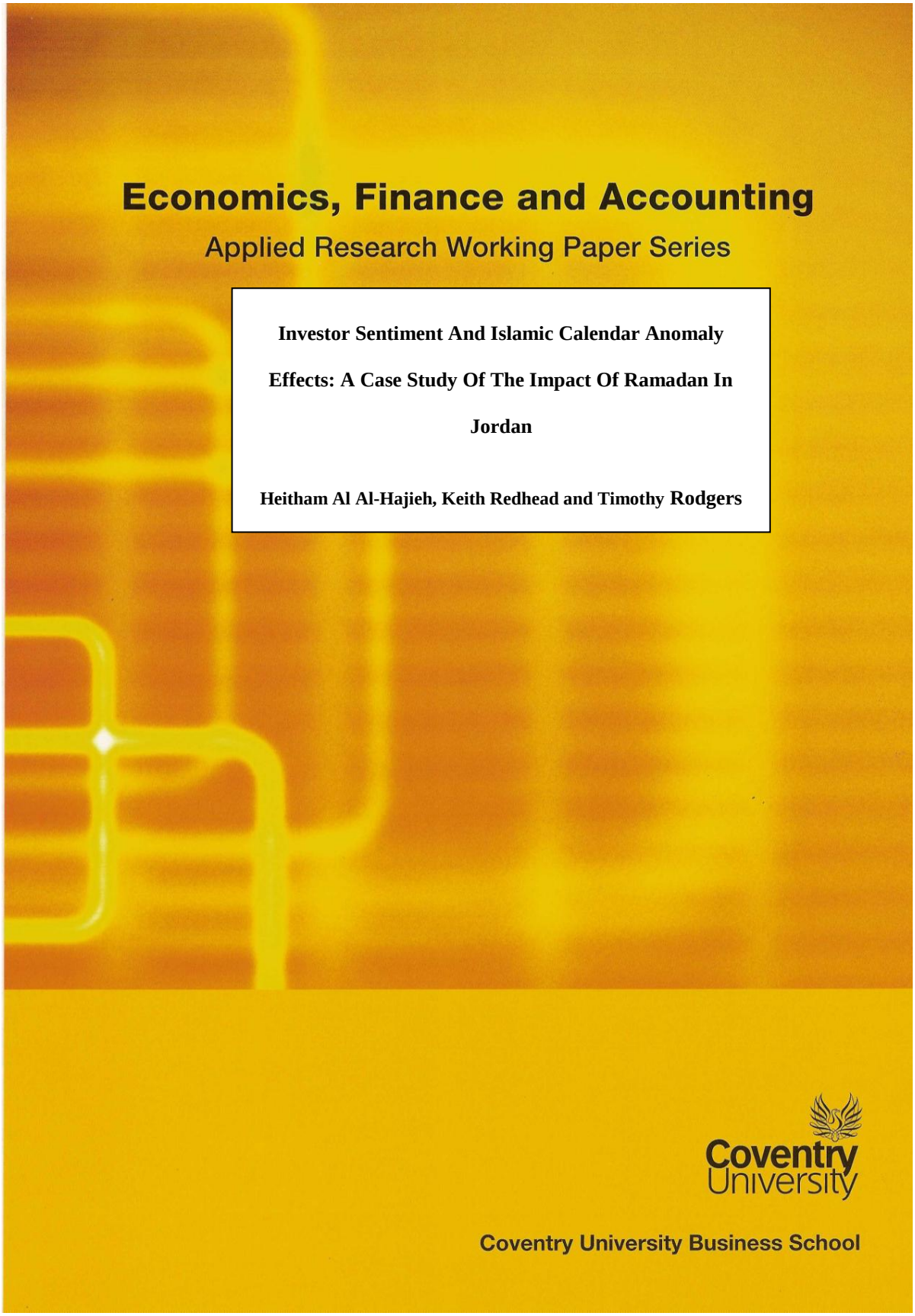
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Investor Sentiment And Islamic Calendar Anomaly Effects: A Case Study Of The Impact Of Ramadan In Jordan
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Abstract

The holy month of Ramadan is usually a time of celebration and renewal in Muslim countries. This paper examines whether or this is reflected in positive calendar anomalies effects in the Jordanian stock market during this period between 1992 and 2007. Evidence is found to suggest the existence of significant positive calendar effects in respect to the *whole period* of Ramadan and it is argued that this can be attributed to positive investor mood, or sentiment. Although Ramadan is a time of celebration for Muslims it also can be a time of uncertainty and this appears to result in the impact of this festival not having a uniformly positive impact on stock prices *throughout* Ramadan. It is found that, in relation to the first and last days of Ramadan, there are high levels of statistically significant year-on-year differences. It is argued that these possibly be attributed to the process of herding effects attributed to Ramadan amplifying the impact of mood swings associated with uncertainty during these periods. The paper also finds that although the overall Ramadan effect is statistically significant, it is not large enough to outweigh transactions costs and provide the basis of a profitable trading strategy.

Introduction and Background

It is well documented in the literature that investor sentiment can play a large role in the movement of stock prices (Edmans et al., 2007). It would therefore be very surprising if changes in the general mood of the population did not have a significant impact on stock markets in Muslim countries. Social mood, has been identified in the literature as a potentially significant factor in financial trends (Elliott,1976) given that it reflects the combined level of optimism or pessimism in society at a given time. This can potentially lead to herding within these markets when investors are faced with a relatively uniform set of stimuli that impact on their decision making (Prechter (1985, 1999)). The holy month of Ramadan can be identified as potentially creating such an investment environment in Muslim countries.

The fast of Ramadan is one of the five pillars of Islam, and it is one of the greatest of the marks and observances of Islam. In addition to fasting during the month of Ramadan, Muslims are encouraged to read the entire Qur'an and doing special prayers, called *Tarawih*, which are held in the mosques every night of the month.

Qur'an (Muslim holy book) described Ramadan as *"better than a thousand months"* (Surah al-Qadr: 3). Muslim's belief that a blessed month of Ramadan will generate something valuable for both an individual and for society.

Muslims believed through good actions, they get rewarded twice than they normally can achieve. During Ramadan, Muslims ask forgiveness for past sins, pray for guidance and help in refraining from everyday evils, and try to purify themselves through self-restraint and good deeds.

Eid ul-Fitr is a Muslim holiday that marks the end of Ramadan. Eid is an Arabic word meaning "festivity", while Fiṭr means "to break-fast"; and so the holiday symbolizes the breaking of the fasting period. Eid ul-Fitr lasts for three days of celebration. It falls on the first day of Shawwal, the month which follows Ramadan in the Islamic calendar. It is a time to give in charity to those in need, and celebrate with family and friends the completion of a month of blessings and joy.

During Ramadan Muslims can experience a whole series of emotions. The process of fasting can be of particular significance here. Fasting is meant to teach the person patience, sacrifice and humility, but it also enhances the senses and emotion. Muslims also ask forgiveness for past sins, pray for guidance and help in refraining from everyday evils, and try to purify themselves through self-restraint and good deeds. According to Islamic religion, fasting is one of the activities that increase humanity in society but from an investor perspective its significance can be seen in terms of its effect of heightening the senses, making people more emotionally sensitive to the impact of external influences.

Behavioral finance theory suggests that increased uncertainty can lead to greater dependence on behavioral heuristics, including optimism bias and outcome bias in financial decisions.

To the extent that Ramadan generates a positive mood there may be an increased tendency to invest, and the positive mood could cause investors to be less discriminating and less analytical in relation to their stock market investments.

High levels of stock market volatility at the start and at the end of Ramadan are consistent with increased synchronization of opinions. Increased synchronization would be accompanied by a greater intensity of herding.

Ramadan is associated with increased social interaction, particularly at the beginning and the end of the period. This suggests there would be a strengthening of social effects on decision-making. The importance of social networks would increase. These developments would intensify herding, and are consistent with the increased synchronization associated with high volatility.

In this paper we examine from a behavioral finance perspective the impact on the Jordanian stock market of a large proportion of the population simultaneously going through this religious process. Section 2 examines the relevant literature relating to the impact of sentiment and mood on stock markets. In Section 3 the data is described and the methodology applied is discussed. In Section 4 the results are presented and discussed. Finally conclusion are drawn in Section 5

2. Literature

It is widely argued in the behavioral finance literature that the actions and performances of people are heavily influenced by how they feel (Elliott, 1976). It has been argued that the stock market is a direct index of social mood, it reflects the combined level of optimism or pessimism in society at a given time (Prechter 1985, 1999, Green, 2004). Nofsinger (2005), for example, argues that social mood influence the judgments made by consumers, investors, and corporate managers. He indicates that the level and nature of business activity will follow social mood rather than leads it.

People spread moods to one another when interacting socially; this is of particular importance in Muslim countries during the period of Ramadan. People receive information and opinions from personal contact and they also receive moods and emotions in the process of social interaction (Redhead, 2008). Positive mood is accompanied by emotions such as optimism, happiness, and hope. On the other hand, negative mood is associated with emotions such as fear, pessimism, and antagonism. Edmans et al. (2007) provide evidence for the influence of social mood on share prices. He measured social mood using the results of international football (soccer) matches. Stock markets were found to decrease following defeats. The effects were associated to the significance of the matches, and to the weight of football to the country (very important in Europe and Latin America, unimportant in North America). It is argued in this paper that similar social mood effects will be found in Muslim countries during the period of Ramadan.

In Jordan, even though during Ramadan the act of fasting mean that Muslims spent day times feeling hungry, which expected to have bad influence in investor mood, but according to religious beliefs[1] this is a holy month and generally investors feel better when they are trading during the holy month. However, as indicated above, Ramadan can also be a time of uncertainty which means that the emotions experienced are not all uniformly positive.

If Ramadan is accompanied by greater emotional uncertainty, it is likely that the uncertainty would spread to many aspects of a person's life. Decisions, including financial decisions, are affected by emotions arising from other aspects of a person's life.

[1] Prophet Mohammad mentions that God said " Every good action is rewarded by ten times its kind, up to seven hundred times, except fasting, which is for me, and I reward it"

Slovic, Finucane, Peters and MacGregor (2002) proposed an affect heuristic. Affect refers to feelings, which are subtle and of which people may be unaware. Impressions and feelings based on affect are often easier bases for decision-making than an objective evaluation, particularly when the decision is complex. Since the use of affect in decision-making is a form of shortcut, it could be regarded as a heuristic. Loewenstein, Weber, Hsee and Welch (2001) showed how emotions interact with cognitive thought processes and how at times the emotional process can dominate cognitive processes. Forgas (1995) took the view that the role of emotions increased as the complexity and uncertainty facing the decision-maker increased.

Investment decisions can be affected by unrelated emotions (Loewenstein, Weber, Hsee and Welch 2001; Slovic, Finucane, Peters and MacGregor 2002). A religious holiday, or good news about a friend, can engender a good feeling, and the good feeling can affect investment decisions. The effect of emotions increases with the complexity and uncertainty surrounding the decision. Decisions about complex and uncertain matters, are particularly influenced by emotions (such as those experienced by muslins during Ramadan, Forgas 1995).

3. Data and Methodology

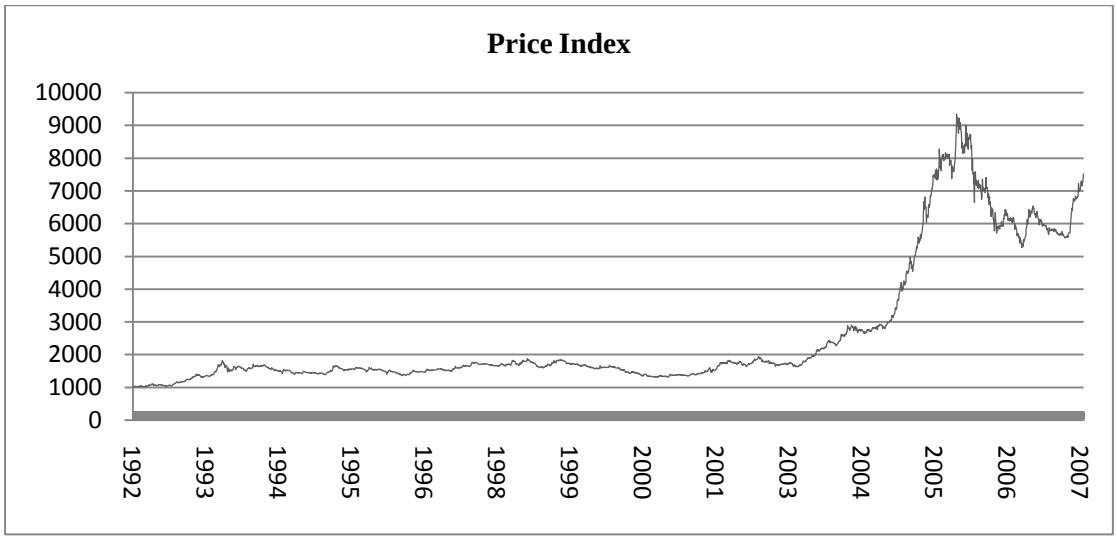
The data used in the paper relate to ASE daily closing prices and volumes covering the period 1st January 1992 to 31st December 2007. After excluded non-trading days, this gives a total of 3915 daily observations and 192 monthly observations (see Graph 1).

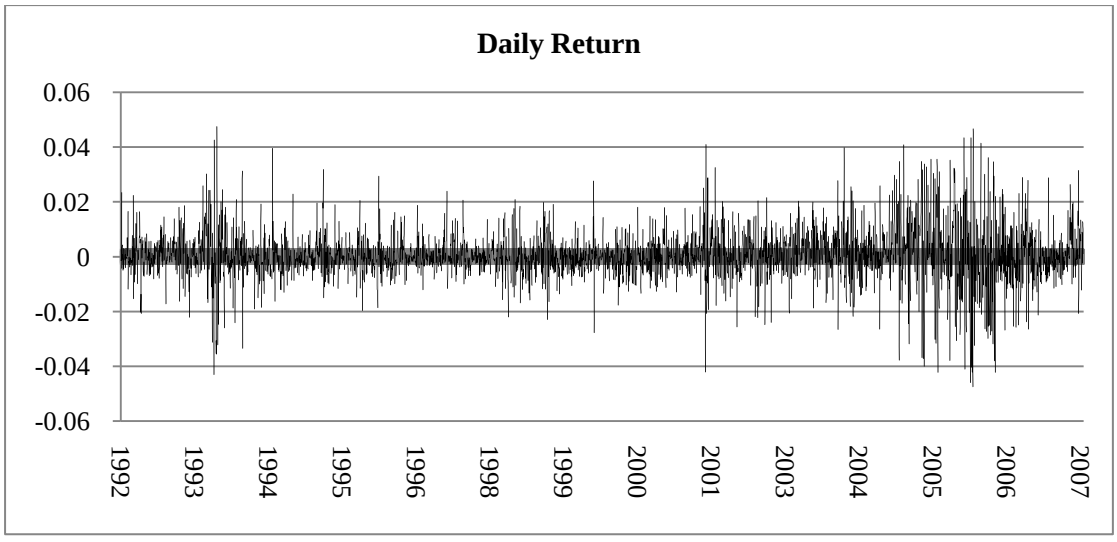
The data has been adjusted to match the Islamic Calendar (Hegirian). This Hegirian calendar is a lunar calendar having 12 lunar months in a year of normally 354 days. The data corresponds to the Islamic calendar period 26/06/1412 to 22/12/1428. This gives 197 monthly observations. Ramadan is the ninth month of the Islamic calendar. Because the lunar year is about 11 days shorter than the solar year, Islamic holy days usually shift 11 days earlier from each successive solar year, such as a year of the Gregorian calendar.

As can be seen from Figure 1, during the first 12 years of the period of analysis the market was relatively stable. There was then a period of rapid growth in stock prices, which reached a peak in 2005

before they fell back sharply in 2006. The daily returns during this period can be seen to show greater daily volatility towards the end of this period, specifically from 2005 to 2007. It can be noted than in 1992 a 5% limit was imposed on the daily price movements.

Figure 1: ASE price index and daily returns percentage from 26/06/1412 to 22/12/1428 (01/01/1992 to 30/12/2007)





The market is dominated by Muslim investors, which means that the majority of investors are likely to observe Ramadan. The market was only opened to foreign investors in 1999, but by December 2006 Jordanian citizens, who are 94% Muslim accounted for 94% of investors in the market. Of the 6% of non-Jordanians investors, 5.4% were fellow Muslim Arab investors and 0.6% by Non-Arabs investors[2].

The methodology applied in this paper is to initially use a Wald-Wolfowitz (1940) Runs Test to establish whether or not stock prices on the ASE follow a random walk during Ramadan[3]. It is then identified whether or not the mean daily returns during Ramadan are significantly different from the returns during other months of the year. Variations within Ramadan are then considered to attempt to identify any statistically significant differences that occur within the holy month. This is done by comparing the first and last days of Ramadan against the rest of the month in respect to variations in both stock trading volumes and stock prices. Finally, the profitability of trading on the mood effects are considered.

4. Results and Discussion

Table 1 identifies the number of actual runs and 'expected' runs within the sample period; where the 'expected' runs correspond to the number of runs expected if the data followed a random walk. The result shows that the actual of runs exceed the 'expected' runs by a considerable margin every month. It can also be noted that during Ramadan, the number of positive returns exceed the number of negative returns by 6, or about 3.5%. . The statistical significance of the Runs Tests is presented in Figure 2. The z-test shows that the null hypothesis of a random walk is rejected at the 1% level (z= 2.575) for every month. It can be noted that this is particularly apparent during month 8 and month 9 (Ramadan).

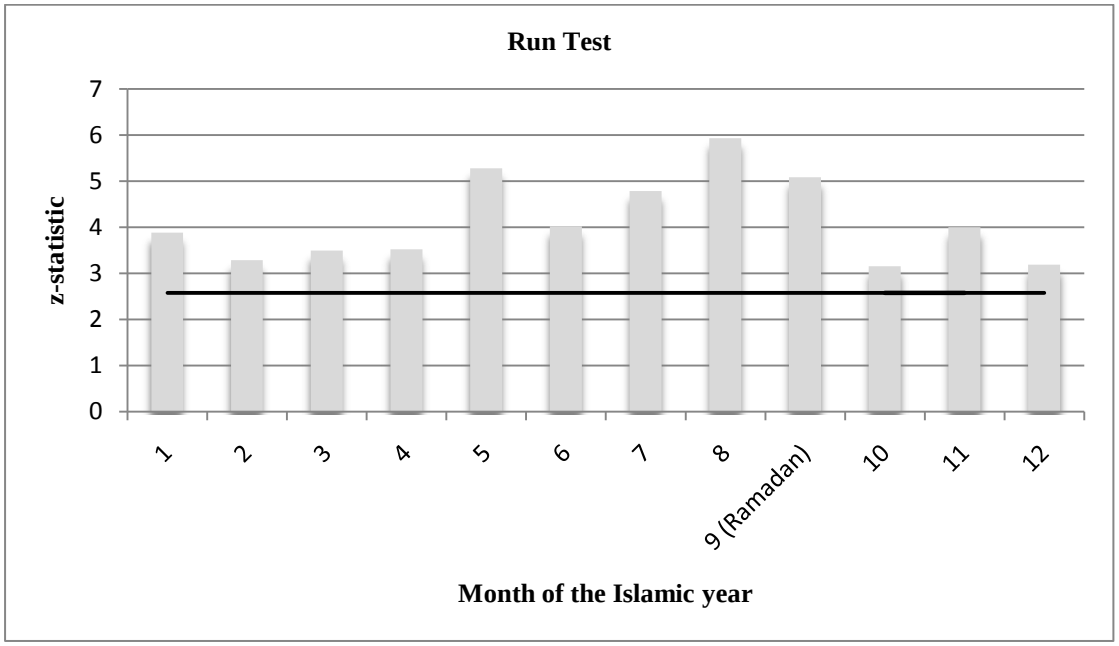
[2] As at December 2006 there were a total of 151,431 investors registered. These were: Jordanian: 142,071, Arab: 8,289 and Non-Arab: 1,017. Source: *www.ameda.org.eg/JORDAN%20SECURITIES.**ppt** (access date:22/11/2009).*

[3] These results were also confirmed by length-of-runs tests and variance decomposition tests that are not presented here.

Table 1: Islamic calendar based month-of-the-year actual and expected runs over the period 26/06/1412 to 22/12/1428 (01/01/1992 to 31/12/2007)

Month	Positive returns	Negative returns	Actual Runs	Expected Runs
1	156	161	194	159.46
2	153	165	189	159.77
3	166	161	196	164.46
4	168	152	192	160.60
5	167	172	219	170.46
6	157	169	200	163.77
7	181	165	218	173.63
8	183	158	225	170.58
9 (Ramadan)	175	169	220	172.94
10	148	146	175	147.99
11	169	175	210	172.94
12	136	143	167	140.41

Figure 2: Significance of monthly runs tests



Having established that stock prices do not follow a random walk the sign and the size of the average monthly returns are now examined. If positive mood effects ensure that Islamic investors are more optimistic during Ramadan then it would be expected that positive returns would be found during this

month. It can be identified from Table 2 that a positive return is made during this period (0.13% average daily return). The t-test presented shows that the average daily return during Ramadan is statistically significantly different from the other months of the year.

Table 2: Mean daily returns based on the Islamic Calendar months from 1412 to 1428 (1992 – 2007)

Islamic Month	Monthly Mean	Yearly Mean (excluding test month)	Std. Error	t
1	0.0035%	0.0553%	0.0571%	-0.909
2	-0.0329%	0.0586%	0.0633%	-1.444
3	0.1374%	0.0432%	0.0516%	1.826*
4	0.0957%	0.0471%	0.0442%	1.098
5	-0.00496	0.0566%	0.04571%	-1.347
6	-0.0326%	0.0588%	0.0543%	-1.682*
7	0.0883%	0.0475%	0.0478%	.854
8	0.0282%	0.0533%	0.0388%	-.641
9 (Ramadan)	0.1344%	0.0430%	0.0383%	2.383***
10	0.1211%	0.0454%	0.0573%	1.321
11	0.0150%	0.0546%	0.0482%	-.821
12	0.0659%	0.0500%	0.0608%	.262
*** Significant at 99% ** significant at 95% * significant at 90%				

The results in Table 2 also show that Ramadan is the only month where the average daily returns are both statistically different from the other months in the year and also positive. This provides evidence to suggest that the generally positive mood of the population that exists throughout the period of Ramadan has a positive impact on stock prices. If the social mood is positive investors are more likely to have optimistic expectations about future stock performance. This is reinforced by the observation that share trading volumes tend to be higher during this period (Brown, 1999). Jordanian Muslim investors believe that through good actions, they get rewarded twice as much in the month of Ramadan than they normally will. As a result they may expect to gain a higher return during Ramadan as Islamic religious doctrine encourages trading rather than the making of bank deposits (Erol and El-Bdour, 1989). To the extent that Ramadan generates a positive mood there may be an increased tendency to invest, and the positive mood could cause investors to be less discriminating and less analytical in relation to their investments.

Studies by psychologists have found that mood appears to affect predictions about the future. People in a good mood are more optimistic about the future than people in a bad mood (Wright and Bower 1992). The impact of mood on financial decisions has been referred to as the 'misattribution bias' (Nofsinger 2005). If a person is in a good mood, there will be a tendency to be optimistic when evaluating an investment. Good moods may cause people to be more likely to make risky investments (for example choosing stocks rather than bonds). Nofsinger (2002b) has suggested an optimism bias. Optimism reduces critical analysis during the investment process, and it causes investors to ignore negative information.

Mood affects investment behavior (Baker and Nofsinger 2002, Nofsinger 2002). It has been suggested that good moods make people less critical. Good moods can lead to decisions that lack detailed analysis. If may very well be that the positive (and statistically significant) monthly returns found in Jordan during Ramadan are a reflection of a good mood effect.

Within-month Ramadan Effects

Although it is shown in Table 2 that the impact of Ramadan as a whole is positive on stock prices the festival goes through a number of distinct phases and as it does the social mood changes. These changes will potentially therefore have differential impacts on investor sentiments and therefore their stock market trading activities. These effects are examined in this section through an analysis of trading activity and prices in the first and last days of Ramadan. During Ramadan average daily returns were positive and were 0.1340%. The associated standard deviation was 0.715% which gives a coefficient of variation of 5.3. This gives an indication of relatively high volatility over this period.

The first day of Ramadan sees the focus of people's activities change significantly. It also sees the start of the process of fasting. The expectation might be that stock market activity will decline on the first trading day of this period[4]. The last day of Ramadan sees the culmination of the festival with Eid al-Fitr. The run up to this period sees families making donations to the poor and visiting friends with gifts

[4] See, for example, http://www.ameinfo.com/167606.html

and in most Muslim countries, the entire 3-day period is an official government/school holiday. It might therefore be expected that positive sentiment effects would lead to increased trading levels in the stock market on the last trading day of Ramadan.

The impact of these first and last trading day effect on stock volumes are examined in Table 3 below. The trading volumes are identified across a 13 year period and are tested to identify whether or not they are statistically significantly different from the average volumes of other days during the Ramadan period.

Table 3: Daily trading volume[5] on the first and last day of Ramadan from 1417 to 1429 (1996 - 2008)

year		Volume, t-test			
Gregorian	Islamic	1st Trading Day	t-test	Last Trading Day	t-test
1996	1417	10504.1	8.921***	20126	1.129
1997	1418	106975.9	-5.782***	10760	4.75***
1998	1419	40461.8	2.974***	36647	3.09***
1999	1420	21659.6	2.916****	23945	2.66***
2000	1421	28266.1	2.995***	182465	-52.87***
2001	1422	135345.8	0.302	236000	-9.908**
2002	1423	99784.9	1.065	52676	7.124**
2003	1424	143804.5	9.397***	629218	-10.79**
2004	1425	8846153	-6.908***	7220926	-1.816*
2005	1426	8880737	-1.563	11928556	-12.112***
2006	1427	21096738	-5.949***	15254663	2.156**
2007	1428	13987089	0.117	19931001	-12.258***
2008	1429	13129188	2.651***	17411868	-2.876***
*** Significant at 99% ** significant at 95% * significant at 90%					

The t-tests indicate that the expectation of lower first day and higher last day volumes does not appear to be met. It can be seen that first day of Ramadan trading volumes are significantly different from the rest of the days of the month for the majority of the sample period (excluding 1422, 1423, 1426 and 1428 or: 2001, 2002, 2005 and 2007 Gregorian calendar). This same pattern is also repeated in respect to the last trading day of the month (the difference is significant for all years excluded 1417 and 1425). Although trading volumes appear to be significantly different, what is possibly surprising is that there

[5] Before 1996 trading volume data is not available

is no consistency in respect to the sign. Some years the trading volumes are significantly higher, but in other years they are significantly lower.

High levels of volatility at the beginning and at the end of Ramadan are consistent with increased synchronization of opinions. Increased synchronization is accompanied by a period of a greater intensity of herding.

The findings in Table 3 can be interpreted as providing some evidence to suggest that Ramadan results in increased synchronization of opinions during the process of spiritual renewal that begins with gathering of the extended family and friends at the start of the period and culminates with Eid at the end of the period. The large number of significant t-statistics could be interpreted as showing that when the general investing environment is positive the strong uniformity within the social mood that Ramadan creates is having a magnified positive impact on trading activity. And when the investment environment is negative the Ramadan sentiment effect is magnifying the negative impact on trading activity. The negative mood effect can possibly be seen, for example, In 2001 when Ramadan was in December (Gregorian Calendar), just after the 11 September attack in New York, when most investors felt pessimistic about the future.

The daily returns of Ramadan are the highest returns compared with other months. At the same time, the first and last trading day support the view that Ramadan has its impact on investors' mood, and the investors behave differently in these two days. Table 4 below presents the result from t-tests; by examining the difference between first and last trading days using daily return data.

The impact of first and last trading day effects on stock returns are examined in Table 4 below. These again are identified across a 16 year period and are tested to identify whether or not they are statistically significantly different from the average return of other days during the Ramadan period.

Table 4: Daily first and the last trading day of Ramadan trading returns from 1412 to 1428 (1992 – 2007)

year		Returns			
Gregorian	**Islamic**	**1st Trading Day**	**t-test**	**Last Trading Day**	**t-test**
1992	1413	0.6%	-5.456***	0.3855%	-2.72***
1993	1414	0.2322%	-1.893*	0.965%	-21.629***
1994	1415	-0.449%	6.836***	0.1556%	-1.664*
1995	1416	0.9488%	-11.438***	0.0946%	1.139
1996	1417	-0.114%	3.192***	0.8141%	-12.484***
1997	1418	-0.5%	4.318***	-0.137%	0.372
1998	1419	-0.569%	3.412***	0.8634%	-3.788***
1999	1420	-0.334%	2.969***	0.17%	-0.82
2000	1421	0.74%	-7.893***	0.3313%	-3.526***
2001	1422	0.1784%	-1.109	-0.601%	3.769***
2002	1423	-0.307%	3.705***	0.2719%	-2.26**
2003	1424	-0.0775%	2.829***	0.667%	-2.799***
2004	1425	1.3049%	-2.464**	0.8482%	-0.324
2005	1426	0.3517%	-0.405	1.666%	-4.49***
2006	1427	-1.165%	7.223***	-0.125%	0.599
2007	1428	0.2124%	1.669*	-0.125%	3.436***
*** Significant at 99% ** significant at 95% * significant at 90%					

The general pattern in Table 4 in respect to the statistical significance of the year-on-year differences is very similar to that found in Table 3, although there appear to be a larger number of negative returns in respect to the last trading day. This finding adds further support to the suggestion that trading during this period is consistent with the herding hypothesis. The large number of significant t-statistics could be interpreted as showing that when the general investing environment is positive the strong uniformity within the social mood that Ramadan creates is having a magnified positive impact on trading activity. And when the investment environment is negative the Ramadan sentiment effect is magnifying the negative impact on trading activity.

If Ramadan is associated with increased social interaction, there would be a strengthening of social effects on decision-making. The importance of social networks would increase. These developments would intensify herding, and are consistent with the increased synchronization indicated by the observed high levels of volatility.

People transmit moods to one another when interacting socially. People not only receive information and opinions in the process of social interaction, they also receive moods and emotions. Moods and emotions interact with cognitive processes when people make decisions. There are times when such feelings can be particularly important, such as in periods of uncertainty and when the decision is very complex. The moods and emotions may be unrelated to a decision, but nonetheless affect the decision. Moods and motives produced by spiritual factors will affect individual decisions. The general level of optimism or pessimism in society will influence individuals and their decisions, including their financial decisions.

There is a distinction between emotions and moods. Emotions are often short term and tend to be related to a particular person, object or situation. Moods are free-floating and not attached to something specific. A mood is a general state of mind and can persist for long periods. Mood may have no particular causal stimulus and have no particular target.

Positive mood is accompanied by emotions such as optimism, happiness, and hope. These feelings can become extreme and result in euphoria. Negative mood is associated with emotions such as fear, pessimism, and antagonism. Nofsinger (2005a) suggested that social mood is quickly reflected in the stock market, such that the stock market becomes an indicator of social mood. Prechter (1999, 2001), in proposing a socionomics hypothesis, argued that moods cause financial market trends and contribute to a tendency for investors to act in a concerted manner and to exhibit herding behaviour.

Many psychologists would argue that actions are driven by what people think, which is heavily influenced by how they feel. How people feel is partly determined by their interactions with others. Prechter's socionomic hypothesis suggests that human interactions spread moods and emotions. When moods and emotions become widely shared, the resulting feelings of optimism or pessimism cause uniformity in financial decision-making. This amounts to herding and has impacts on financial markets at the aggregate level. It seems likely that such interpersonal transmission of moods coincides with the social interactions at the beginning and end of Ramadan.

We would argue that the impact of Ramadan on trading volumes as well as returns at the beginning and the ending of each Ramadan is possibly a reflection of the increasing importance of social networks and the increased synchronization of opinions. The large number of significant t-statistics could be

interpreted as showing that when the general investing environment is positive the Ramadan sentiment effect has a magnified positive impact on trading activity. Conversely, when the investment environment is negative the Ramadan sentiment effect is magnifying the negative impact on trading activity.

5. Conclusions

The uncovering of social-mood-related anomalies is interesting from a theoretical perspective but the more important issue is whether they represent anomalies from which profitable trading strategies can be developed in relation to the Jordanian stock market. The high level of within-Ramadan volatility uncovered in this paper suggests that strategies based on specific Ramadan days (such as trading on first or last day effects) would not be viable. However, a whole- period Ramadan based strategy may potentially be profitable if it covered transaction costs.

In Jordan, the cost of each trading position is calculated according to the market value. The total commission fees per-trade are 0.74%[6]. The bid-offer spread is not published by the ASE, therefore we refer to Omet (2001) who identified that a spread is approximately 0.31% per trade. The mean transacting cost per-trade in Jordan (1.05%) is relatively high (compared, for example, to 0.26% for the NYSE Venkataraman, 2000). Employing a buy and hold strategy of buying on the last trading day of the month before Ramadan and selling on the last trading day of Ramadan an investor could make 1.87%[7] average excess returns. These are significantly lower than the 2.10% transactions costs.

Although this paper has not identified any profitable anomaly based trading opportunities it has shown that Ramadan appears to have a positive impact on stock prices in Jordan. The high volatility found at the beginning and the end of Ramadan is consistent with increased synchronization of opinions during the religious holiday. This can possibly be put down to the importance of social networks increasing and the associated social mood herding effects that these generate. It is predicted by complexity theory is that periods of high volatility reflects increasing synchronisation of investor behaviour and that

[6] Jordan Securities Commission fee 0.05%, Amman Stock Exchange fee 0.05%, Securities Depository Centre fee 0.04% and Brokers fee 0.6%. Source: (Omert, 2001).

[7] From 26/06/1412 to 22/12/1428 the average daily return of non-Ramadan days was 0.0430%. The excess average daily return through Ramadan was therefore: 0.1344%-0.0430% = 0.0914%. The average number of days during Ramadan was 20.47. This gives an average excess return during Ramadan of 1.87%.

major price movements results from nearly complete synchronisation (i.e. nearly all investors think and behave in the same way). As periods of high volatility approach there is increasing synchronisation of views concerning the direction of the market. When nearly everyone takes the view that the market will, for example, increase buyers overwhelm sellers with the result that prices rise significantly. Vandewaller, Ausloos, Boveroux, and Minguet (1999) demonstrated that, in the context of sharp negative stock market movements, there is a tendency for volatility to cluster and Johansen and Sornette (1999, 2001) found that the pattern of (increasingly frequent) oscillations is a characteristic found in both positive and negative market phases. It is argued in this paper that the timing of the periods of high volatility in Ramadan is consistent with synchronization related herding affects resulting from the majority of the population going through very similar religious experiences at the same time.

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