BEYDER / 2025, 20:2 (87-95) DOI: 10.54860/beyder.1762057

RAMADAN EFFECT ON FOOD-RELATED STOCKS: AN EVENT STUDY ON SELECTED ISLAMIC STOCK MARKETS

Murat IŞIKER*
Issam JALLAD†
Akeel LARY‡

Abstract

This study analyzes whether food-related stocks outperform the benchmark index around the holy month of Ramadan in selected Islamic stock exchange markets. Ramadan is an important month for Muslim, often associated with increased consumption of food and food-related products due to charity and social gatherings. An event study methodology is employed to calculate return anomalies around Ramadan for food-related stocks in Egypt, Indonesia, Pakistan, Saudi Arabia, and Türkiye. The dataset covers twenty-one years, from 2004 to 2024, and includes 2,346 events from 191 publicly listed food-related firms. The findings suggest mixed results across countries, with abnormal negative returns observed in most markets during the Ramadan period.

Keywords: Ramadan Effect, Seasonality Effect, Islamic Finance, Event Study Analysis

GIDA İLE İLGİLİ HİSSE SENETLERİNDE RAMAZAN ETKİSİ: SEÇİLMİŞ İSLAMİ SERMAYE PİYASALARINDA BİR OLAY ÇALIŞMASI ANALİZİ

Özet

Bu çalışma, Müslümanların çoğunlukta yaşadığı seçilmiş ülkelerde gıda sektöründe faaliyet gösteren hisse senetlerinin Ramazan ayı öncesinde ve sırasında ana hisse senedi endeksine kıyasla anormal getiriler sağlayıp sağlamadığını araştırmayı amaçlamaktadır. Ramazan ayı öncesinde ve sırasında, sosyal yardım faaliyetleri ve aile ziyaretleri gibi nedenlerle gıda ile ilgili ürünlere olan talepte artış gözlemlenmektedir. Çalışmada olay çalışması yöntemi kullanılmıştır. Analizde, 2004–2024 dönemini kapsayan yirmi bir yıllık veri seti kullanılmış ve 191 gıda sektörü hissesi üzerinden 2,346 olay incelenmiştir. Bulgular, ülkelere göre farklılık göstermekte olup, Ramazan ayı boyunca analiz edilen ülkelerin çoğunda negatif yönlü anormal getiriler gözlemlenmiştir.

Anahtar Kelimeler: Ramazan Etkisi, Mevsimsellik Etkisi, İslami Finans, Olay Çalışması Yöntem

* Assist. Prof. Dr., American International University, Kuwait, m.isiker@aiu.edu.kw
† Assist. Prof. Dr., American International University, Kuwait, i.jallad@aiu.edu.kw
‡ Assist. Prof. Dr., American International University, Kuwait, a.lary@aiu.edu.kw

Gönderim/Kabul Tarihi:10 Ağustos 2025/21 Ağustos 2025, Submitted/Accepted Dates: August 10, 2025/ August 21, 2025

Introduction and Literature Review

Major religious events such as Ramadan, Eid holidays significantly influence consumer behavior in countries with predominantly Muslim populations, including individuals who are not religiously committed (Pantzalis & Ucar, 2014). Ramadan being one of the most celebrated Islamic events that is observed by 1.9 billion people affects investors' mood and stock market returns (Cheema & Fianto, 2024). For instance (Al-Khazali, 2014) reported significant Ramadan effect on the returns in 15 Islamic countries.

Tan and Özlem (2018) claimed that positive effects occurred in stock market returns derived by investor sentiment, therefore exploring how calendar anomalies, specifically how Ramadan may affect stock returns and volatility in different countries, highlighting the increased consumption of food related products prior and during Ramadan and its influence on financial markets, challenge the Efficient Market Hypothesis (EMH) where anomalies in the market prove that the market is not always efficient (Pribadi & Abilawa, 2022).

Literature documented Gregorian Calendar anomalies such as the January effect, day-of-the-week effect, and turn-of-the-month effect (Isiker et al., 2021) and (Jassal & Dhiman, 2016) nevertheless the nature of Ramadan effect being examined differs from those Gregorian anomalies in several ways. For example, it is linked to Islamic lunar calendar, which shifts annually compared to the Gregorian. This misalignment may result in amplified or cancellation of anomalies when coinciding with other Gregorian events, where it was found significant shift in the day-of-the-week effect in Kuwait stock market from Friday being the last trading day into Wednesday in Ramadan (Jassal & Dhiman, 2016), simultaneously shifts in the investors' sentiments, change in lifestyle, mood, and some Islamic countries reduced trading and working hours drive changes in economic activities prior and during the holy month of Ramadan (Tan & Özlem, 2018).

Findings of event studies explored Ramadan effect, regarding stock returns, volatility, and trading activity, vary drastically across specific countries, the Gulf Cooperation Council (GCC) region, and the broader MENA region.

Jassal and Dhiman (2016) reported a decline in volatility in the Saudi Arabian stock market during Ramadan. On the other hand, according to (Hassan & Kayser, 2019), market returns remained unaffected. However, studies employing models such as ARMA-GARCH, and ARCH-GARCH examining the Saudi Arabian market 2004-2019 alongside UAE and other from 2008-2014 alongside Iran (Abro et al., 2021) revealed contradicting findings of positive influence on both returns and volatility during Ramadan.

Despite variation in findings for individual countries when examining the markets regionally, including countries such as Jordan, Qatar, Kuwait, Tunisia, Oman, Saudi Arabia, Bahrain, Palestine and Morocco an analysis of abnormal returns, on average, reported a positive effect during Ramadan.

Ramadan involves significant changes in consumer behavior, in particular household spending on food related consumptions. Prior studies confirm that households spend more on food during the holy month of Ramadan. For instance, Barakat et al. (2020) stated that Moroccan household

on food spending increase by 50%, in general Hassan and Kayser (2019) claim food consumption in Muslim countries increase during Ramadan. Finally, Işıker (2024) cited Aktaş and Yılmaz's (2012) survey, which found that food expenditure in Türkiye increased by around 10% during Ramadan. The elevated food consumption patterns during Ramadan, manifesting in the increased spending on groceries, dining, and traditional delicacies, could drive stock market anomalies in food-related sectors, potentially boosting share prices of listed companies across the entire food value chain.

Positive investor sentiment fostered by interpersonal social interaction and herd mentality increases investor tolerance towards risk (Sonjaya & Wahyudi, 2016) consequently positively impacting Muslim financial markets returns during Ramadan (Tan & Özlem, 2018). This direct and positive link to investors' sentiment is less evident when discussing other Calendar anomalies, and may be attributed to tax-loss selling hypothesis (Nasir et al., 2016), irrationality (Anwar, 2012) related to investors *negative* sentiment or higher willingness to sell on Mondays (Shahid & Mehmood, 2015) decreased daylight hours leading to increased risk aversion by investors due to depression called Seasonal Affective Disorder (SAD), (Van Der Gugten, 2010).

The main objective of this study is to determine the existence of anomalies prior to the holy month of Ramadan in food companies market stock prices, due to the changes in sentiment and social mood during the month of Ramadan. Taking into consideration previous studies' results finding whether Ramadan being a religious event occurring in different times throughout the Georgian calendar, officially observed and celebrated in some Islamic countries will have greater effect than those other countries which may have a majority or minority Muslim population but not officially observed or regulated by the countries law. The existence of such anomalies in the market proves that the market is not always efficient. according to the Efficient Market Hypothesis (EMH) (Pribadi & Abilawa, 2022) allowing investors to take favorable advantage when trading using food companies' stocks.

Examining the alignment of the Ramadan effect, being seasonal event occurring concomitantly with other calendar events related to Gregorian calendar such as weekend effect an anomaly refers to differences in returns on specific days of the week, often negative on Mondays and positive on Fridays (Jassal & Dhiman, 2016), first of the month effect, turn of the month effect where higher stock market returns around the turn of the month (last few days of one month and first few days of the next) anomaly (Van Der Gugten, 2010), Halloween Effect reporting lower returns during May-October compared to November-April (Van Der Gugten, 2010). Failure to account for these calendar effects may have resulted in misleading results in many event studies conducted prior to or during Ramadan.

Hypothesis, Data and Methodology

The paper tests three main hypotheses and four sub-hypotheses. The main hypotheses, which cover the periods of one month before Ramadan, during Ramadan, and both combined, are presented as follows:

$H_1 : CAAR_{(-22,-1)} = 0$*, cumulative average abnormal returns (CAAR) one month prior to Ramadan is zero.*

$H_2 : CAAR_{(0,22)} = 0$, *cumulative average abnormal returns during Ramadan is zero.*

$H_3 : CAAR_{(-22,22)} = 0$, *combined cumulative average abnormal returns for Ramadan is zero.*

Two of the sub-hypotheses address the period before Ramadan, and the other two focus on the period after Ramadan. More precisely, the pre-Ramadan period is divided into two event windows: (-22, -11) and (-10, -1). Similarly, the during-Ramadan period is divided into two event windows: (0, 10) and (11, 22). The choice of a 22-day window is due to the presence of weekends, which reduces the number of trading days in a typical month.

This study examines a twenty-one-year data period from 2004 to 2024. The sample data, obtained from Bloomberg Terminal, consists of 191 companies classified as food-related stocks according to the Global Industry Classification Standard (GICS). The sample includes not only food product dealers and producers, but also beverage companies and consumer staples distribution and retail firms. Several filters were applied to exclude companies with insufficient data such as recent IPOs, alcoholic beverage firms. Finally, stock returns for 2,346 events were obtained for the final sample. Also, return data with extreme values (i.e. ±10%) are trimmed to avoid biases and to ensure a sound analysis. The event size and the number of stocks per country are listed in the table below:

Table 1: Event Size and Number of Stocks per Country

Country Name	Event Size	Number of Stocks
Egypt	144	10
Indonesia	742	77
Pakistan	508	30
Saudi Arabia	343	24
Türkiye	609	50
TOTAL	**2,346**	**191**

Abnormal return is defined as the difference between the actual return of a stock and the return of the benchmark.

$$AR_{i,t} = R_{i,t} - R_{m,t} \quad (1)$$

Here $R_{i,t}$ ve $R_{m,t}$ represents the stock i's return and the benchmark index return at time t, respectively. To test the hypotheses a non-parametic generalized sign test is conducted due to nature of stock return data with non-normality.

Findings

Event study results for the main event window (i.e., covering both pre-Ramadan and Ramadan periods) are presented in Table 2. All countries show negative and significant abnormal returns except Egypt. Three countries exhibit more than 1% negative significant abnormal returns according to the sign test at the 5% significance level. The worst underperformance was recorded for Türkiye, with a return of -1.64% significant at the 1% level. The proportion of stocks showing negative abnormal returns is approximately 57%, compared to 43% of stocks with positive abnormal returns. As a result, Hypothesis 3 is rejected for four countries except

Egypt. These findings are consistent with (Cheema & Fianto, 2024; Al-Khazali, 2014), showing that major religious events influence investor sentiment. To provide more detail, the main event window is further divided into two sub-periods: pre-Ramadan and during Ramadan. For more specific analysis, these periods are further divided into two sub-periods each.

Table 2: Event Study Results for the Combined Ramadan Effect in Selected Islamic Countries

Event windows	Groups	CAAR	Pos / Neg	Sign t.
(-22,22)	Egypt	-0.54%	63/80	-1.42
	Indonesia	-1.19%	342/399	-2.09**
	Pakistan	-1.48%	228/279	-2.26**
	Saudi Arabia	-0.29%	146/197	-2.75***
	Türkiye	-1.64%	237/372	-5.47***

CAAR refers to cumulative average abnormal returns for the given event windows. Pos/Neg represents the number of positive and negative CARs for each country. Sign t. denotes the statistical scores for the generalized sign test. The significance levels are indicated as *** 0.01, ** 0.05, * 0.10, respectively.

Table 3 shows the results for the period prior to Ramadan. When the main event window for this period is examined, mixed results are observed. Turkish firms exhibit a clear positive reaction, with abnormal returns around 3.27% that are highly significant. This aligns with (Tan & Özlem, 2018; Sonjaya & Wahyudi, 2016) that positive investor sentiment and herd behaviour prior to Ramadan can drive higher stock returns, particularly in food-related sectors. This is followed by Egyptian and Saudi Arabian firms, which show positive returns of more than 1%, but these results are not statistically significant. Lastly, Indonesia and Pakistan indicate slight negative abnormal returns.

Table 3: Event Study Results for Pre-Ramadan Windows in Selected Islamic Countries

Event windows	Groups	CAAR	Pos / Neg	Sign t.
(-22,-1)	Egypt	1.82%	78/65	1.09
	Indonesia	-0.18%	359/382	-0.84
	Pakistan	-0.36	221/286	-2.88***
	Saudi Arabia	1.14%	169/174	-0.27
	Türkiye	3.27%	337/272	2.63***
(-22,-11)	Egypt	1.52%	78/64	1.17
	Indonesia	-0.01%	372/369	0.11
	Pakistan	0.10%	247/260	-0.58
	Saudi Arabia	1.40%	178/165	0.70
	Türkiye	1.48%	317/292	1.01
(-10,-1)	Egypt	0.31%	78/65	1.09
	Indonesia	-0.17%	328/413	-3.12***
	Pakistan	-0.46%	222/285	-2.80***
	Saudi Arabia	-0.26%	152/191	-2.11**
	Türkiye	1.80%	332/277	2.23**

CAAR refers to cumulative average abnormal returns for the given event windows. Pos/Neg represents the number of positive and negative CARs for each country. Sign t. denotes the statistical scores for the generalized sign test. The significance levels are indicated as *** 0.01, ** 0.05, * 0.10, respectively.

Hypothesis 1 is broken down into two sub-hypotheses to identify the source of the market reaction. The first covers the period from day -22 to day -11, while the second covers the ten

days preceding the start of Ramadan. The market reaction for the first sub-hypothesis is generally positive. Egypt, Saudi Arabia, and Türkiye each exhibit around a 1.5% positive reaction. However, none of the countries show statistically significant results. On the other hand, the ten-day period before the first day of Ramadan shows mixed but significant results. Türkiye exhibits a strong positive and significant return, while Indonesia, Pakistan, and Saudi Arabia show slight but significant negative returns. The proportion of companies with negative returns during the (-10, -1) event window is approximately 53%. Overall, pre-Ramadan findings reflect varied market responses across regions.

Last but not the least, Table 4 indicates stock market behaviour during Ramadan for selected countries, as described under Hypothesis 2. The results for this event window are characterized by two key features: the consistency of negative returns and the statistical significance of these findings. Moreover, the findings show quite strong negative abnormal returns with high significance for all countries, with magnitudes varying from approximately −1% to −5%. The proportion of stocks exhibiting positive relative returns during Ramadan is only 39%, compared to 61% showing negative performance. Food-related stocks listed on Borsa Istanbul show a −4.91% relative return compared to the benchmark index during Ramadan, followed by stocks in Egypt and Saudi Arabia with −2.36% and −1.44%, respectively.

To understand the market reaction in more detail, we split this period into two parts: the first and last eleven trading days. In Pakistan and Türkiye, significant negative reactions are observed in both periods, while for Saudi Arabia the negative reaction originates mainly from the first period, and for Egypt and Indonesia from the second period. Nonetheless, negative reactions are observed in both periods for all countries except Indonesia, which shows a market-neutral return position.

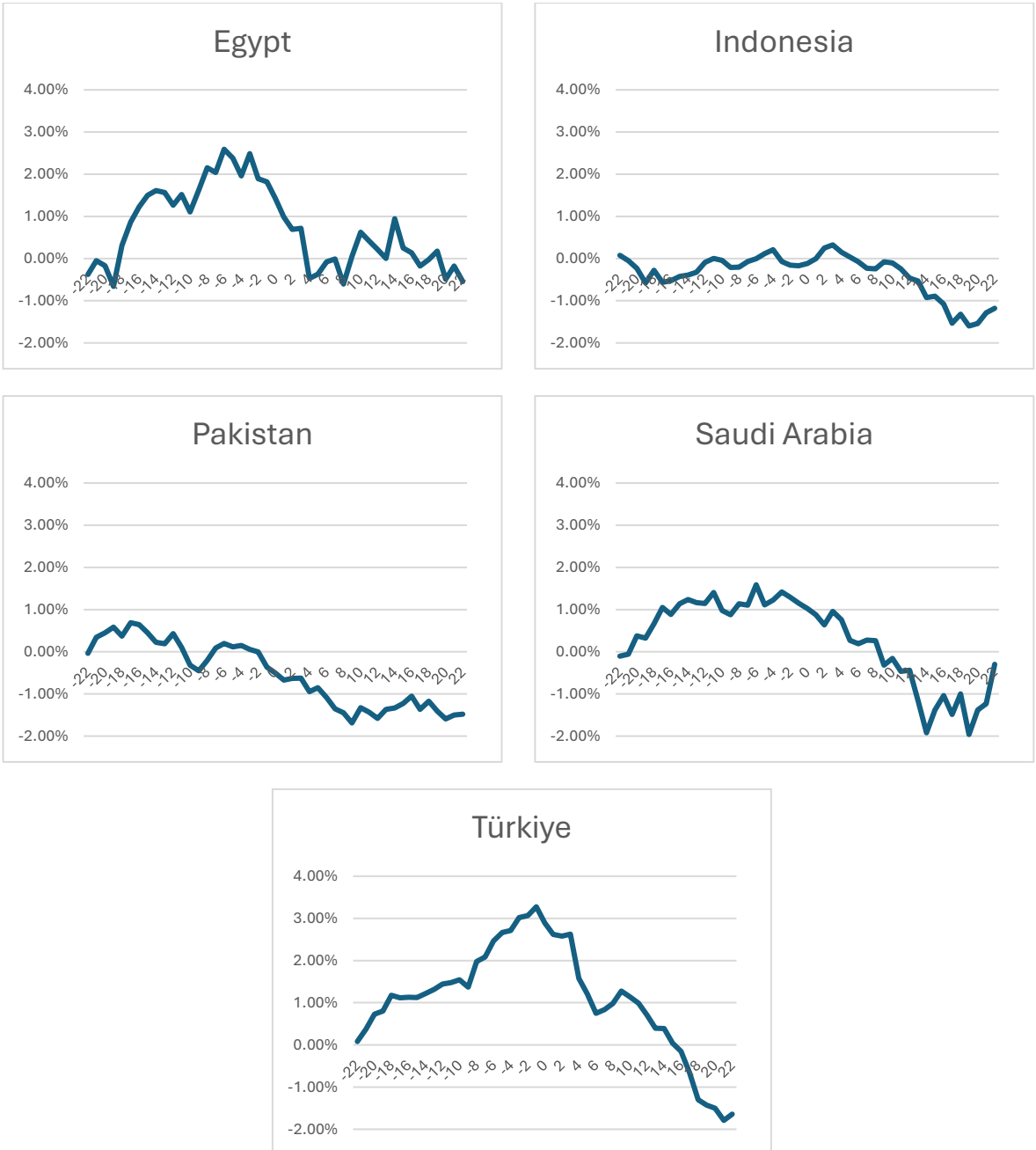
Table 4: Event Study Results for During Ramadan Windows in Selected Islamic Countries

Event windows	Groups	CAAR	Pos / Neg	Sign t.
(0,22)	Egypt	-2.36%	50/92	-3.52***
	Indonesia	-1.01%	325/416	-3.34***
	Pakistan	-1.11%	228/279	-2.26**
	Saudi Arabia	-1.44%	137/206	-3.73**
	Türkiye	-4.91%	182/427	-9.93***
(11,22)	Egypt	-1.17%	57/85	-2.34***
	Indonesia	-1.07%	318/423	-3.85***
	Pakistan	-0.15%	228/279	-2.26***
	Saudi Arabia	-0.13%	158/185	-1.46
	Türkiye	-2.78%	195/414	-8.87***
(0,10)	Egypt	-1.19%	62/80	-1.51
	Indonesia	0.06%	355/386	-1.13
	Pakistan	-0.96%	207/300	-4.13***
	Saudi Arabia	-1.31%	135/208	-3.94***
	Türkiye	-2.14%	188/421	9.44***

CAAR refers to cumulative average abnormal returns for the given event windows. Pos/Neg represents the number of positive and negative CARs for each country. Sign t. denotes the statistical scores for the generalized sign test. The significance levels are indicated as *** 0.01, ** 0.05, * 0.10, respectively.

Finally, to illustrate how the market reaction is distributed over time, cumulative average abnormal returns for all countries are presented in Graph 1 in five different panels. These panels help visually detect the direction of the cumulative returns before and during the Ramadan period. It can be clearly observed that stocks experience lower returns after Ramadan begins. This reaction can be attributed to two main factors. First, profit realization following the positive reaction before Ramadan, which is a common phenomenon in stock markets where expectations are bought ahead of an event and sold once it materializes. This practice appears to hold true in this case as well. Second, the lower trading activity during Ramadan, reflected by reduced trading volumes and transactions, likely results from market participants placing greater emphasis on religious activities and reduced trading and working hours during this period.

Graph 1: Cumulative Average Abnormal Returns Around Ramadan Days for All Countries



Conclusion

This study adds to the behavioural finance literature on seasonal deviation affects stock markets in particular the existence of anomalies prior to the holy month of Ramadan in food companies market stock prices, due to the changes in sentiment and social mood during the month of Ramadan. Moreover, the study highlights the significant influence of religious events in generating market anomalies that differ from traditional calendar effects.

The findings, based on a twenty-one-year period from 2004 to 2024 and employing the event study methodology along with the non-parametric generalized sign test, demonstrate the existence of the Ramadan effect, which is a well-documented calendar anomaly, where market behavior shifts before and during the holy month of Ramadan, aligning with previous research.

During the 10-day period leading up to the holy month of Ramadan, approximately 53% of stocks showed negative returns, indicating mixed but significant results. Türkiye exhibits a strong positive and significant return, while Indonesia, Pakistan, and Saudi Arabia show slight but significant negative returns. During the holy month of Ramadan, mostly negative returns were observed in all regions, implying that stock prices actually fall during this period, with the strongest dip observed in Türkiye, where food-related stocks declined by nearly 5%. Similar dip patterns were observed across all regions. When observing the whole period (i.e., pre-Ramadan and during Ramadan), the findings confirm a noticeable negative effect across all regions except Egypt. Results for the main event window (i.e., covering both pre-Ramadan and Ramadan periods) show that the proportion of stocks with negative abnormal returns is approximately 57%, compared to 43% of stocks with positive abnormal returns.

The majority of negative returns may be a result of the shift in investors' focus from the markets to religious and social obligations, accompanied by increased consumer spending and the need for liquidity, leading to selling combined with reduced trading activities. In addition, rising prices and inflationary pressures can also affect the valuation of these stocks.

These findings carry important implications for market participants, including fund managers and individual investors engaged in short-term trading, emphasizing the need to consider portfolio reallocation before and during Ramadan to optimize returns. This study has some limitations, including the selection of only five markets due to insufficient data availability. For future research, we aim to analyze and compare non-Islamic markets to better highlight any differences in the Ramadan effect, if they exist.

References

Abro, A. A., Mustafa, A. R. U., Ali, M., & Nayyar, Y. (2021). Does Ramzan effect the returns and volatility? Evidence from GCC share market. *Journal of Asian Finance Economics and Business, 8*(7), 11–19. https://doi.org/10.13106/jafeb.2021.vol8.no7.0011

Al-Khazali, O. (2014). Revisiting fast profit investor sentiment and stock returns during Ramadan. *International Review of Financial Analysis, 33*, 158–170. https://doi.org/10.1016/j.irfa.2014.02.003

Anwar, N. Y. (2012). Analysis of calendar effects: Day-of-the-week effects in Indonesia, Singapore, and Malaysia stock markets. *African Journal of Business Management, 6*(11). https://doi.org/10.5897/ajbm10.1038

Barakat, I., Chamlal, H., Jamal, S. E., Elayachi, M., & Belahsen, R. (2020). Food expenditure and food consumption before and during Ramadan in Moroccan households. *Journal of Nutrition and Metabolism, 2020*, 1–7. https://doi.org/10.1155/2020/8849832

Cheema, M. A., & Fianto, B. A. (2024). Investor sentiment and stock market anomalies: Evidence from Islamic countries. *Pacific-Basin Finance Journal, 88*, 102557. https://doi.org/10.1016/j.pacfin.2024.102557

Hassan, Md. H., & Kayser, Md. S. (2019). Ramadan effect on stock market return and trade volume: Evidence from Dhaka Stock Exchange (DSE). *Cogent Economics & Finance, 7*(1). https://doi.org/10.1080/23322039.2019.1605105

Işıker, M. (2024). *Food-related stock performance prior to Ramadan: An event study on Turkish stock market*. Paper presented at the 17th International Conference on Knowledge, Economy & Management, Tashkent, Uzbekistan.

Isiker, M., Ugurlu, U., & Tas, O. (2021). Investigation of the calendar effect: Second-order stochastic dominance approach. In T. Škrinjarić, M. Čižmešija, & B. Christiansen (Eds.), *Recent applications of financial risk modelling and portfolio management* (pp. 47–67). IGI Global Scientific Publishing. https://doi.org/10.4018/978-1-7998-5083-0.ch003

Jassal, T., & Dhiman, B. (2016). Analysis of stock market calendar anomalies in hospitality industry. *I J a B E R, 14*(4), 2533–2553.

Mitchell, M. C., Raf, M. I. M., Severe, S., & Kappen, J. A. (2014). Conventional vs. Islamic finance: The impact of Ramadan upon Sharia-compliant markets. *Redalyc.org*. https://www.redalyc.org/articulo.oa?id=692375791008

Nasir, M. A., Rossi, M., & Khan, K. (2016). The calendar anomalies on performance and volatility of stock market: The effects of Ramadan on Karachi Stock Exchange. *Global Business and Economics Review, 19*(1), 54. https://doi.org/10.1504/gber.2017.10000917

Pantzalis, C., & Ucar, E. (2014). Religious holidays, investor distraction, and earnings announcement effects. *Journal of Banking & Finance, 47*, 102–117. https://doi.org/10.1016/j.jbankfin.2014.05.020

Pribadi, F., & Abilawa, A. (2022). Analysis of the Eid Al-Fitr holiday anomaly on abnormal return and trading volume activity: Case study of Jakarta Islamic Index during 2017–2020. *Journal of Accounting and Investment, 23*(1), 114–127. https://doi.org/10.18196/jai.v23i1.12894

Shahid, M. N., & Mehmood, Z. (2015). Calendar anomalies in stock market: A case of KSE 100 index. *International Journal of African and Asian Studies, 7*, 16–23. https://iiste.org/Journals/index.php/JAAS/article/view/19572

Sonjaya, A. R., & Wahyudi, I. (2016). The Ramadan effect: Illusion or reality? *Arab Economic and Business Journal, 11*(1), 55–71. https://doi.org/10.1016/j.aebj.2016.03.001

Tan, Ö. F., & Özlem, Ş. (2018). Ramadan effect on stock markets. *Journal of Research in Business, 1*(3), 77–98. https://doi.org/10.23892/jrb.2018.23

Van Der Gugten, T. (2010, August 12). Stock market calendar anomalies and macroeconomic news announcements. http://hdl.handle.net/2105/7758