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The Ramadan effect: Illusion or reality?

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ABSTRACT

Empirical tests of the efficient market hypothesis (EMH) have been repeated by many researchers with varying results, with several supporting it and others finding no clear evidence for it. One of the results that weakens the EMH is the study of such anomalies as the Ramadan effect. Anomaly studies are also denied by recent studies that demonstrated proof of the weakening and even disappearance of anomalous effects. This research tests the persistence of the Ramadan effect in the stock returns in 10 Muslim-majority countries. We have found that the Ramadan effect is present, but it is not persistent. This finding is consistent with the finding from the test of efficient market form, which indicated that the markets of all 10 Muslim-majority countries are not efficient. When economic crisis is considered as an influencing factor, the Ramadan effect is still not persistently present.

1. Introduction

There are two types of calendar anomalies: religious-related anomalies, such as Christmas and Good Friday effects (Cadsby & Ratner, 1992), Jewish High Holy Days effects (i.e., Rosh HaShanah and Yom Kippur) (Frieder & Subrahmanyam, 2004), or the Easter week holiday effect (Pantzalis & Ucar, 2014), and Ramadan effect (Bialkowski, Etebari, & Wisniewski, 2012); and non-religious-related, such as the January effect, Wednesday effect, and weekend effect (Schwert, 2003). For the Ramadan effect in particular, in addition to the significant impact of the moving calendar on abnormal returns (Alper & Arouba, 2001), a combination of factors not found in other religious-calendar anomalies also impact abnormal returns during Ramadan. These factors include investor health due to Ramadan fasting (Rosen & Wu, 2004; Saleh, Elsharouni, Cherian, & Mourou, 2005), social empathy (positive social mood) with the poor due to the hunger experienced while fasting (Bialkowski et al., 2012), feeling happy and peaceful (Lakonishok & Smidt, 1988), investors' positive moods (Cadsby & Ratner, 1992), and the encouragement to do good deeds and prevent evil deeds

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(Bialkowski et al., 2012). The positive mood that is the hallmark of the Ramadan effect is different from the Easter week holiday effect, which is marked by investor distraction, causing delayed responses to firm news (Pantzalis & Ucar, 2014), or the Jewish High Holidays effects, when Jewish investors' sentiments cause significant decreases in dollar volume on both named holidays (stock returns on Rosh HaShanah are significantly positive versus significantly negative on Yom Kippur).

Bialkowski et al. (2012) suspect that the emotion and mood factors of investors play a significant role in their judgment and decision making, especially that related to the buying and selling of stock, the preference for risk and return, and the response to uncertainty. These psychological factors and the reality that the investors require significant funds during Ramadan, especially toward the end of Ramadan and Idul Fitri, to meet their religious needs (zakat, infaq and shadaqah) and celebrate the Eid (buying clothes, banquet foods, etc.), prompt investors to behave rationally by buying stocks at the beginning of Ramadan and selling them at the end of Ramadan, or shortly after the Eid-ul-Fitr (Bialkowski et al., 2012; Al-Khazali, 2014). In addition to individuals' behavior, during Ramadan, Islam teaches that believers must empathize and share with the poor through giving and worship in order that the positive social mood will increase the social and spiritual orientation (Bialkowski et al., 2012). This positive personal mood will encourage investors to be happier and more optimistic (Beit-Hallahmi & Argyle, 1997; Gavriilidis, Kallinterakis, & Tsalavoutas, 2015). In addition to the investor psychology, Bialkowski et al. (2012) also states that the health factor of investors when they fast during Ramadan, affects their physical and mental health (Saleh et al., 2005), and then affects their positive valuation of stock prices in the market (Rosen & Wu, 2004). Specifically, Gavriilidis et al. (2015) cites certain impacts of religious factors on the economic and financial environment that affect the propensity to save, the decision to invest in stocks (Renneboog & Spaenjers, 2012), the risk-attitude of the investor (Kumar, Page, & Spalt, 2011), and economic growth (Barro & McCleary, 2003).

As with other studies of EMH anomalies, there is evidence for and against the existence of the Ramadan effect. Bialkowski et al. (2012) uses the event study on the cumulative abnormal returns and finds that stock returns during Ramadan are higher than in the other 11 months in 11 Muslim countries (from a total sample of 14 Muslim countries). Their study argued that the Ramadan effect is purely caused by investor psychology, executing an investment strategy of buying stocks before Ramadan arrives and then selling them at the end of Ramadan, or shortly after Eid-ul-Fitr (see also Al-Khazali, 2014). Al-Mudhaf (2012) finds empirical evidence of the Ramadan effect in only four Muslim countries from a sample of 12, while Al-Hajieh, Redhead, and Rodgers (2011) uses run tests and finds the Ramadan effect in 6 out of 8 markets. In the Karachi stock market, Mustafa (2011) finds the Ramadan effect, while in other empirical studies using the GARCH model, the Ramadan effect is found not to significantly affect mean returns in some countries, including Pakistan (Husain, 1998), Saudi Arabia (Seyyed, Abraham, & Al-Hajji, 2005) and Indonesia (Rainly, 2006), although they document a decrease in return volatility during Ramadan. Al-Khazali (2014) uses the non-parametric stochastic dominant method and finds evidence of the Ramadan effect in the 15 Muslim countries, although the results were not sufficient to conclude that the returns during Ramadan outperform the return beyond Ramadan.

Unfortunately, there has not yet been a satisfactory explanation of the phenomenon of the Ramadan effect (Al-Khazali, 2014), especially related to the violation of the trading hypothesis during Ramadan. As a result, the discussions tend to focus on the accuracy of the method used. Al-Khazali (2014) criticized the use of the mean-variance method, as performed by Husain (1998), Seyyed et al. (2005), Rainly (2006), and Bialkowski et al. (2012). According to Al-Khazali (2014), the use of parametric statistic (mean and variance) and GARCH often relies on the normality assumption, which is difficult to fulfill in emerging markets, including Muslim countries. Second, the use of mean and variance ignores the effect of positive and negative skewness that represents the risk preference of the investor. Third, the mean-variance method requires the use of the quadratic-utility function. Al-Khazali (2014) also admits, however, that any group of methods, such as the mean-variance method and stochastic dominant, can be complementary.

Regardless of the debates over the most appropriate method for examining the Ramadan effect, in this research, we use index data from 10 Muslim-majority countries to first test whether their markets are efficient. Logically, when the market is efficient, no investors can persistently exploit abnormal returns (Fama, 1965) because the price fully reflects the information equilibrium in the market. When the market is efficient, however, and some investors are still able to exploit market information to gain abnormal returns, there is assumed to be an anomaly in the market (Stulz & Williamson, 2003). Further, when the market is not efficient and the investor can exploit the information, it is argued that behavioral finance (Thaler, 1993), which is typically driven by psychological factors, such as herding, emotions, mood, and the investors' religious beliefs (Bialkowski et al., 2012), is to blame. Fama (1970) and Jensen (1978) state that if market is not efficient (even in a weak form), the presence of abnormal returns is to be expected as the price does not immediately reflect the available information in the market.

We then examine the existence of the Ramadan effect in 10 Muslim-majority countries and test the persistence of the Ramadan effect by dividing the observation period into 5 sub-periods. Identifying the existence of Ramadan effect, we conduct a comparative analysis by computing the annualized returns between Ramadan and the 11 other months in the Muslim lunar calendar in order to obtain the abnormal returns during Ramadan. Then, we divide the observation period into several sub-periods to examine whether the Ramadan effect persistently exists in each sub-period, conduct *t*-tests on the significant cumulative abnormal return, and observe the pattern of the Ramadan effect. In this stage, using the regression analysis, we also examine the coincidence of the Ramadan effect with other calendar effects, such as the January effect, the weekend (Friday) effect, and the Christmas effect. According to Bialkowski et al. (2012), during Ramadan, the positive societal mood will affect the positive effect on the stock price, while there is simultaneously no coincidence between the Ramadan effect and the Gregorian calendar effects. In this stage, we also examine the impact of local and global crises on the Ramadan effect. Al-Khazali (2014) finds that the magnitude of the Ramadan