



Full length article

The holy day effect[☆]Mohamad Al-Ississ¹*The American University in Cairo, Egypt*

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ABSTRACT

We use Muslim holy days to investigate the underlying mechanism behind the holiday effect. Muslim holy days are exceptionally conducive to isolating the holy day effect. The study documents a positive change in stock returns during Ramadan. The significance and magnitude of the effect are consistent with the heterogeneity of worship intensity during Ramadan. Five possible causal channels are explored. We find support for a change in the composition of traded stocks according to their riskiness on holy days. Additionally, the mood channel is supported through documenting a negative effect on Ashoura linked to the proportion of Shia in a country.

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“Discovery commences with the awareness of anomaly, i.e., with the recognition that nature has somehow violated the paradigm-induced expectations that govern normal science.” Thomas Kuhn

1. Introduction

Religion is a central force in the lives of people. It affects their preferences, decision making, and mood. Can religion therefore affect the stock market?

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¹ All errors and opinions expressed herein are my own. The start of Ramadan dates used in this paper can be downloaded, subject to referencing this paper, from: “http://www1.aucegypt.edu/faculty/alississ/pdf/ramadan_dates.txt”. My special gratitude goes to Nolan Miller and Nora Jarrah for their feedback and to Dina Abdullah for her research support.

This study uses Muslim holy days to better understand a well documented stock market anomaly, the holiday effect: the tendency of stock markets to experience positive returns prior to holidays on average. While the holiday effect is well documented, its underlying drivers are not. The leading explanation focuses on the liquidity premium story. It has also been suggested that mood, which has been documented to affect stock market returns on other occasions, is the driving force behind the holiday effect. Yet, separating these two mechanisms is difficult since main Western holidays fall on days when markets are closed.² Additionally, the holiday effect is noisy for Western events since they are potentially confounded with documented calendar effects.

Existing literature established abnormal stock returns in Muslim countries during the Muslim holy month

² [Frieder and Subrahmanyam \(2004\)](#) examine stock returns on the St. Patrick's Day when the market is open.

of Ramadan (Husain, 1998; Oguzsoy and Guven, 2004; Seyyed et al., 2005; Al-Hajjeh et al., 2011; Bialkowska et al., 2012). In addition to documenting the Ramadan effect, our paper extends existing research in a number of ways. First, it investigates the effect at the company level, not the index level, which enhances our understanding of the Ramadan effects and its causality. Second, this paper uses the actual start dates of Ramadan as declared and practiced within each country, not converted or calculated dates. Third, we explore the heterogeneity of worship intensity within the month of Ramadan. Most importantly, this paper tests for the underlying mechanism behind the Ramadan effect.

Muslim holidays are well positioned to investigate the holiday effect and isolate its underlying mechanism. First, markets remain open during important Muslim holy days which are observed by overwhelming majorities of the population. Second, naturally occurring factors in the Islamic calendar enable the decoupling of the mood effect from other contaminants. The annual shift of the Muslim *Hijri* calendar *vis-à-vis* the Gregorian one permits us to separate the holy day effect from calendar effects. The different methods Muslim countries use to determine the beginning of lunar *Hijri* months isolate the holy day effect from contemporaneous events. The built-in alternating worship intensity within the month of Ramadan allows a precise test of mood effects.

The first part of this paper documents positive changes on holy days in the returns of ten Muslim financial markets over the period 1995–2012. The paper uses the inherent heterogeneity of worship intensity within the month of Ramadan as a robustness check to test that the documented positive effect on returns is driven by holy days. The religious significance for Ramadan's last odd days is higher than its last five even ones. Consistent with this, we document a statistically significant 0.140% increase in returns on Ramadan's last five odd days. The intensity of faith experience culminates on Ramadan's 27th day when returns increase a statistically significant 0.452%.

The second part of the paper explores the underlying mechanism behind the holy days effect. Five potential channels are explored. The first is the liquidity premium channel whereby traders are receiving higher returns due to decreased liquidity on holy days. Yet, abnormal returns during Ramadan persist even after controlling for change in volume on holy days.

The second channel is a change in the composition of traders on holy days due to decreased (or increased) participation by religiously observant traders on holy days. We investigate this channel through separating companies according to their compliance with Islamic law, Shariah. However, we do not find support for this channel.

The third channel separates the physical aspects of fasting from the spiritual ones using the daily temperatures in the cities of the stock exchanges. We document a positive main holy day channel, and a negative effect on warmer holy days. The latter effect can be seen as the physical effect of fasting on stocks.

The fourth channel is a change in the composition of traded stocks as a result of physical attributes associated with fasting such as fatigue which may lead traders to

avoid riskier stocks. We test for this channel through dividing companies into ten deciles based on their market capitalization to proxy for their riskiness. We find evidence in support of this channel.

Finally, we explore and find support for mood as a potential driver for the holy day effect. We investigate the behavior of returns on Ashoura which is a Muslim holy day with a different emotional valence from Ramadan, especially for Shia Muslims. We find that an increase of 1% in the proportion of Shia in a country is associated with a statistically significant drop of 12.13% in returns on Ashoura. The remainder of the paper is organized as follows: Section 2 presents an overview of relevant literature, Section 3 demonstrates the attributes of the Muslim *Hijri* calendar that are especially conducive for this research, Section 4 describes the methodology and data, Section 5 presents the results, Section 6 checks the econometric robustness of these results, Section 7 investigates potential mechanisms, and Section 8 concludes.

2. Relevant literature

Our study extends existing scholarship in three strands of literature. First, we extend research on the holiday effect by separating the psychological aspects of the holiday from the actual market closure. Second, we contribute to the study of the impact of mood on decision making. Third, we add to the sparse work on the impact of religious experience on stock markets.

Past research has documented a number of regularities in stock market returns on the turn of the year, month, week, and day, and around holidays (for a thorough review see Thaler (1987) and Jacobs and Levy (1988)). Lakonishok and Schmidt (1988) use ninety years of DJIA daily returns to investigate the holiday effect. "The average preholiday rate of return is 0.220% for the total sample, compared with the regular daily rate of return of 0.0094% per day. Therefore, the preholiday rate of return is 23 times larger than the regular daily rate of return, and holidays account for about 50% of the price increase in the DJIA". Furthermore, they find that the sub period results are mostly consistent with overall results. Lakonishok and Schmidt (1988) show that the holiday effect is different from other documented seasonal anomalies. Of interest, the authors find that "pre-holiday rates of return are generally two to five times larger than preweekend rates of return. Therefore, there appears to be an additional factor at work".

Pettengill (1989) confirms the finding that preholiday returns are higher than other days, regardless of the size of firms. Ariel (1990) also finds a statistically significant 10 fold increase in pre-holiday returns in the US, during the period 1963–1982. The holiday effect has been also documented by Kim and Park (1994) across different US stock markets such as the NYSE, AMEX, and Nasdaq. Furthermore, this effect has been found in countries other than the US, such as Italy by Barone (1990), Canada, Japan, Australia, and Hong Kong by Cadsby and Ratner (1992), Japan and UK by Kim and Park (1994), New Zealand by Vos et al. (1993).

The leading explanation for the holiday anomaly focuses on limiting risk exposure while the market is closed

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