar anomalies (Al-Ississ, 2015; Easterday and Sen, 2016; Jebran and Chen, 2017). Research studies have documented many anomalous evidences regarding the stock market efficiency such as January effect (Seyhun, 1993), day of the week effect (Wingender and Groff, 1989), Monday effect (Cho *et al.*, 2007; Jaffe and Westerfield, 1985b), and wandering weekend effect (Doyle and Chen, 2009). Recently, studies have found the irrational behaviour of security prices during the Islamic calendar months such as Ramadan effect (Białkowski *et al.*, 2012). There are very few studies which have provided a comprehensive review of previous studies regarding the Calendar anomalies. Therefore, the current study has provided a review of relevant previous studies. Thus, the purpose of current study is to identify and review the most significant studies relating to the calendar anomalies.

RESEARCH METHODOLOGY

Regarding the methodology of the current study, the current study has reviewed the most significant studies relating to the calendar anomalies. Also, the current study has reviewed the previous studies relating to the Islamic calendar months and summarized the findings of those studies. Based on the review, the current study highlights the directions for future research regarding the calendar anomalies relating to the efficient market hypothesis.

REVIEW OF LITERATURE

The research studies have documented numerous evidences of abnormal share prices behaviour during certain calendar dates which are known as calendar anomalies (Majeed *et al.*, 2015). The existence of this anomalous evidence casts doubt on the efficiency of equity markets. The purpose of the current study is to review the findings of previous studies conducted on the calendar anomalies. More specifically, the current study has mainly focused on three types of calendar anomalies, January effect, Monday effect and Islamic calendar months' anomalies. The review of previous studies has been presented in the following sections.

January Effect

The January effect indicates the abnormal behaviour of stock prices in January which is termed as January anomaly. The share prices tend to remain higher during the month of January in comparison to the other eleven months (Beladi *et al.*, 2016). Previous studies have highlighted different possible explanations to this anomalous stock market behaviour. For instance, Lakonishok and Smidt (1988) state that shares are sold in the month of December by the fund managers because of the tax reasons. It reduces the stock prices in the month of December and indicates negative equity returns. These stocks are repurchased in the month of January therefore the stock prices are increased in the month of January. The liquidity of investors is higher in the month of January which increases the trading volume and increases the stock prices in the month of January (Ligon, 1997).

Aggarwal and Rivoli (1989) examined calendar anomalies for the Hong Kong, Singapore, Philippines and Malaysia stock markets. They found that Philippines market is efficient and no one can gain the abnormal return in January since the January anomaly does not persist in Philippines stock market whereas in case of Hong Kong, Singapore, and Malaysia there is reverse state of affairs. The findings state that January anomaly exist and stock markets are not efficient in terms of January effect. Likewise, Gu (2003) analysed the USA market behaviour regarding the January anomaly. Their findings were in line with the

January anomaly in that it confirms the presence of January effect. Similarly, many others have provided the evidence on the existence of January effect (Beladi *et al.*, 2016; Moller and Zilca, 2008; Norvaisiene *et al.*, 2015). On contrary, findings of other studies support the efficient market hypothesis and do not find the existence of January effect (Diaconasu *et al.*, 2012; Jebran and Chen, 2017; Seif *et al.*, 2017). Following Table provides some important studies conducted on the existence of January effect.

TABLE 1 . January effect

Author	Country	Data	Findings
Beladi <i>et al.</i> (2016)	USA	1926-2012	Findings were consistent with the January effect regarding stock splits
Easterday and Sen (2016)	USA	1991-2011	Findings were consistent with the January effect
Gu (2003)	USA	1929-2000	Findings confirms the existence of January effect however the effect has declining trend
Moller and Zilca (2008)	USA	1926-2005	Findings were consistent with the January effect
Seif <i>et al.</i> (2017)	Emerging markets	1973-2014	Findings are not consistent with the January anomaly
Diaconasu <i>et al.</i> (2012)	Romania	2000-2011	Findings are not consistent with the January anomaly
Norvaisiene <i>et al.</i> (2015)	Baltic stock markets	2003-2014	Findings show the existence of January effect for Estonia
Jebran and Chen (2017)	Pakistan	2008-2015	Findings show the non-existence of January effect
Aggarwal and Rivoli (1989)	Hong Kong, Singapore, Malaysia, and the Philippines	1976-1988	Findings were consistent with the January effect in all selected stock markets except Philippines.

Monday Effect

The Monday effect is one of most documented anomalies in the previous studies. The Monday effect states that stock returns are significantly negative on Monday. Since, the stock prices are lower on Monday it provides a predictable pattern to the investors which violates the assumption of market efficiency. The Monday effect was reported by Gibbons and Hess (1981) providing evidence of low returns on Monday. Furthermore, it was observed that returns are higher on Friday. Monday as a day of strategy formulation for the rest of week is one possible explanation to this anomaly as postulated by previous research (Lakonishok and Maberly, 1990; Ritter, 1988). However, other studies have given different explanations to this effect such as announcement of negative news on Friday by the firms results in negative returns on coming Monday (Damodaran, 1989).

Findings of previous studies are mixed regarding the Monday effect. The findings of many studies were consistent with the Monday effect and others have provided the support to the market efficiency instead of the Monday effect. There are number of studies which have supported the Monday effect in the stock markets (Alt *et al.*, 2011; Cho *et al.*, 2007; Jaffe *et al.*, 1989). However, other studies support the efficient market hypothesis and are not in line with the Monday effect (Bhana, 1985; Diaconasu *et al.*, 2012; Mehdian and Perry, 2001; Wang *et al.*, 1997). Also, Ajayi *et al.* (2004) examined the Monday effect in Eastern European countries and reported that Monday effect is consistent in six countries whereas inconsistent in the rest of five countries. Following table provides some important studies conducted on the existence of Monday effects.

TABLE 2 . Monday/weekend/day of the week effect

Author	Country	Data	Findings
Diaconasu <i>et al.</i> (2012)	Romania	2000-2011	Findings are not consistent with the Monday effect
Wang <i>et al.</i> (1997)	USA	1962-1993	Findings are not consistent with the Monday effect
Cho <i>et al.</i> (2007)	USA, UK, Japan	1970-2004	Findings are consistent with Monday effect
Bhana (1985)	South Africa	1978-1993	Findings are not consistent with the Monday effect
Aggarwal and Rivoli (1989)	Hong Kong, Singapore, Malaysia, and the Philippines	1976-1988	All markets exhibit weekend effect
Alt <i>et al.</i> (2011)	US, UK and Germany	1970-2008	Findings support the Monday effect
Draper and Paudyal (2002)	UK	1988-1997	Results reveal a significant day-of-the-week effect
Jaffe and Westerfield (1985a)	USA and Japan	1970-1983	Finds that stock returns are low on Monday in USA and low on Tuesday in Japan
Jaffe <i>et al.</i> (1989)	USA, Canada, Australia, England and Japan	1930-1981	Findings are consistent with the Monday effect
Mehdian and Perry (2001)	USA	1964-1998	Findings are not consistent with the Monday effect
Ajayi <i>et al.</i> (2004)	Eastern European countries	From inception of index-2002	Findings are consistent with the Monday effect in six countries whereas inconsistent in the rest of five countries

Islamic Calendar Anomalies

The Islamic calendar anomalies indicate the abnormal behaviour of equity markets during the Islamic calendar months. Previous studies have reported the positive investor behaviour during the month of Ramadan indicating the positive abnormal returns whereas negative behaviour during the month of Muharram indicating the negative returns during the month of Muharram (Al-Ississ, 2010; Halari *et al.*, 2015). There are different seasonal patterns of stock returns documented based on the Islamic calendar. One of the most widely examined pattern is the Ramadan effect. The month of the Ramadan is considered the holy month in the Islamic calendar. Studies have documented the positive stock returns during the month of Ramadan (Al-Ississ, 2010; Al-Khazali *et al.*, 2017) whereas negative returns are documented during the month of Muharram (Al-Ississ, 2010).

Furthermore, Halari *et al.* (2015) documented the existence of Islamic calendar anomalies in stock market of Pakistan. Likewise, Seyyed *et al.* (2005) found the existence of Ramadan effect in Saudi Arabia. Also, Białkowski *et al.* (2013) found that mutual fund managers earn positive returns during the month of Ramadan. On contrary, findings of some studies do not support the Islamic calendar anomalies and are in line with the market efficiency concept. For instance, Shah *et al.* (2017) examined the behaviours of stock markets during the Islamic months. The effects of Ramadhan and Zil-Haj on the global equity indices were explored and no significant effects were testified. Likewise, Syed and Khan (2017) examined the Islamic calendar months and stated that their study does not support the Islamic calendar months anomaly. Following table provides some important studies conducted on the existence of Islamic calendar effect.

TABLE 3 . Monday/weekend/day of the week effect

Author	Country	Data	Findings
Halari <i>et al.</i> (2015)	Pakistan	1996-2011	Consistent with the Islamic calendar months effects
Shah <i>et al.</i> (2017)	Global Islamic indices	2011-2015	Not consistent with the Islamic calendar months effect
Seyyed <i>et al.</i> (2005)	Saudi Arabia	1985-2000	Confirms the Ramadan effect
Husain (1998)	Pakistan	1989-1993	Confirms the Ramadan effect and volatility decreases in the returns during the month of Ramadan
Białkowski <i>et al.</i> (2012)	14 muslim countries	1989-2007	Confirms the Ramadan effect
Al-Ississ (2010)	17 Financial markets	1988-2009	Consistent with the Islamic calendar months effects
Almudhaf (2012)	12 countries with majority of Muslims		Consistent with the Islamic calendar months effects
Białkowski <i>et al.</i> (2013)	Turkey	2000-2011	Performance of mutual funds is higher during the month of Ramadan
Gavriilidis <i>et al.</i> (2015)	Seven muslim countries	1990-2014	Herding behaviour observed during the month of Ramadan
Al-Khazali <i>et al.</i> (2017)	15 Islamic countries	2005-2015	Stock return volatility decreases during the month of Ramadan in line with the Ramadan effect
Wasiuzzaman and Al-Musehel (2017)	Saudi Arabia and Iran	2008-2014	Significant impact of Ramadan on Stock returns in Saudi Arabia and insignificant impact on the stock returns in Iran
Al-Hajieh <i>et al.</i> (2011)	Islamic middle eastern countries	1992-2007	Ramadan effect is significant in most of the Middle Eastern Countries
Iqbal <i>et al.</i> (2013)	Pakistan	1992-2011	Significant Islamic month effect

CONCLUSION

The purpose of the current study is to highlight the anomalous evidence regarding the efficient market hypothesis by reviewing the previous research studies. It has been observed that findings of most of the previous studies are in line with the calendar effects and cast doubt on the concept of market efficiency. The current research has significant implications for stockholders and portfolio managers in the stock markets. It provides the review of all the most important previous studies on this subject. Previous studies indicate that investors are influenced by the emotions and sentiments therefore their investment decisions are directed by their moods resulting in irrational investing. Besides, the evidence on existence of other calendar anomalies such as month of the year effect (Norvaisiene *et al.*, 2015; Seif *et al.*, 2017), holiday (Seif *et al.*, 2017), holy day effect (Al-Ississ, 2015; Ali *et al.*, 2017; Frieder and Subrahmanyam, 2004; Oğuzsoy and Güven, 2004) is also documented in previous research.

LIMITATIONS DN RECOMMENDATIONS

However, the current study has reviewed three most central types of calendar effects and future review studies may include other calendar anomalies along with January, Monday and Islamic Calendar anomalies.

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— This article does not have any appendix. —