The Impact of Holidays on Stock Market Performance:
Evidence from the Jordanian and Egyptian Stock Markets

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Abstract

Different hypotheses were developed on the relation between holidays and market returns and tested by examining empirical evidence from the Jordanian and Egyptian markets. Results reveal that the stock index returns for the day before a holiday (both religious and non-religious) are significant and positive for the Amman Stock Exchange and the Egypt Financial Group indices. These results are consistent with previous psychological studies showing that people's moods are more positive than normal prior to holidays. On the other hand, the results for the days after holidays and for unofficial holidays are insignificant. It is concluded that the positive mood effect is present only before the holidays.

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Introduction and Background

The purpose of this paper is to examine the impact of holidays on the stock market performance, by using empirical evidence from the Jordanian and Egyptian stock markets. This research focuses on studying and testing the impact of a major variable – people's mood – which has been ignored in earlier traditional studies. Lately, the impact of mood on decision making has been attracting the attention of many researchers who now consider it to be a major factor affecting the performance of financial markets. In this area of research known as "behavioral finance", researchers examine the psychology behind the behavior of investors and quantitatively measure this behavior. It involves the analysis of the impact of investors' mood on their judgment, which would strongly influence their investment decision making, thus ultimately affecting the overall market performance. By using investors' mood as a link, researchers have found significant relationships between various major events and the market performance. Specifically, this paper looks at holidays as the major event, and examines its impact on the performance of two Arab stock markets.

The literature on finance is currently witnessing an increase in the documentation on the link between investor's mood and the performance of equity markets. This area of research is most commonly known to be a part of the studies in "behavioral finance". There exists a large body of research in psychology that documents a link between people's moods and emotions, and their subsequent judgments and decisions.

Forgas (1995) provides evidence that people who are in a good mood tend to rely more on heuristics, whereas people in a bad mood tend to use more careful information processing. Other studies show that happy people make optimistic judgments, whereas unhappy people make pessimistic judgments (Bower, 1981; 1991; Isen, Shalker, Clark and Karp, 1978; Johnson and Tversky, 1983; Kavanagh and Bower, 1985; Mayer, Gaschke, Braverman and Evans, 1992; Mayer and Hanson 1995; Shwarz and Clore, 1983; Wright and Bower, 1992).

Mood has also been linked to individuals' level of confidence (Kramer, Newton, and Pommerenke, 1993; Oakley, 1999), and to their performance on intelligence tests (Samuel, 1980). Clore, Schwarz, and Conway (1994) showed that mood has greater impact on abstract judgments for which people have no solid information. Schwarz (1990) found that bad moods tend to motivate people to go into detailed analytical activity whereas good moods are coupled with rules of thumb and less sophistication of information processing. Schwarz and Bless (1991) demonstrated that people in good mood tend to produce more atypical associations and perform better in creative problem solving tasks.

Another area of research in psychology suggests that holidays, in different cultures and religions, have an effect on people's moods. In North America, there is some evidence that people's moods are more positive than normal prior to holidays (e.g. Mitchell, Thompson, Peterson and Cronk, 1997). Consistent with these findings are studies that have investigated suicide rates (e.g. Gabennesch, 1987; Phillips and Wills 1987), during holiday periods – weekends, Christmas, Thanksgiving, Memorial Day and the like. These studies tend to report decreases in suicides in the days prior to and during a holiday, and increases in suicides after the holiday. The notion that there is some link between holidays and negative moods is also consistent with the concept of "holiday blues", which refers to sadness and anxiety that may be associated with holidays (Baier, 1987). The most prominent explanation of these findings is the "broken promise effect". Prior to the holiday or weekend, people have high expectations and are in a positive mood. When the event does not live

up to its promise, negative moods increase and suicide rates go up.

Ritter (2003) introduced the world of behavioral finance, which, as he stated, covers research that drops the traditional assumptions of having rational investors maximizing their expected utility in efficient markets. He defined "cognitive psychology" and the "limits to arbitrage" as the two building blocks of behavioral finance. Cognitive psychology deals with the human cognitive biases and their effect on human behavior, rather than just following the "arrogant" approach that these biases should be ignored. Ritter (*op.cit.*) listed and explained different cognitive biases that have been documented by cognitive psychologists. They are: Heuristics, Overconfidence, Mental Accounting, Framing, Representativeness, Conservatism, and Disposition Effect. As for the limits to arbitrage, it refers to foreseeing the conditions where the arbitrage forces would be effective as opposed to the circumstances where they wouldn't.

Hirshleifer and Shumway (2003), emphasized the idea that both psychological evidence and casual intuition expect that weather condition on a given day, is associated with the mood condition of any individual on that day. They looked into the relation between morning sunshine at a country's leading stock exchange and its market index returns on that day at 26 stock exchanges internationally from 1982-97. Their results revealed that sunshine and stock returns are strongly and significantly correlated while rain and snow are unrelated to returns after controlling for sunshine, and that the use of weather-based investment strategies leads to positive net-of-transaction costs profits.

Mitchell, Thompson, Peterson and Cronk (1997) looked into people's mood and behavior around holidays. They examined people's anticipation of holidays, their actual experiences and their following recollection of the event. The study presents evidence that people's mood, prior to holidays, is in general, more positive than normal, albeit, usually the actual experience doesn't live up to their expectations. Their memory recollection of the event is also more positive than what they actually experienced. The study concludes that people's mood around holidays affects the performance of stock markets. Kamstra, Kramer and Levi (2001) showed a significant impact of Seasonal Affective Disorder (SAD) on stock returns. Yuan, Zheng, Zhu (2001) argued that the lunar cycle affects market returns. In a recent study, Lucey and Dowling (2005) surveyed the research on the influence of investors' feelings on equity pricing and whether variations in feelings that are widely experienced by people influence investor decision-making and lead to predictable patterns to equity pricing.

The hypotheses of this paper are based on two major components. The first is the literature on behavioral finance which deals with the impact of cognitive biases and mood conditions on investment decisions that ultimately affect the performance of the financial markets. The second deals more specifically on the effect of holidays on peoples' mood and judgments. The combination of these two areas of research gives room for setting strong hypotheses on the significance of the impact of holidays on the performance of the financial markets.

Psychological studies have shown that there is a link between holidays and people's mood. These studies show that people's moods are more positive than normal prior to holidays (e.g. Mitchell, Thompson, Peterson and Cronk, 1997). Different psychological concepts try to explain the mood and behavior of people over three successive periods: (a) before; (b) during; and (c) after the holidays. Although these different concepts tend to agree on the idea that people usually have a positive and more than normal anticipation for the holidays, they differ in explaining people's mood experience after the holidays. For example, Mitchell, Thompson, Peterson and Cronk (1997) reported that in addition to the more than normal positive state of mood before holidays, people have a better memory recollection of the holiday experience, even if their actual experience usually

does not live up to their expectations. Baier (1987) introduced the "Broken Promise Effect" which shows an increase in negative state of mood in the period after the holidays when the experience of the holidays does not live up to expectations.

In this paper, there are four different sets of hypotheses which are differentiated based on the types of holidays examined:

- The first set looks at the relation between **all holidays** in a certain country and that country's stock market performance.

- The second set of hypotheses examines the significance of the relationship between **religious holidays** and the stock market performance.

- The third set of hypotheses examines the significance of the relationship between **non-religious holidays** and the stock market performance.

- The fourth set of hypotheses looks at the significance of the relationship between **unofficial holidays** and the stock market performance[1].

- Having noted the above, the remainder of this paper is organized in four sections dealing respectively with data and methodology, hypotheses, empirical results, and, a conclusion.

Data and Methodology

In this study, two sets of data are used from two Arab emerging markets: (a) Jordan and (b) Egypt. For each country, the relationship between the holidays of that country and the performance of its stock market is examined.

Amman Stock Exchange (ASE)

Public shareholding companies and share trading existed long before the creation of the Jordanian Securities Market, which dates back to the early thirties[2]. However, it was only in 1976 that the Amman Financial Market (AFM) was established. Later, as part of a restructuring process, the Amman Stock Exchange (ASE) took charge of running the market.

On March 11, 1999, three institutions were established including the Amman Stock Exchange (ASE) that took over the operation of the twenty-year old AFM. The other two institutions are the Jordan Securities Commission (JSC) and the Securities Depository Center (SDC). The ASE, which is an independent non-profit organization in the private sector, is in charge of managing the market operations. The ASE follows the international standards of fair practice in supervising the systematic transaction operation of the market. The SDC is likewise a non-profit organization in the private sector that supervises settlements and maintains records of ownership. The JSC however, is part of the government body, and is in charge of regulations. As such, it has a clearly defined authority to develop and monitor the market.

There are three separate levels of stock trading at the ASE. The reason behind establishing the three-tier system at the exchange is to enable the investors to be readily informed about the financial position of the company they wish to invest in, and the requirements it has fulfilled. The

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[1] Unofficial holidays are defined as the holidays on which the market is not closed. They could be holidays for certain sects only or holidays on which the market no longer closes.
[2] Official website of the Amman Stock Exchange (ASE): www.ammanstockex.com

system also promotes the transparency of the ASE as well as the companies traded on the exchange. A company is required to meet certain strict requirements before being listed on the first level of the ASE. Among these listing requirements, a company has to show a positive net profit in its performance. Also, a payout of cash dividends or bonus shares should have occurred at least once during the last three years. Finally, investors should be able to easily sell the company's stock in the secondary market. The second tier is an intermediary level in which listed companies have yet to fulfill certain requirements needed to move up to the first tier. The third tier allows investors to invest in unlisted companies on the ASE. The companies found at this level are working on fulfilling the requirements to become among the listed companies.

ASE is one of the largest stock markets in the region that allows foreign investment. The exchange has a capitalization of $5 billion with 590,000 shareholders[3]. Jordanian corporate and individual investors hold 52% of the shares in the market, in addition to a 42% of share ownership held by foreign investors. The remaining 6% is held by the government through the Jordan Investment Corporation. Most of the traded securities are equities. There are also debt securities listed on the ASE. They include Treasury Bonds, development bonds issued by the Central Bank, "Public Entities" Bonds issued by the Electrical and Water Authorities, as well as bonds issued by corporations from the private sector.

The equity trading in the Jordanian First- and Second-tier markets may be divided into following sectors: 33% in the banking sector, 52% in the industry sector, 13% in the services sector, and 2% in the insurance sector. The ASE has 30 brokerage firms as members in the exchange. Some of the members are major Jordanian banks, or affiliated with major Jordanian banks, while other members are independent. Investors consist of both at home and abroad Jordanian citizens, as well as Jordanian and international institutional investors.

ASE indices are used to depict the movement pattern of stock price and to determine the return performance of the ASE. Back in 1980, an Unweighted Price Index was constructed by the now defunct AFM. Sub-indices accompanied the index for the four sectors: (a) the Banking and Finance Companies sector; (b) the Insurance sector; (c) the Services sector; and (d) the Industrial sector. Thirty eight stocks were listed at that time, and a base value of 100 was set for the Unweighted Price Index on the opening session of January 1, 1980.

In 1992, the AFM began computing a Market Capitalization Weighted Price Index after going through a long statistical study. The index listing was 50 stocks at the time, and increased to 60 stocks in 1994, then to 70 stocks in 2001. A base value of 100 points on December 31, 1991 was set for the Weighted Price Index. ASE indices are computed using the latest closing prices, and they are published on a daily basis. There are now over 160 companies listed on the ASE according to the official site and the selection of these companies is based on five criteria that signify the companies' size and liquidity: (a) market capitalization; (b) the number of days during which the stock has been trading; (c) the turnover ratio; (d) the value traded; and (e) the number of shares outstanding and trading. In addition, the industry sector of these companies is taken into account for the listing. The total market capitalization was equivalent to US$4.95 billion as of 31 December 2000 and the traded volume was equivalent to US$472 million[4].

Adjustments to the ASE indices are conducted to preserve their continuity and to maintain them from unusual events. Components of the ASE indices are assessed and adjusted every year. In addition, non-periodic adjustments are usually conducted for stocks, whose trading will be stopped permanently or at least for long time. These adjustments make sure that the indices

[3] Data on the ASE. Available from http://www.ammanstockex.com

[4] Data on the ASE. Available from http://www.ammanstockex.com

accurately reflect the market trend.

ASE Daily Returns and Jordanian Holidays

Date Coverage. For the Jordanian market, the daily data set of the ASE market price index was used. The daily stock price index data series was taken from the period between Saturday January 1, 1992, which is the start of the Weighted Price Index and Thursday May 6, 2004. The source of these data was the official internet site of the ASE. The next step was to identify the country's official and unofficial holidays, and then match them with the data series of the index. It is important to identify whether a holiday occurred on a weekend or with another holiday; thus, the corresponding day for each date in the data series between January 1, 1992 and May 6, 2004 was identified. For example, January 1, 1992 was a Saturday and May 6, 2004 was a Thursday.

There were 18 types of both official and unofficial holidays identified in Jordan between 1992 and 2004 in addition to the weekends (Table 1). Eight out of the 18 types were holidays with fixed date throughout the years, whereas the dates of the remaining 10 moved from year to year. Seven out of the 18 types of holidays were non-religious, whereas the remaining 11 were religious. Eight out of the 18 types of holidays had always been official holidays between 1992 and 2004, 5 out 18 types had been official holidays for a significant time between 1992 and 2004, whereas the remaining 5 had never been official holidays between 1992 and 2004.

Table 1. Jordanian Holidays (1992-2004)

	Holiday	Type	Official vs Unofficial *	Date: Gregorian Calendar	Date: Hijri Calendar
1	Independence Day	Fixed, Non-Religious	Official during All Period	25-May	
2	Birthday of HM King Hussein	Fixed, Non-Religious	Official during All Period	14-Nov	
3	Labor Day[1]	Fixed, Non-Religious	Official during All Period	1-May	
4	Army Day	Fixed, Non-Religious	Official between 1992-1999	10-Jun	
5	Accession of HM King Hussein[2]	Fixed, Non-Religious	Official between 1992-1999	11-Aug	
6	King Abdullah's Birthday[3]	Fixed, Non-Religious	Official between 2000-2004	30-Jan	
7	New Year's	Fixed, Non-Religious	Official between 1996-2004	31-Dec & 1-Jan	
8	Christmas Day[4]	Fixed, Religious, Christian	Official between 1997-2004	25-Dec	
9	Eid Al-Fitr[5]	Moving, Religious, Islamic	Official during All Period		1st of Shawwal
10	Waqfat Arafat and Eid Al-Adha	Moving, Religious, Islamic	Official during All Period		9th & 10th of Thw al-Hijjah

11	*Eid Al-Mawlid* or Prophet's Birthday	Moving, Religious, Islamic	Official during All Period		12th of *Raby` al-Awal*
12	*Hijri* New Year[6]	Moving, Religious, Islamic	Official during All Period		1st of *Muharram*
13	*Lailat Al-Mi'raj*	Moving, Religious, Islamic	Official during All Period		27th of *Rajab*
14	Start of *Ramadan*[7]	Moving, Religious, Islamic	Unofficial during All Period		1st of *Ramadan*
15	Palm Sunday[8]	Moving, Religious, Christian	Unofficial during All Period		
16	Good Friday[9]	Moving, Religious, Christian	Unofficial during All Period		
17	Easter[10]	Moving, Religious, Christian	Unofficial during All Period		
18	Easter Monday[11]	Moving, Religious, Christian	Unofficial during All Period		
*A Holiday is defined as Official *vs*. Unofficial based on whether the market is open or not on that day.					

[1] When there is one regular day between Labor Day and the weekend, the holiday is taken on that day instead of, and for a couple of times with the original holiday, thus bringing the weekend and the Labor Day holidays together. When Labor Day occurs on a weekend day, an adjacent regular day is taken as a holiday. These events occurred in 1992, 1998, 2000, 2001 and 2002.

[2] It was an official holiday until 1999, when King Hussein passed away on the 7th of February.

[3] This holiday started and became official at King Abdullah's accession to the throne in 1999 after the death of his father, King Hussein.

[4] Although the original source of the Jordanian Holidays suggests that the Christian holidays are official only for Christians, the market price index series shows that from 1997 to 2004, the market was closed during Christmas days.

N.B. The Islamic religious holidays follow the Islamic or *Hijri* calendar year system. The date of occurrence of the different Islamic holidays changes from year to year. The Islamic year is comprised of 12 lunar months: *Muharram, Safar, Raby` al-Awal, Raby` al-Thany, Jumada al-Awal, Jumada al-Thany, Rajab, Sha`ban, Ramadan, Shawwal, Thw al-Qi`dah* and *Thw al-Hijjah*. A website that converts dates from *Hirji* to Gregorian calendar was used to convert all the occurrences of the Islamic holidays to Gregorian dates between 1992 and 2004. These conversions are rarely subject to a small error of one day, especially that the actual date of some of the Islamic holidays is decided based on the observance of the moon. However, the matching of these occurrences with the data series of the market index helps in confirming the exact date of the holiday.

[5] *Eid Al-Fitr* denotes the end of Ramadan.

[6] It is the start of New Year in the *Hijri* Calendar system. It represents the day when the Prophet first left the city of Mekkah and migrated to the city of Yathrib, which is a very important religious event to the Moslems. *Hijri* is an Arabic word that means migration.

[7] It is the start of the month during which Moslems exercise their religious duties of fasting.

[8, 9, 10, 11] Christian businesses can close down during these holidays. The date of occurrence of these holidays is based on the calculations of the Eastern Orthodox Church. It varies from year to year on the Gregorian calendar.

The days of the weekends which are official non-religious holidays, changed during the period under study between 1992 and 2004. This fact was discovered after the identification of the corresponding day for each date that was mentioned earlier. Between January 1, 1992 and February 26, 1999, weekend days were Thursdays and Fridays. After that date, weekend days became Fridays and Saturdays.

Finally, after matching the holidays with the ASE price index series, a number of holidays were identified as a one time event. For example, King Abdullah's accession to the throne was on June 9, 1999, and thus, the market closed on that day. Nonetheless, the event did not become an official holiday, at least not before 2004. Additionally, the data series revealed that the market was closed on November 8, 1993 and November 4, 1997. These days turned out to be the days on which there were elections of the House of Representatives in Jordan. On October 26, 1994 when Jordan concluded its Peace Treaty with Israel, the market was closed. Also, the market appeared to be closed on 10 other different days over the whole period between 1992 and 2004, for which no clear reason was identified. These could be exceptional events, due to the political instability in the region for example, which led to a closing of the market. All of these events mentioned above differ in nature from the holidays identified earlier, and thus were not considered as holidays when examining the impact of holidays on the stock market performance.

Table 2 presents the Jordanian average daily returns: Holidays *vs* Regular Days. It is observed that average daily returns are positive during Holidays. These returns tend to be higher during religious Holidays and tend to be negative during regular days.

Cairo and Alexandria Stock Exchange (CASE)

It is known that Egypt has the oldest stock market in the Middle East and North African (MENA) region[5]. In 1888, the Alexandria Stock Exchange was officially established. After 15 years, the Cairo Stock Exchange followed the Alexandria Stock Exchange and was launched on May 21, 1903. By 1907, and after having 228 listed companies and a market capitalization of EGP91 million, both the Alexandria Stock Exchange and the Cairo Stock Exchange rose to become among the world's top five markets. In 1907 however, the market was hit by a crisis that became later known as the worldwide 1907 crash.

Table 2. Jordanian Average Daily Returns: Holidays *vs* Regular Trading Days

Type/Nature of Market Day	Average Daily Return
Regular Trading Day	-0.0088%
1 Day Before a Official Holiday	0.0896%
1 Day After a Official Holiday	0.0872%
1 Day Before an Official Religious Holiday	0.2343%
1 Day Before an official Non-Religious Holiday	0.0932%
1 Day After an Official Religious Holiday	0.1909%
1 Day After an Official Non-Religious Holiday	0.1030%
1 Day Before an Unofficial Holiday	0.2182%
1 Day After an Unofficial Holiday	0.0385%
Unofficial Holiday Market Day	-0.0153%
*A regular trading day is defined as a day where there is no Holiday around it (from day	

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[5] www.arabfinance.com

–1 to day +1)

After the Free Officers' Revolution in 1952, and due to the resulting series of nationalizations, the Egyptian capital market became inactive for a relatively long period of time, until the government started a market restructuring program in the 1990s. This restructuring included the founding of the joint Cairo and Alexandria Stock Exchanges (CASE). An election of a new board of directors was conducted along with the establishment of a number of board committees to work on a complete market reform that was initiated based on two main pillars. The first was concerned with conducting the necessary legislative and organizational changes, and the second involved working on improving the efficiency in trading and putting into practice the needed developments in the market infrastructure.

Four regulatory bodies manage and regulate CASE. The first regulating body is its own board of directors, which is in charge of running and supervising the operations of the stock market. The second regulating body is the Capital Market's Authority (CMA). CMA was established in 1980, and is considered as an independent regulatory body in charge of setting laws and regulations to run the market. CMA is also responsible for granting licenses to brokerage firms, mutual funds and portfolio managers. In 1992, the CMA initiated a comprehensive price-weighted index to follow market performance. The third regulatory body is the Egyptian Capital Market Association (ECMA). ECMA is the first non-profit private capital market association initiated in 1996. ECMA is regarded as a market participant's representative and as a counseling medium for capital market related issues. Finally, the Misr Clearing Settlement and Depository (MCSD) is the fourth regulatory body responsible for transaction clearing and settlement. Launched in 1996, it is a private company that provides the purchased stocks or bonds for the buyers and the money for the sellers when the trading session is over.

Non-Egyptians are allowed to fully invest in CASE without any restrictions. A foreigner may own 100% of a listed company, given that the company's by-laws do not state otherwise. Individuals are not taxed for capital gains and interests earned on bonds. The same rule applies for corporations, mutual funds, and international funds. However, corporate gains made from securities trading are not tax-exempted. Individuals, corporations, mutual funds and international funds are all exempted from taxes on dividends, capital gain, and interest on bonds.

The CASE has two kinds of schedules for the companies listing requirements, an official schedule and an unofficial one. In general, a company is eligible to be listed on the CASE if its by-laws have no absolute trading restrictions on its shares in the stock market. In addition, a company that wishes to be listed has to include its shares in the central depository system. Besides these general listing requirements, the official schedule requires that at least 150 shareholders, including foreigners, should hold a company. It should also have at least 30% of its shares outstanding issued in a public offering. Finally, companies are required by the unofficial schedule to have a paid-up capital of no less than 50% of its total capital. Companies found on the unofficial schedule must present their financial statements for at least one year of operation.

EFG Daily Returns and Egyptian Holidays

For the Egyptian market, the daily data of the Egypt Financial Group (EFG) Index is used since there was no access to historical daily data for a more comprehensive index. The EFG Index is an index that follows the price changes of Egyptian companies, with large capitalization, and with shares that are the most actively traded on the CASE.. The index lists only 9 companies, to wit: Commercial International Bank, Eastern Tobacco, Egyptian Company for Mobile Services, National Societe General Bank, Orascom Construction Industries, Orascom Telecom Holding,

Oriental Weavers, Suez Cement and Vodafone Egypt Telecommunications.

Date Coverage. The set of criteria for the inclusion of a company in this index is basically the level of market capitalization, the average daily value traded, the average daily number of transactions, and the total number of days traded during a calendar quarter. The index is weighted according to capitalization and is rebalanced quarterly. The daily stock price of the EFG index data series was taken between Wednesday, June 9, 1993 and Wednesday, December 17, 2003. Similar to the process applied on the Jordanian data, Egypt's official and unofficial holidays were identified and then matched with the data series of the index.

There are also 18 types of both official and unofficial holidays identified in Egypt between June 1993 and December 2003 in addition to the weekends[6] (Table 3). Eleven out of the 18 types were holidays with a fixed date throughout the years, whereas the dates of the remaining 7 moved from year to year. Nine out of the 18 types of holidays were religious, whereas the remaining 9 were non-religious. Ten out of the 18 types of holidays had always been official holidays between 1992 and 2004; 3 out 18 had been official holidays for a significant time between 1992 and 2004 and the remaining 5 had never been official holidays between 1992 and 2004. It may be noted that after matching the holidays with the EFG index series, the market appears to be closed on 26 different days with different dates over the whole period between 1992 and 2004, for which no clear and common reason was identified. These may have been exceptional events, due to the political instability in the region. Due to the ambiguity of the reason behind the closing of the market on these dates, they were not considered as holidays, and thus were omitted from the observations when the impact of holidays on the stock market performance was examined.

Table 3. Egyptian Holidays (1993-2003)

	Holiday	Type	Official vs Unofficial *	Date: Gregorian Calendar	Date:*Hijri* Calendar
1	Sinai Liberation Day	Fixed,Non-Religious	Official during All Period	25-Apr	
2	Revolution Day	Fixed,Non-Religious	Official during All Period	23-Jul	
3	Armed Forces Day	Fixed,Non-Religious	Official during All Period	6-Oct	
4	Labor Day	Fixed,Non-Religious	Official during All Period	1-May	
5	Bank Holiday	Fixed,Non-Religious	Official during All Period	1-Jul	
6	Suez Victory Day	Fixed,Non-Religious	Official Only in 1996	24-Oct	
7	Evacuation Day	Fixed,Non-Religious	Official between 1993-1996	18-Jun	

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[6] The weekend days, which are official non-religious holidays, are according to various sources, the days of Friday and Saturday. However, it is observed that until the end of the year 2000, the market was also closed on Sunday, thus creating a three day weekend between 1993 and 2000. After 2000, the weekends are identified as Friday and Saturday.

8	New Year's Day	Fixed,Non-Religious	Official between 1998-2003	1-Jan	
9	Victory Day	Fixed,Non-Religious	Unofficial during All Period	23-Dec	
10	*Eid Al-Fitr*	Moving, Religious, Islamic	Official during All Period		1st of *Shawwal*
11	*Waqfat Arafat* and *Eid Al-Adha*	Moving, Religious, Islamic	Official during All Period		9th & 10th of *Thw al-Hijjah*

… Continue

Table 3 Cont.

12	Prophet's Birthday	Moving, Religious, Islamic	Official during All Period		12th of *Raby` al-Awal*
13	*Hijri New Year*	Moving, Religious, Islamic	Official during All Period		1st of *Muharram*
14	Easter Monday[1]	Moving, Religious, Christian	Official during All Period		
15	*Lailat Al-Mi'raj*	Moving, Religious, Islamic	Unofficial during All Period		27th of *Rajab*
16	Start of *Ramadan*	Moving, Religious, Islamic	Unofficial during All Period		1st of *Ramadan*
17	Coptic New Year's	Fixed, Religious, Christian	Unofficial during All Period	11-Sep	
18	Coptic Christmas	Fixed, Religious, Christian	Official between 1997-2003	7-Jan	

*Remark: A Holiday is defined as Official *vs* Unofficial based on whether the market is open or not on that day

[1] It varies in date from year to year and its occurrence matches the calendar of the Eastern Orthodox Church.

Table 4 presents the Egyptian average daily returns: Holidays *vs* Regular Days. It is observed that average daily returns for non-religious Holidays are positive and for religious Holidays, negative.

Table 4. Egyptian Average Daily Returns: Holidays *vs* Regular Trading Days

Type/Nature of Market Day	Average Daily Return
Regular Trading Day	-0.0375%
1 Day Before a Official Holiday	0.0958%
1 Day After a Official Holiday	0.1709%
1 Day Before an Official Religious Holiday	-0.0988%
1 Day Before an Official Non-Religious Holiday	0.0954%
1 Day After an Official Religious Holiday	-0.2821%
1 Day After an Official Non-Religious Holiday	0.1769%
1 Day Before an Unofficial Holiday	0.8010%
1 Day After an Unofficial Holiday	-0.0800%
Unofficial Holiday Market Day	-0.0144%
* A regular trading day is defined as a day where there are no Holidays around it (from day –1 to day +1)	

Hypotheses

Examining the relationship between the holidays in a country and that country's stock market performance involves the study of the relationship between two variables over a certain period of time. The first variable is the daily return on the country's stock market index. The second is a dummy variable that distinguishes between regular trading days and trading days right before or after a holiday, depending on the hypothesis being tested.

The distinction between the different sets of hypotheses developed is also based on the type of the holidays under study. For example, one hypothesis examines the impact of religious official holidays, whereas another examines the impact of non-religious official holidays on stock market performance. Thus, for each hypothesis, there is a different dummy variable definition that distinguishes the type of holidays examined.

First Set of Hypotheses. The first set examines the significance of the relationship between official holidays, religious and non-religious, and the stock market performance. In this set, there are two hypotheses:

- One that examines the significance of the stock return performance one day before an official holiday, and

- Another one examines the significance of the stock return performance one day after an official holiday.

In the first hypothesis, for each open market day, the dummy variable takes a value of 1 if the next day is a holiday, and a value of 0 if it is another regular trading day, and is called HDB (*HoliDay Before*). In the second hypothesis, for each open market day, the dummy variable takes a value of 1 if the day before is a holiday, and a value of 0 if it is another regular trading day, and is called HDA (*HoliDay After*).

Second Set of Hypotheses. The second examines the significance of the relationship between official non-religious holidays and the stock market performance. In this set, there are again two hypotheses:

- One that examines the significance of the stock return performance one day before a non-religious holiday, and

- Another one examines the significance of the stock return performance one day after a non-religious-holiday.

In the first of these two, for each open market day, the dummy variable takes a value of 1 if the next day is a non-religious holiday, and a value of 0 otherwise, and is thus called NHDB (*Non-religious HoliDay Before*). In the second hypothesis, for each open market day, the dummy variable takes a value of 1 if the day before is a non-religious holiday, and a value of 0 otherwise, and is called NHDA (*Non-religious HoliDay After*).

Third Set of Hypotheses.   The third set examines the significance of the relationship between official religious holidays and the stock market performance. In this set, there are two hypotheses:

- One that examines the significance of the stock return performance one day before a religious holiday, and

- Another one examines the significance of the stock return performance one day after a religious holiday.

In the first of these two, for each open market day, the dummy variable takes a value of 1 if the next day is a religious holiday, and a value of 0 otherwise, and is thus called RHDB (*Religious HoliDay Before*). In the second hypothesis, for each open market or working day, the dummy variable takes a value of 1 if the day before was a religious holiday, and a value of 0 otherwise, and is called RHDA (*Religious HoliDay After*).

Fourth Set of Hypotheses. The fourth set examines the significance of the relationship between unofficial holidays, both religious and non-religious, and the stock market performance. In this set, there are three hypotheses:

- One that examines the significance of the stock return performance one day before an unofficial holiday,

- Another one examines the significance of the stock return performance during the day of an unofficial holiday, and

- A third one examines the significance of the stock return performance one day after an unofficial holiday.

In the first of these three, for each open market day, the dummy variable takes a value of 1 if the next day is an unofficial holiday, and a value of 0 otherwise, and is thus called UHDB (*Unofficial HoliDay Before*). In the second hypothesis, for each open market or working day, the dummy variable takes a value of 1 if that same day is an unofficial holiday, and a value of 0 otherwise, and is called UHDD (*Unofficial HoliDay During*). In the third hypothesis, for each open market or working day, the dummy variable takes a value of 1 if the day before is an unofficial holiday, and a value of 0 otherwise, and is called UHDA (*Unofficial HoliDay After*).

To test the above-mentioned hypotheses, Autoregressive Conditional Heteroscedasticity (ARCH) type of regressions was performed with the following equations:

$$R_t = a_0 + a_0 R_{t-1} + b_1 D_1 + b_2 D_2 + \varepsilon_t \qquad \text{(Equation 1)}$$
$$R_t = a_0 + a_0 R_{t-1} + b_3 D_3 + b_4 D_4 + b_5 D_5 + b_6 D_6 + b_7 D_7 + b_8 D_8 + \varepsilon_t$$
$$\text{(Equation 2)}$$

Where:
$R_t = Log\ (P_t/P_{t-1})$
D_1, D_2 *are dummy variables for HDB and HDA*
$D_3 ... D_8$, *are dummy variables for RHDB ,UHDB,NHDB,RHDA,UHDA,NHDA*

Means tests (t-tests) were invoked to find the significance between each of the holiday categories and regular trading days.

Finally, following Hirshleifer and Shumway (2003), logit regressions were conducted to relate the probability of a positive daily return to holidays. This type of examination involves testing the relationship between the daily market returns and the occurrence of a holiday.

Empirical Results

Table 5 reports the regression results. It has been observed that: day before a holiday (HDB); the day before a religious holiday (RHDB); and the day before a non-religious holiday (NHDB) are significant and positive for the ASE and EFG indices. However, the remaining variables: day after a holiday (HDA); day after non-religious holiday (RHDA), day before non-official holiday (UHDB); day after non-official holiday (NHDA); and day after unofficial holiday (UHDA) are non significant. These results are consistent with previous psychological studies that show that people's moods are more positive than normal prior to holidays (e.g. Mitchell, Thompson, Peterson and Cronk, 1997). On the other hand, the results for the days after holidays and for unofficial holidays are insignificant. This is a clear indication that the positive mood effect is present only before the holidays. It should be noted that the results for EFG index are in general less significant than for ASE index.

Table 6 provides difference of means tests between different types of holidays and regular trading days. The results remain significant for the same variables. To investigate whether the nature of a holiday (religious *vs* non-religious) has any implication on the results, RHDB and NHDB returns were compared for both indices but found to have insignificant statistical

differences. It is concluded that the significance of the Holiday effect is not different for Religious Holidays.

Table 7 presents the statistical results obtained from conducting logit regressions on holidays and market returns for the Jordanian and Egyptian markets. For each logit regression, the table reports the value of the return coefficient β, the Standard Error, the Z-score, the p-value and the significance of the results. In this case, the null hypothesis that the probability of the occurrence of a holiday is equal to zero is tested. The empirical results of the Jordanian data show that there is a significant positive relationship between the Jordanian official holidays, both religious and non-religious, and the ASE stock market returns one day before these holidays. This result confirms earlier results for the ARCH regression that the index returns are significantly related to the day before holidays. On the other hand, significant results were found for the days following Holidays (HDA, NHDA). These results indicate that by looking at index returns, one may observe that "this return is telling me that tomorrow (yesterday) is probably a holiday".

Table 5 . ML-ARCH Regression Results for Jordanian (ASE) and Egyptian (EFG) Indices

	ASE (1)	ASE (2)	EFG (1)	EFG (2)
Day before holidays (HDB)	0.000652***		0.001358**	
	(0.0002)		(0.0006)	
Day after holidays (HDA)	0.000216		0.000994	
	(0.0002)		(0.0005)	
Day before religious holidays (RHDB)		0.001266**		0.002369*
		(0.0007)		(0.0017)
Day before unofficial holidays (UHDB)		0.000925		0.001929
		(0.0008)		(0.0015)
Day before non-religious holidays (NHDB)		0.000553***		0.001718***
		(0.0002)		(0.0007)
Day after religious holidays (RHDA)		0.000724		0.000194
		(0.0005)		(0.0015)
Day after unofficial holidays (UHDA)		0.000321		0.003019
		(0.0008)		(0.0020)
Day after non-religious holidays (NHDA)		0.0000735		0.000839
		(0.0002)		(0.0005)
Return (lagged one day)	0.258038***	0.256282***	0.142418***	0.142055***
	(0.0180)	(0.0180)	(0.0200)	(0.0201)
*** Significant at 1%, ** Significant at 5%, * Significant at 10%				

Table 6. Mean Difference Tests Between Holidays and Regular Days for ASE and EFG Indices

	Two Sample t-test Statistic	
	ASE (Jordan)	EFG (Egypt)
Day before holidays (HDB)	2.188 **	1.942**
	(0.029)	(0.046)
Day after holidays (HDA)	1.036	1.003
	(0.301)	(0.109)
Day before religious holidays (RHDB)[7]	2.259**	0.673*
	(0.024)	(0.501)
Day before unofficial holidays (UHDB)	1.584	0.18
	(0.113)	(0.371)
Day before non-religious holidays (NHDB)	2.436 ***	1.726**
	(0.015)	(0.047)
Day after religious holidays (RHDA)	1.231	1.202
	(0.222)	(0.235)
Day after unofficial holidays (UHDA)	0.027	0.445
	(0.979)	(0.657)
Day after non-religious holidays (NHDA)	0.241	0.764
	(0.025)	(0.097)

*** Significant at 1%
** Significant at 5%
* Significant at 10%

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[7] Comparison of RHDB (religious Holiday before) and NHDB (non-religious Holiday before) returns was done for both indices. Findings reveal no statistical significant difference.

Table 7. Logit Regressions on Holidays and Market Returns for the Jordanian and Egyptian Markets

Variable	ASE index (Jordan)					EFG Index Egypt				
	B	Std. Error	Z	p-value	significance	β	Std. Error	Z-score	p-value	significance
HDB	12.862	5.887	2.185	2.89%	(**)	1.982	2.859	0.693	48.83%	-
NHDB	13.613	5.940	2.292	2.19%	(**)	1.944	2.882	0.675	49.99%	-
RHDB	34.455	15.031	2.292	2.19%	(**)	-5.598	8.298	-0.675	49.99%	-
HDA	12.132	5.987	2.026	4.27%	(**)	5.407	2.895	1.868	6.18%	(*)
NHDA	15.736	6.006	2.620	0.88%	(***)	5.659	2.904	1.949	5.13%	(**)
RHDA	27.593	15.461	1.785	7.43%	(*)	-12.448	8.311	-1.498	13.42%	-
UHDA	0.626	23.422	0.027	97.87%	-	-4.849	10.880	-0.446	65.58%	-
UHDD	-0.105	0.261	-0.402	68.79%	-	-2.455	10.816	-0.227	82.04%	-

Robustness of Results

The results for the EFG index in Table 7 are significant only for HDA and NHDA. A possible explanation for the non-significant results for the Egyptian stock market could be the fact that the EFG Index represents only nine companies. Hence, it may not properly reflect the true price movement of all companies whose stocks are traded on the exchange. In order to confirm the robustness of these results, the discussion of two relevant issues is in order.

- The seasonality in returns may be responsible for the observed or supposed impact of holidays on the stock market return. The study of Affaneh and Boldin (2001) on day of the week and seasonal effects of five regional markets including Jordan and Egypt, presents clear evidence in favor of the Monday effect, and other seasonal effects. In a recent study, Alper and Aruoba (2004) reported that when holidays vary from one year to year (e.g. Islamic Holidays), the traditional ways of extracting seasonal effects become weaker. They concluded that when Holiday variation is present so that the dates of certain holidays change from year to year, standard procedures may fail to extract all of the seasonality since the holiday effects are not confined to the seasonality component.

- The Holiday effect may not be restricted to influencing returns. It might also affect transactions volume and higher moments such as skewness. Since the data set used in this study does not contain information regarding transactions volume for both the Jordanian and Egyptian stock markets, it will remain a limitation of this current study.

Conclusion

The objective of this paper is to test whether holidays have a positive effect on people's moods, which in turn, affect their judgments and investment decisions. Therefore, it seems reasonable to suggest that the performance of equity markets is affected by the mood of investors during holiday periods. Four sets of hypotheses on the relation between holidays and market

returns were developed and tested by examining empirical evidence from the Jordanian and Egyptian markets.

It is observed that the day before a holiday (HDB), the day before a religious holiday (RHDB), and the day before a non-religious holiday (NHDB) are significant and positive for the ASE and EFG indices. However, the remaining variables are insignificant. These results are consistent with previous psychological studies showing that people's moods are more positive than normal prior to holidays (e.g. Mitchell, Thompson, Peterson and Cronk, 1997)

On the other hand, the results for the days after holidays and for unofficial holidays are insignificant. This is a clear indication that the positive mood effect is present only before the holidays. The empirical results obtained from conducting logit regressions on holidays and market returns for the Jordanian and Egyptian markets indicate that by looking at index returns one may observe that "this return is telling me that tomorrow (yesterday) is probably a holiday". These results are consistent with those of Hirshleifer and Shumway (2003) who affirm that sunshine and stock returns are strongly and significantly correlated.

In an era of globalization, the conduct of such a research on the different financial markets would not only enhance our understanding of the phenomenon in these markets, but it could also be of great interest to the international portfolio managers. In particular, by recognizing the different market trends around various holidays, an investor may improve his/her portfolio's timing of trades by taking advantage of mood-enhanced market performance worldwide.

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