



“Impact of the religious festivity on the Tunis Stock Exchange”

AUTHORS	Olfa Chaouachi 
ARTICLE INFO	Olfa Chaouachi (2021). Impact of the religious festivity on the Tunis Stock Exchange. <i>Investment Management and Financial Innovations</i> , 18(2), 12-19. doi: 10.21511/imfi.18(2).2021.02
DOI	http://dx.doi.org/10.21511/imfi.18(2).2021.02
RELEASED ON	Monday, 12 April 2021
RECEIVED ON	Monday, 22 February 2021
ACCEPTED ON	Tuesday, 06 April 2021
LICENSE	 This work is licensed under a Creative Commons Attribution 4.0 International License
JOURNAL	"Investment Management and Financial Innovations"
ISSN PRINT	1810-4967
ISSN ONLINE	1812-9358
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

24



NUMBER OF FIGURES

0



NUMBER OF TABLES

3

© The author(s) 2021. This publication is an open access article.



BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine
www.businessperspectives.org

Received on: 22nd of February, 2021
Accepted on: 6th of April, 2021
Published on: 12th of April, 2021

© Olfa Chaouachi, 2021

Olfa Chaouachi, Dr., Assistant Professor, Department of Finance and Accounting, Faculty of Economic Sciences and Management, University of Tunis El Manar, Tunisia.



This is an Open Access article, distributed under the terms of the [Creative Commons Attribution 4.0 International license](https://creativecommons.org/licenses/by/4.0/), which permits unrestricted re-use, distribution, and reproduction in any medium, provided the original work is properly cited.

Conflict of interest statement:
Author(s) reported no conflict of interest

Olfa Chaouachi (Tunisia)

IMPACT OF THE RELIGIOUS FESTIVITY ON THE TUNIS STOCK EXCHANGE

Abstract

The month of Ramadan is anticipated to influence the behavior of the stock market, where the environment in Ramadan is different from other months. During the Ramadan month, transformations in the social life of people are quite apparent and significant, and the overall economic activity tends to decelerate as the number of working hours decreases. This paper aims to explore the impact of the Ramadan month on the stock market returns, volatility, and trading volume on the Tunis Stock Exchange (TSE) between September 2009 and July 2019. To achieve these objectives, the Generalized Autoregressive Conditional Heteroskedasticity (GARCH) technique and the ordinary least squares regression are used. The results show that the impact of the Ramadan month on the daily returns is positive and statistically significant at a 1% level. It is also found that the impact of the Ramadan month on the volatility and trading volume is negative and statistically significant. The findings can help domestic and foreign investors and regulators to better comprehend the Tunisian stock exchange and investor behavior. Moreover, this research can help investors to develop their trading strategies.

Keywords

Ramadan effect, market return, volatility, trading volume, market efficiency, GARCH, OLS

JEL Classification

G14, G41

INTRODUCTION

An eminent task in the financial literature has been to check whether seasonal effects are present in asset returns. A foreseeable effect is a contradiction to the market efficiency and can provide market participants with useful guidance on their investment decisions. Since the 1980s, numerous studies have recorded calendar effects in asset returns. Some of the most eminent seasonal effects include the month of the year effect and the day of the week effect (e.g., Rozeff & Kinney, 1976; Wang et al., 2013; Chaouachi & Ben Mrad Douagi, 2014; Tilica & Oprea, 2014; Panyagometh, 2016). The month of the year effect indicates that from January to December the average asset returns are not similar. Many empirical studies (e.g., Rozeff & Kinney, 1976; Haug & Hirschey, 2006; Balint & Gica, 2012; Patel & Sewell, 2015) have concluded that January returns are significantly larger than returns of the other months. The day of the week effect signifies that for Monday through Friday, the mean asset returns are not similar. The main empirical results (e.g., Cross, 1973; Coutts & Hayes, 1999; Tonchev & Kim, 2004; Balint & Gica, 2012) are lower stock returns on Monday than other days.

Contrary to the January and Monday effects, which have been largely analyzed, the effect of Ramadan on equity markets remains generally neglected. Ramadan is the ninth month of the Hijri calendar. It moves ten or eleven days forward each year. The majority of Muslim countries utilize both the Hijri and the Gregorian calendars. The Gregorian

calendar is utilized by businesses and governments. However, the Hijri calendar is utilized principally for the observance of religious activities and holidays. Throughout the Muslim states, during the month of Ramadan, the transformations in the social life of people are apparent and significant. Fasting Ramadan is one of the five pillars of Islam and is obligatory for every mature Muslim who is physically and mentally able to do it. During the month of Ramadan, all adult Muslims fast between sunrise and sunset, refraining from drink, food and other sensual pleasures and are heartened to devote themselves to spiritual training and almsgiving. Ramadan is the month of the Quran and returning to Allah with honest repentance so that it may remove our sins and immoral deeds.

Generally, during the Ramadan month, the economic activities are inclined to decelerate with a decrease in the number of working hours in the majority of sectors. However, the consumption of electricity tends to go up due to the augmentation of commercial and religious activities after the “Iftar”. Moreover, the sales of groceries increase in Ramadan due to the evening “Iftar” feasts. Trading in stocks is recorded to reduce as many Muslims consider stock market speculation as a type of gambling, which is forbidden by Islam. Furthermore, in Ramadan, the employment of margin trading may reduce because it is heavily restricted under Sharia. In this context, the research problem in this paper can be summed up as follows: Does the month of Ramadan influence the behavior of the stock market, since the environment in Ramadan is not similar compared to other months? More specifically, does the month of Ramadan have a considerable impact on the stock market return, volatility and trading volume?

1. LITERATURE REVIEW AND HYPOTHESES

The Ramadan effect indicates that asset returns are considerably larger and less volatile on the month of Ramadan than the rest of the year in Islamic stock markets. Husain (1998) is the pioneer who documented the Ramadan effect on the stock market. He found, using daily Pakistani equity market data between January 1989 and December 1993 and the GARCH specification, that the volatility of returns have considerably decreased in the month of Ramadan. On the other hand, he reported no considerable change in equity returns in this month. After some years, Seyyed et al. (2005) analyzed the Ramadan effect on equity returns, the volatility of returns and trading activity in the Saudi Arabian equity market between 1985 and 2000. Applying the GARCH technique and the ordinary least squares regression, they found that the month of Ramadan did not considerably influence stock returns. However, they reported that this month had a negative and significant association with the return volatility and the trading volume. From the year 2011, a greater number of articles focusing on the study of the Ramadan effect in equity markets have appeared. Al-Hajieh et al. (2011) recorded that the Ramadan effect was present in most Islamic Middle Eastern equity markets from 1992 through 2007. More specifically,

using the runs test, they found that equity returns are considerably larger and have less volatility in Ramadan than the rest of the year. Bialkowski et al. (2012) explored the effect of the month of Ramadan on the return and the volatility of returns in fourteen Islamic stock markets between 1989 and 2007. The findings showed that Ramadan had a positive and significant relationship with stock returns and had a negative and significant repercussion on the volatility of returns. Al Khazali (2014) tested the impact of the month of Ramadan on asset returns in fifteen Islamic stock markets. Applying the Stochastic dominance technique, he documented that the Ramadan effect was present in most of the equity markets studied from 1996 through 2006. However, during the global financial crisis, the Ramadan effect becomes weak. Al Issis (2015) also documented a significant Ramadan effect on stock returns in most Islamic stock markets studied between January 1995 and August 2012. Sonjaya and Wahyudi (2016) analyzed the effect of the month of Ramadan on equity returns in ten Islamic stock markets during the period of 1989–2013. They reported that this effect was stable and existed only in three stock markets (Kuwait, Oman and Tunisia). Ali et al. (2017) tested the effect of the month of Ramadan on the equity returns in four stock markets (Pakistan, Turkey, Bahrain, and Saudi Arabia) between January 2001 and December 2014. Using the pool regression,

they documented that the month of Ramadan did not considerably influence the returns of the stock indices in all equity markets studied. Moreover, Khan et al. (2017), applying data for the Pakistani equity market between 2001 and 2010, found that Ramadan had a neglected influence on stock returns, but return volatility dropped considerably during Ramadan. Hassan and Kayser (2019) tested the impact of the Ramadan effect on equity returns, return volatility and trading volume in the Dhaka equity market between January 2002 and August 2018. Applying the GJR-GARCH model, they reported that the month of Ramadan did not significantly influence the stock return and the volatility of returns. However, there was a considerable reduction in the trading volume during this month. Hijazi and Tabash (2020) examined the impact of Ramadan on the return in the Palestine equity market from 2006 through 2016. Using the GJR-GARCH model, they recorded that the average stock return was considerably larger in Ramadan than the rest of the year.

The existence of the Ramadan effect in equity markets has been explained by many reasons. Al Hajieh et al. (2011), Bialkowski et al. (2012), Al Khazali (2014) and Hassan and Kayser (2019) noted that the positive investor sentiment can be the reason for the considerable increase in returns during the month of Ramadan. In other words, during this month, Muslims around the world have become more united with others. They are more satisfied and more optimistic. This optimism has repercussions on their investment decisions, leading to the rise in stock prices during the month of Ramadan. Husain (1998), Seyyed et al. (2005) and Hassan and Kayser (2019) argued that the drop in the volatility of returns and trading volume in Ramadan can be the outcome of diminished trading hours at the exchange and the investors' religious perception. In other words, many Muslim investors think that speculation in stock markets is a type of gambling, which is unacceptable in Islam.

The purpose of this paper is to examine the impact of the Ramadan month on the behavior of the Tunis Stock Exchange (TSE). Tunisia is an Islamic country with more than 98 percent Muslim population. The TSE is one of the easiest emerging markets for investment thanks to good regulation. It offers investors liquidity and long-term profits,

while there are no tax non-dividend payouts and capital gains. Moreover, according to brokers, it is always easy to repatriate money. There have never been problems moving money from one country to another. In the Tunisian context, few studies explore the impact of Ramadan month on equity market returns (Bialkowski et al. 2012; Sonjaya & Wahyudi, 2016). However, up to now, there is no published investigation exploring the impact of the Ramadan month on the equity market return, volatility and trading volume. Therefore, this paper examines the impact of the Ramadan month on the stock market return, volatility and trading volume on the TSE between September 2009 and July 2019 by applying the GARCH model and the ordinary least squares regression. This study will enrich the extant literature on calendar effects in Islamic equity markets. Its findings are of immense value to traders and investors in the stock markets of Muslim countries. To answer the research problem, three hypotheses will be tested:

H1: The month of Ramadan has a significant impact on equity market returns.

H2: The month of Ramadan has a significant impact on the volatility of returns.

H3: The month of Ramadan has a significant impact on the trading volume.

2. DATA

The TSE is a small stock market in the African continent. Since the mid-1990s, it has become active as a result of regulatory reforms and privatization of public companies. During 2019, the stock market activity experienced difficult times and unprecedented volatility. Hazards of all types have an impact on the volume of trade and the general evolution of indices. In 2019, the Tunindex closed in a decline of 2.06% after consecutive increases of 15.76% and 14.45% during 2018 and 2017. During the year 2019, the overall volume of trade recorded a decline of 12.2% to reach 3,367 MD against 3,837 MD in 2018. The market capitalization fell by 2.69% or 656 MD, to stand at 23,724 MD against 24,380 MD at the end of 2018. The TSE was created in 1969. It has only one market index, the Tunindex. It is a market capitalization weighted

Table 1. Summary statistics for daily returns of the Tunindex (%), September 2009 – July 2019

Observations	Mean	Standard deviation	Skewness	Kurtosis	Jarque-Bera
2464	0.0417	0.5779	-0.5521	14.7761	14869.67***

Note: *** Significant at the 1% level.

index, revealed on December 31, 1997. In August 1995, Tunisia promulgated an investment decree, which authorized non-Tunisian investors to purchase up to 10% of companies traded on the TSE and up to 30% of unlisted companies, without the consent of the central bank. Since 1996, the TSE has applied an electronic trading system (super CAC). With this system, the liquidity and lucidity of the TSE have been ameliorated. These two criteria help to attract domestic and foreign investors.

To investigate the Ramadan effect, this paper employs the daily closing prices of the Tunindex and the number of daily transactions over the period from September 2009 to July 2019. The official site of TSE is the data source used. The daily returns of the Tunindex are determined as the difference in the natural log of the closing index prices for each of the successive days. Table 1 displays the summary statistics for daily returns of the Tunindex between September 2009 and July 2019. It also shows a considerable non-normality for the Tunindex. The skewness coefficient is near to zero, but the kurtosis coefficient is excessively larger than three, signifying fat tails in comparison with a normal distribution. Moreover, the Jarque-Bera normality test statistics reject the normality of the daily returns of Tunindex at the one percent level.

3. METHODOLOGY

The Autoregressive Conditional Heteroskedastic (ARCH) model has been introduced by Engle (1982). This model lets the predicted variance of the stock return to fluctuate consistently over time and supposes that the conditional variance (h_t) count on the past squared errors of stock returns. The primary ARCH model for stock returns lets the data to definite the perfect weights to employ in predicting the dynamic conditional variance. Bollerslev (1986) developed the ARCH technique by introducing the GARCH model. According to this model, the conditional variance (h_t) is a function of the past values of (h_t) plus the past values of squared errors. The GARCH model has

been widely employed to model financial time series and has confirmed to be prosperous in anticipating the conditional variances. The greatest frequent formulation of GARCH argues that the most prognosticator of the variance in the following time is a weighted mean of the long-run mean variance, the variance anticipated for this time, and the most current squared errors catching any recent information, with reducing weights accredited to the lag squared errors.

To explore the Ramadan effect on daily returns and volatility for the Tunindex, the GARCH technique is used. This methodology is applied by Seyyed et al. (2005) and Hassan and Kayser (2019). In return equation (1), the dummy variable ($D_{Ramadan}$) is applied to detect the Ramadan effect. The past return values and the past residual values are introduced in the equation to capture the autoregressive (AR) and moving averages (MA) effects respectively. The AR and MA processes of order k are used to remove autocorrelations from residuals.

$$r_t = \mu_0 + \alpha_t D_{Ramadan} + \sum_{i=1}^k \phi_i r_{t-i} + \sum_{j=1}^k \theta_j \varepsilon_{t-j} + \varepsilon_t, \quad (1)$$

where $D_{Ramadan}$ takes the value 1 for the Ramadan period, and 0 for the non-Ramadan period. A significant α_t in equation (1) is taken as evidence of the Ramadan effect on the daily returns for the Tunindex.

For the time-varying volatility of returns, it is modeled as a GARCH (p, q) specification to estimate the coefficients of the conditional variance equation (2). p and q are lagged orders of the GARCH model. The conditional variance is incorporated by GARCH as a linear function of past squared errors and lagged conditional variances. To examine the impact of Ramadan on returns and volatility for Tunindex, the return (1) and volatility (2) equations are jointly estimated by applying the Full Information Maximum Likelihood method (FIML).

$$h_t = \nu_0 + \beta_t D_{Ramadan} + \sum_{i=1}^p \gamma_i \varepsilon_{t-i}^2 + \sum_{j=1}^q \delta_j h_{t-j}, \quad (2)$$

where ν_0 , γ_i , δ_j each are positive coefficients to be estimated, while $p > 0$ and $q \geq 0$ indicate the order of the process, and β_t detects the impact of the month of Ramadan on the volatility of returns. The positivity of the estimated coefficients ν_0 , γ_i , δ_j is necessary to have positive conditional variances (h_t). The constraint ($\sum \gamma_i + \sum \delta_j$) less than unity should behold to guarantee that the conditional variance is non-explosive and stationary. A significant β_t in equation (2) is taken as evidence of the Ramadan effect on the volatility of returns.

To investigate the Ramadan effect on the trading volume, the OLS regression equation is used. This methodology is applied by Seyyed et al. (2005) and Hassan and Kayser (2019). The dummy variable ($D_{Ramadan}$) in equation (3) is applied to detect the Ramadan effect on the trading volume.

$$Transaction(T)_t = b_0 + b_1 (D_{Ramadan})_t + \varepsilon_t, \quad (3)$$

where T is the number of daily transactions. The Ramadan dummy variable takes the value one for transactions during the Ramadan month, and it takes zero otherwise. The coefficient of the regression equation (b_0) represents average daily transactions during the non-Ramadan period, and b_1 indicates the marginal effect of the Ramadan month on the trading volume. A significant b_1 in equation (3) is taken as evidence of the Ramadan effect on the trading volume.

4. RESULTS AND DISCUSSION

The estimation findings of the GARCH (1, 1) technique for equations (1) and (2) for the Tunindex are documented separately in Table 2. Columns (a) and (b) provide the estimation findings of the return equation. The dummy parameter is positive and statistically significant at the 1% level, implying that the month of Ramadan has a major positive repercussion on the Tunindex daily returns. The results confirm the first hypothesis ($H1$) tested in this research. The first hypothesis argues that the month of Ramadan has a significant impact on the equity market return. The

significant increase in equity returns during the month of Ramadan is due to the positive investor mood, or sentiment in the TSE. Indeed, during the month of Ramadan, Muslims around the world become more united with others. They are more satisfied and more optimistic. This optimism has repercussions on their investment decisions, leading to the rise in stock prices during the month of Ramadan. These findings are in line with those documented by Sonjaya and Wahyudi (2016) and Hijazi and Tabash (2020). More specifically, Sonjaya and Wahyudi (2016) reported that the Ramadan effect is stable and exists on the Tunisian stock market from 1989 through 2013. Moreover, using the GJR-GARCH model Hijazi and Tabash (2020) recorded that the average stock return is considerably larger in Ramadan than the rest of the year in the Palestine equity market from 2006 through 2016. However, the findings of this paper are not consistent with those found by Seyyed et al. (2005) and Hassan and Kayser (2019). Applying the GARCH technique and the ordinary least squares regression, Seyyed et al. (2005) found that the month of Ramadan does not considerably influence stock returns in the Saudi Arabian equity market between 1985 and 2000. Moreover, Hassan and Kayser (2019), using the GJR-GARCH model, reported that the month of Ramadan does not considerably influence the stock return in the Dhaka equity market between January 2002 and August 2018. The existence of the Ramadan anomaly in the daily returns of Tunindex may bring challenges to the efficient market hypothesis and supports the behavioral finance literature, since this allowed investors to achieve abnormal profits by buying stocks in non-Ramadan days and selling them during the month of Ramadan.

Columns (c) through (f) in Table 2 provide the estimation results of the volatility equation. The dummy parameter is negative and statistically significant at the 5% level, indicating that during the month of Ramadan, return volatility reduces significantly. The results confirm the second hypothesis ($H2$) tested in this research. The second hypothesis argues that the month of Ramadan has a significant impact on the volatility of the returns. The considerable decline in the volatility of returns during this month can be the outcome of diminished trading hours at the exchange and the investors' religious perception. In other words,

Table 2. GARCH (1, 1) model estimation results for equations (1) and (2)

(a)	(b)	(c)	(d)	(e)	(f)
Return r_t		Conditional variance h_t			
Constant (c)	Ramadan (dummy)	Constant (c)	Ramadan (dummy)	$\gamma(\varepsilon_{t-1}^2)$	$\delta(h_{t-1})$
0.0315***	0.0898***	0.0292***	-0.0108**	0.2028***	0.7153***
(0.01)	(0.03)	(0.00)	(0.01)	(0.01)	(0.00)

Note: The return equation is: $r_t = \mu_0 + \alpha_t D_{Ramadan} + \sum_{i=1}^k \phi_i r_{t-i} + \sum_{j=1}^k \theta_j \varepsilon_{t-j} + \varepsilon_t$.

The variance equation is: $h_t = \nu_0 + \beta_t D_{Ramadan} + \sum_{i=1}^p \gamma_i \varepsilon_{t-i}^2 + \sum_{j=1}^q \delta_j h_{t-j}$.

Standard errors are in parentheses. ** Significant at 5% level. *** Significant at 1% level.

many Muslim investors think that speculation in stock markets is a type of gambling, which is unacceptable in Islam. These findings are in line with those reported by Bialkowski et al. (2012) and Khan et al. (2017). Using the parametric test statistic for cumulative abnormal returns over the years 1989–2007, Bialkowski et al. (2012) found that Ramadan has a negative and significant repercussion on the volatility of returns in the TSE. Moreover, Khan et al. (2017), applying data for the Pakistani equity market between 2001 and 2010, documented that return volatility drops considerably during Ramadan. However, the findings of this paper are not consistent with those found by Hassan and Kayser (2019). Applying the GJR-GARCH model, they reported that the month of Ramadan does not considerably influence the volatility of returns in the Dhaka equity market between January 2002 and August 2018. The presence of a considerable decline in the volatility of returns during the month of Ramadan indicates foreseeable changes in the price of risk.

Table 2 reveals that the coefficients ν_0 , γ_i , δ_j are positive and statistically significant at the 1% level. Then, the non-negativity condition is verified. Moreover, the constraint $(\sum \gamma_i + \sum \delta_j)$ less than unity is validated. These findings indicate that the GARCH (1.1) model is stationary, and the effect of the volatility diminution in the month of Ramadan is temporary.

The findings of estimating the OLS regression (3) are shown in Table 3. The results display the diminution of the trading volume during the month of

Ramadan. The impact of the month of Ramadan on the trading volume is statistically significant at the 1% level. The results confirm the third hypothesis (H3) tested in this research. The third hypothesis argues that the month of Ramadan has a significant impact on the trading volume. The decline in the trading volume during this month can be attributed to the reduction in the number of trading hours at the TSE and the investors' religious perception. More specifically, many Muslim investors think that speculation in stock markets is a type of gambling, which is unacceptable in Islam. These findings are similar to those obtained by Seyyed et al. (2005) and Hassan and Kayser (2019). Seyyed et al. (2005) reported that the month of Ramadan has a negative and significant association with the trading volume in the Saudi Arabian equity market between 1985 and 2000. Moreover, Hassan and Kayser (2019) found that there is a considerable reduction in the trading volume during the month of Ramadan in the Dhaka equity market between January 2002 and August 2018. The findings of the transaction data investigation further confirm the result of the volatility decline during the month of Ramadan.

Table 3. OLS regression (3) estimation results

Dependent variable: Trading volume in million		
Variable	Coefficient	Standard error
Constant	1.0077***	1.42
Ramadan dummy	-0.5057***	4.94

Note: $Transaction(T)_t = b_0 + b_1(D_{Ramadan})_t + \varepsilon_t$. *** Significant at the 1% level.

CONCLUSION

The study of the Ramadan effect on the stock market allows investors to understand how they design their trading strategies. This paper explores the Ramadan effect on the Tunis Stock Exchange (TSE) between September 2009 and July 2019. It documents evidence of the Ramadan effect on the daily returns, volatility and trading volume by applying the GARCH model and the ordinary least squares regression. More specifically, the paper reports a considerable increase in the returns during the month of Ramadan. Also, it is found that return volatility and trading volume reduce significantly during this month. The significant increase in returns in the month of Ramadan may be justified by the fact that Tunisian investors are optimistic about the month of Ramadan, making them more likely to purchase stocks than to sell them. The existence of the Ramadan anomaly in Tunindex daily returns may challenge the efficient market hypothesis and supports the behavioral finance literature because it allows investors to achieve abnormal returns by buying stocks on non-Ramadan days and selling them during the month of Ramadan. Moreover, a considerable decrease in the volatility of returns and the trading volume in the month of Ramadan can be attributed to the diminution in the number of trading hours on the TSE and the investors' religious perception. More specifically, many Muslim investors think that speculation in stock markets is a type of gambling, which is unacceptable in Islam. The presence of a considerable decline in the volatility of returns during the month of Ramadan indicates foreseeable changes in the price of risk. The existence of the Ramadan effect should not automatically imply that excess profits can be generated on the TSE, because transaction costs can render any investment strategy dependent on the Ramadan effect non-lucrative. The results found in this paper can help domestic and foreign investors and regulators to better understand the Tunisian stock market and investor behavior. Moreover, this research can help investors develop their trading strategies. An important extension of this paper would be an analysis of the existence of the Ramadan effect on the TSE using sector indices.

AUTHOR CONTRIBUTIONS

Conceptualization: Olfa Chaouachi.
 Data curation: Olfa Chaouachi.
 Formal analysis: Olfa Chaouachi.
 Investigation: Olfa Chaouachi.
 Methodology: Olfa Chaouachi.
 Project administration: Olfa Chaouachi.
 Supervision: Olfa Chaouachi.
 Validation: Olfa Chaouachi.
 Visualization: Olfa Chaouachi.
 Writing – original draft: Olfa Chaouachi.
 Writing – review & editing: Olfa Chaouachi.

REFERENCES

1. Al-Hajieh, H., Redhead, K., & Rodgers, T. (2011). Investor sentiment and calendar anomaly effects: A case study of the impact of Ramadan on Islamic Middle Eastern Markets. *Research in International Business and Finance*, 25(3), 345-356. <https://doi.org/10.1016/j.ribaf.2011.03.004>
2. Al-Ississ, M. (2015). The holy day effect. *Journal of Behavioral and Experimental Finance*, 5, 60-80. <https://doi.org/10.1016/j.jbef.2015.02.007>
3. Ali, I., Akhter, W., & Ashraf, N. (2017). Impact of Muslim holy days on Asian stock markets: An empirical evidence. *Cogent Economics and Finance*, 5(1), 1-10. <http://dx.doi.org/10.1080/23322039.2017.1311096>
4. 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>

5. Balint, C., & Gica, O. (2012). Is the January effect present on the Romanian capital market? *Procedia – Social and Behavioral Sciences*, 58, pp. 523-532. <https://doi.org/10.1016/j.sbspro.2012.09.1029>
6. Bialkowski, J., Etebari, A., & Wisniewski, T. P. (2012). Fast profits: Investor sentiment and stock returns during Ramadan. *Journal of Banking and Finance*, 36, 835-845. <https://doi.org/10.1016/j.jbankfin.2011.09.014>
7. Bollerslev, T. (1986). Generalized autoregressive conditional heteroskedasticity. *Journal of Econometrics*, 31, 307-327. [https://doi.org/10.1016/0304-4076\(86\)90063-1](https://doi.org/10.1016/0304-4076(86)90063-1)
8. Chaouachi, O., & Ben Mrad Douagi, F. W. (2014). Calendar effects in the Tunisian stock exchange. *International Journal of Behavioral Accounting and Finance*, 4(4), 281-289. <https://doi.org/10.1504/IJBAF.2014.067593>
9. Coutts, J. A., & Hayes, P. A. (1999). The weekend effect, the stock exchange account and the financial times industrial ordinary shares index. *Applied Financial Economics*, 9(1), 67-71. <https://doi.org/10.1080/096031099332537>
10. Cross, F. (1973). The behaviour of stock prices on Mondays and Fridays. *Financial Analysts Journal*, 29(6), 67-69. <https://doi.org/10.2469/faj.v29.n6.67>
11. Engle, R. (1982). Autoregressive conditional heteroskedasticity with estimates of the variance of United Kingdom inflation. *Econometrica*, 50(4), 987-1007. <https://doi.org/10.2307/1912773>
12. Hassan, M. H., & Kayser, M. S. (2019). Ramadan effect on stock market return and trade volume: Evidence from Dhaka stock exchange (DSE). *Cogent Economics and Finance*, 7(1), 1-10. <https://doi.org/10.1080/23322039.2019.1605105>
13. Haug, M., & Hirschey, M. (2006). The January effect. *Financial Analysts Journal*, 62(5), 78-88. <https://doi.org/10.2469/faj.v62.n5.4284>
14. Hijazi, A. S., & Tabash, M. I. (2020). The impact of Ramadan month on market stock returns anomalies: an empirical investigation of Palestine exchange. *Investment Management and Financial innovations*, 17(1), 253-265. [http://dx.doi.org/10.21511/imfi.17\(1\).2020.22](http://dx.doi.org/10.21511/imfi.17(1).2020.22)
15. Husain, H. (1998). A seasonality in the Pakistani equity market: The Ramadhan effect. *The Pakistan Development Review*, 1(37), 77-81. <https://doi.org/10.30541/v37i1pp.77-81>
16. Khan, K., Nasir, M. A., & Rossi, M. (2017). 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), 54-69. <https://doi.org/10.1504/GBER.2017.10000917>
17. Panyagometh, K. (2016). An anatomy of calendar effects in Thailand. *Investment Management and Financial Innovations*, 13(4), 8-16. [http://dx.doi.org/10.21511/imfi.13\(4\).2016.01](http://dx.doi.org/10.21511/imfi.13(4).2016.01)
18. Patel, N., & Sewell, M. (2015). Calendar anomalies: a survey of the literature. *International Journal of Behavioral Accounting and Finance*, 5(2), 99-121. <https://doi.org/10.1504/IJBAF.2015.072405>
19. Rozeff, M. S., & Kinney, Jr. W. (1976). Capital market seasonality: the case of stock returns. *Journal of Financial Economics*, 3, 379-402. [https://doi.org/10.1016/0304-405X\(76\)90028-3](https://doi.org/10.1016/0304-405X(76)90028-3)
20. Seyyed, F. J., Abraham, A., & Al-Hajji, M. (2005). Seasonality in stock returns and volatility: The Ramadan effect. *Research in International Business and Finance*, 19, 374-383. <https://doi.org/10.1016/j.ribaf.2004.12.010>
21. 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>
22. Tilica, E. V., & Oprea, D. (2014). Seasonality in the Romanian stock market: The day of the week effect. *Procedia Economics and Finance*, 15, 704-710. [https://doi.org/10.1016/S2212-5671\(14\)00543-7](https://doi.org/10.1016/S2212-5671(14)00543-7)
23. Tonchev, D., & Kim, T. H. (2004). Calendar effects in Eastern European financial markets: evidence from the Czech Republic, Slovakia and Slovenia. *Applied Financial Economics*, 14(14), 1035-1043. <https://doi.org/10.1080/0960310042000264003>
24. Wang, J. K., Ojiako, V., & Wang, L. (2013). Calendar effects of the Chinese stock markets. *International Journal of Business and Emerging Markets*, 5(1), 67-82. <https://doi.org/10.1504/IJBEM.2013.050742>