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The Halloween Effect Anomaly: Evidence from Some Arab Countries Equity Markets

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ABSTRACT

This paper examines the existence of the Halloween effect for some Arab countries equity markets. The data set used in this study constitutes of daily stock prices for 9 Arab equity markets in the Middle East region. Following Bouman and Jacobsen (2002), we use regression analysis with dummy variables to test for the existence of the Halloween effect in some Arabian equity markets; which is equivalent to a simple mean test. A highly significant Halloween effect documented for 7 out of 9 Arabic equity markets in the Middle East region even after adjustments have been made for January effect.

I. INTRODUCTION

Calendar effects in stock market returns have confused financial economists for over 50 years. The evidence of equity market anomalies contradicts the prediction of the efficient market hypothesis (EMH), at least in its weak form, because the predictable movements in asset prices provide investors with opportunities to generate abnormal returns. In addition, stock market anomalies may result from an inefficient flow of information in financial markets, which is a violation of an underlying assumption of the EMH.

The most important calendar effects studied in the literature are the day of-the-week effect (significantly different returns on some days of the week, usually higher Friday returns and lower Monday returns), the monthly or January effect (relatively higher January returns), the trading month effect (returns higher over the first fortnight of the month), the holiday effect (returns higher on the days before vacations), and more recently the Halloween effect (stock returns are significantly lower during the May-October periods versus the November-April periods). Thaler (1987a, 1987b) provides an early and partial survey, while Mills and Coutts (1995) provide more recent references.

Various factors, some of which are listed below, might explain calendar effects. For the monthly effect, several possibilities have been suggested: increased January cash flows due to holiday bonuses, pensions, etc.; selling of non profitable stocks for tax reasons at the end of the year and reinvestment in January; financial managers' attempts to show better end-of-year portfolio structure; beta coefficient increases in January. For day

of-the-week effect, the following have been suggested: measurement errors; differences in settlement time of transactions; attitudes of certain investors groups; and investors' tendency to suspend the announcement of bad news until the weekend so that the market will have time to absorb the shock. While seasonal effects in advanced equity markets have been investigated extensively (see for example Gultekin and Gultekin, 1983; Brown et al., 1983; Kim, 1988; Mehdian and Perry, 1999), emerging markets have received less attention especially equity markets in the Middle East and North Africa (MENA) region (see AL-loughani, 2003; Maghayereh, 2003; Aly et al., 2004; Alsaad et al., 2005).

The purpose of this paper is to investigate the Halloween effect in 9 Arab equity markets in the Middle East region using daily data for local indices. The rest of the paper is organized as follows. Section II provides review of the Halloween effect. Characteristics of the markets under examination are described in section III, section IV presents data and methodology, and section V presents the empirical results. Finally, section VI contains a summary and conclusion.

II. REVIEW OF THE HALLOWEEN EFFECT EVIDENCE

In their paper published in The American Economic Review, Bouman and Jacobsen (2002) investigate monthly returns across world stock markets for the period January 1970- August 1998 and conclude that monthly returns are unusually large during the November-April periods for 36 out of 37 stock markets in their sample. They document new calendar time anomaly in stock prices and label it the Halloween effect; it is so called because it would have you in the stock market starting October 31 and through April 30 and out of the market for the other half of the year, whereas this anomaly consistent with an old inherited market saying "Sell in May and Go Away".

Bouman and Jacobsen (2002) ague that the Halloween strategy outperforms the buy and hold strategy on a risk-adjusted basis in the bulk of markets examined thereby casting doubt on the validity of the efficient market paradigm. The question that immediately arises is that there appear to be no clear reason why the Halloween puzzle should exist in a well-developed capital markets like USA, UK, and Japan. Bouman and Jacobsen (2002) address a number of potential explanations for the Halloween effect, but none appear to explain the puzzle. In particular, Bouman and Jacobsen (2002) consider that the Halloween puzzle is not economically exploitable after considering the impact of transaction costs. Data mining is another explanation but they eventually reject data mining as a possible explanation.

Higher returns over the November-April period could be due to higher risk in this period. The Halloween puzzle could be a materialization of other calendar time anomalies, in particular, the January effect. The puzzle could be caused by shifts in either interest rates or shifts in trading volume. And stock returns could be lower over the May-October period because of a seasonal factor in the provision of news. Bouman and Jacobsen (2002, p.1630) argue that none of these potential explanations offer much explanatory power for the existence of the

Halloween puzzle and " we are faced with the following problem: history and practice tell us that the old saying is right, while stock market logic tells us it is wrong. It seems that we have not yet solved this new puzzle".

However, according to Fama's argument; Fama (1998), empirical studies documenting long-term return anomalies like the Halloween effect are sensitive to methodology. Since most long-term return anomalies tend to disappear with reasonable changes to technique. Marberly and Pierce (2003) examine the robustness of the Halloween strategy to alternative model specifications for Japanese equity prices and find that the Halloween effect is concentrated in the period prior to the introduction of Nikkei 225 index futures in September 1986. While after the internationalization of Japanese financial markets in the mid of 1980s, the Halloween effect disappears. In addition, Marberly and Pierce (2004) examine the sturdiness of the Halloween effect to alternative model specifications for USA and extend the analysis to S&P 500 stock index futures. They conclude that "the documentation of the Halloween effect in the U.S disappears after an adjustment is made for the impact of outliers. In particular, the large monthly decline for October 1987 and August 1998 associated with the stock market crash and collapse of the hedge fund Long-Term Capital Management, respectively. For the U.S., the empirical evidence indicates that the Halloween effect is not exploitable anomaly, and this is true for both spot and future prices".

As a logical extension of prior research, this paper examines the Halloween effect for 9 Arab equity markets in the Middle East region.

III. CHARACTERISTICS OF THE MARKETS

Markets including in this study are the following: Abu Dhabi, Bahrain, Dubai, Egypt, Jordan, Kuwait, Oman, Palestine, and Saudi Arabia. The financial sector in the Arabic countries is dominated by commercial banks; the securities in these countries are relatively small despite the fact that the region contains some of the developing world's largest institutional investors in international markets. Foreign participation, even in the governmental bond markets, is limited in most countries. Similarly, there have been few direct placements of Middle Eastern equities on foreign markets. Moreover, the use of market based risk management instruments by countries in the region has been extremely narrow, despite the relatively limited degree of export diversification. By international standards, markets under examination are considered relatively new, 7 of them (Abu Dhabi, Bahrain, Dubai, Kuwait, Oman, Palestine, and Saudi Arabia) started operating over the last two decades, while others (Egypt and Jordan) have been in existence for much longer but until recently their level of activity was not significant. In terms of market accessibility to foreign investors, there are significant differences between markets under study here; whereas Egypt, Jordan, and Palestine are freely available to foreign investors while the other markets impose some restrictions on foreign investments on their listed shares.

Table 1 presents some market indicators for markets included in this study. With respect

to market capitalization Arab markets are small by international standards; their total capitalization constitutes less than 2 percent of that of U.S. market, and only about 85 percent of Mexico, an emerging market in 1998 (Dahel, 1999). Within the group of Arab markets under examination here, the Saudi Arabian market is the largest of about 56 percent of the total capitalization value followed by Kuwait, Abu Dhabi markets respectively.

In terms of yearly turn over ratio, which is the ratio of the yearly trading value to market capitalization at the end of the year, the Saudi market is the most active followed by Kuwaiti equity market. The number of listed companies by it self can provide an indication of the choice of firms available to an investor. In this case Egypt stands out among other markets with a total 792 company at the end of 2004. However, if the number of listed companies is used in conjunction with market capitalization, it will indicate the average market value per listed companies. In this case, Saudi market has far the biggest market value per listed company among other markets with U.S$ 4195 million followed by Dubai equity market; while Egypt has the lowest market value per listed company after Palestine with U.S. $ 48 million in 2004.

IV. DATA AND METHODOLOGY

The data set used in this paper consists of daily closing values for local indices for each market and has been gathered piece by piece from each market from January 1991 to December 2004. However, the time horizon differs from market to market according to the establishment date of that market or the availability of data. Table 2 presents summery statistics of the daily returns for each market. To test for the existence of the Halloween effect, Bouman and Jacobsen (2002) use regression analysis with dummy variables, which is equivalent to a simple means test. Their analysis is represented as:

$$R_t = \mu + \alpha_1 s_t + \varepsilon_t$$

Table 1

Some Markets Indicators for the year 2004

Market	Market Capitalization (millions of U.S $)	Daily Trading Value (millions of U.S $)	Turn Over Ratio (percent)	Number of Listed Companies
Abu Dhabi	55,490.40	61.37	0.08	35
Bahrain	13,513.18	7.58	0.03	45
Dubai	35,090.90	190.85	0.39	18
Egypt	38,076.84	109.87	0.18	792
Jordan	18,383.40	87.75	0.29	192
Kuwait	73,580.54	841.92	0.70	125
Oman	9,317.66	31.47	0.21	123
Palestine	1,096.53	0.43	0.18	26
Saudi Arabia	306,255.70	6,285.02	1.54	73

Source: Arab Monetary Fund (AMF) Database.

R_t represents continuously compounded index returns defined as the natural logarithm of the price relatives. The dummy variable S_t takes on the value 1 if observation t falls in month within the November-April periods and 0 otherwise. The intercept term μ represents the mean return over the May-October periods and $\mu + \alpha$ represents the mean return over the November-April periods. If α_1 is positive and significant at a meaningful level, then this is considered as indication of a Halloween effect.

Studies by Haugen and Lakonishok (1988) among others suggest that stock returns are unusual large in January and label this observable fact the January effect. The unusually large monthly returns documented by Bouman and Jacobsen (2002) during November-April periods could be a symptom of the January effect, Bouman and Jacobsen (2002) test for this possibility by including a January dummy in their regression analysis. To duplicate Bouman and Jacobsen's analysis, equation 1 is modified by inserting a second dummy variable J_t which is set equal to 1 whenever month t is January and 0 otherwise.

$$R_t = \mu + \alpha_1 s_t + \alpha_2 J_t + \varepsilon_t \quad (2)$$

V. EMPIRICAL RESULTS

Figure 1 presents the average returns in the period May-October and the period November-April for each country. As can be seen in figure 1, the differences in returns in the two half-year periods are generally large and economically significant for 5 out of 9 markets. Average returns over the period May-October, with the exception of Kuwait, do not exceed 2 percent. However, during the period November-April they exceed the 2 percent in 5 countries, while 2 countries exhibit higher average returns during May-October period.

As noted previously, a positive and significant α_1 parameter is evidence of a Halloween effect. Since α_1 denotes the average returns in the period November-April in excess of the average returns during the other six months of the year. Thus the simple tests as to whether mean returns are higher during the period November-April than during the period May-October.

Figure 1

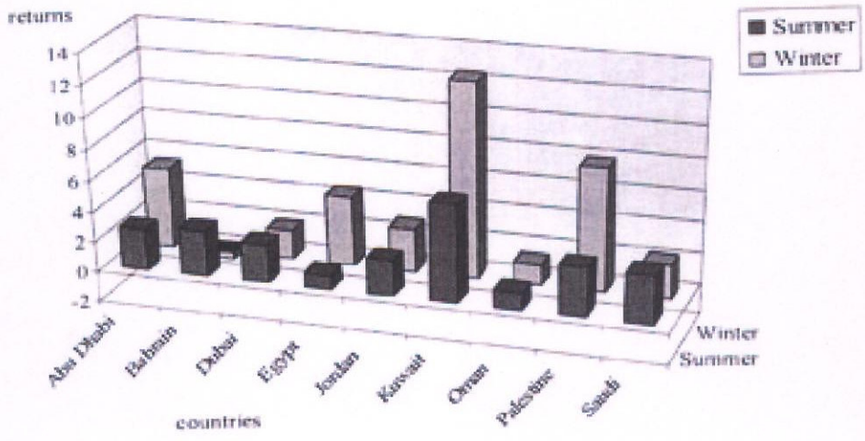

Table 2

Summary statistics for the daily markets returns

	Abu Dhabi from July 2001 to July 2003	Bahrain from Jan. 1991 to June 2004	Dubai from March 2000 to Dec. 2003	Egypt from Jan.1998 to Dec.2004	Jordan from Jan.1992 to Dec. 2004	Kuwait from June 2001 to Dec.2004	Oman from Feb. 1997 to Oct.2004	Palestine from June 1997 to Dec. 2004	Saudi Arabia from Jan.1994 to Dec.2004
Mean	0.00012	0.00003	0.00009	0.00006	0.00007	0.00023	0.00003	0.00016	0.00005
Median	0.00008	0.00001	0.00005	-0.00004	-0.00002	0.00020	-0.00001	0.00000	0.00005
Maximum	0.00384	0.02759	0.04821	0.02850	0.00947	0.00531	0.01939	0.05110	0.02106
Minimum	-0.00344	-0.02656	-0.01933	-0.01649	-0.00844	-0.00761	-0.01730	-0.04768	-0.02060
Std. Dev.	0.00075	0.00098	0.00223	0.00250	0.00144	0.00131	0.00137	0.00350	0.00118
Skewness	0.105	0.407	8.026	0.848	0.301	-0.586	0.802	0.498	0.110
Kurtosis	7.819	361.888	209.117	16.661	7.742	7.507	51.879	69.558	72.607
Jarque-Bera	625	17704770	1955444	13154	2971	621	189243	217854	622206
Probability	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Observations	645	3299	1098	1666	3121	687	1899	1180	3082

Table 3
The Halloween Effect for some Arab Countries Stock Markets

$$R_t = \mu + \alpha_1 S_t + \varepsilon_t$$

Countries	N. of observations	Mean	P-Value	α_1	P-value
Abu Dhabi	512	0.0003	0.0873	0.9903	0.0000
Bahrain	3340	0.0003	0.7599	1.0008	0.0000
Dubai	1098	0.0004	0.1508	-0.0171	0.7654
Egypt	1733	0.0005	0.2468	0.1977	0.0000
Jordan	3226	0.0004	0.0008	0.2231	0.0000
Kuwait	688	0.0007	0.0549	0.9763	0.0000
Oman	1908	0.0001	0.4360	0.9998	0.0000
Palestine	1264	0.0003	0.4582	0.9973	0.0000
Saudi	3299	0.0005	0.0011	-0.0768	0.0008

R_t represents monthly continuously compounded returns for the price indices. N, the number of daily observations. The constant term μ represents the daily mean returns over the May-October periods. The daily mean return over the November-April periods is represented by $\mu + \alpha$

Table 3 refers to the basic model (equation 1). In this case, 7 of the 9 countries under examination here exhibit highly statistically significant Sell in May effect at the 1 percent level. These results are consistent with those presented by Bouman and Jacobsen (2002) and support the hypothesis of significant Halloween effect for some Arab stock markets.

Following Fama's argument (Fama, 1998) that most long-term returns anomalies tend to disappear with reasonable changes to technique. While the Sell in May Hypothesis

Table 4
The Halloween Effect for Arab Countries Stock Markets with January impact adjustment

$$R_t = \mu + \alpha_1 S_t + \alpha_2 J_t + \varepsilon_t$$

Countries	Mean	P-Value	α_1	P-value	α_2	P-value
Abu Dhabi	0.0003	0.0863	0.9925	0.0000	0.9710	0.0000
Bahrain	0.0003	0.7595	0.9988	0.0002	1.0103	0.0870
Dubai	0.0004	0.1795	-0.0349	0.5617	0.1618	0.3960
Egypt	0.0003	0.3919	0.0952	0.0088	0.5876	0.0000
Jordan	0.0004	0.0008	0.2227	0.0000	0.2243	0.0000
Kuwait	0.0007	0.0551	0.9770	0.0000	0.9721	0.0000
Oman	0.0001	0.4357	0.9999	0.0000	0.9979	0.0000
Palestine	0.0003	0.4582	0.9970	0.0000	0.9992	0.0000
Saudi	0.0005	0.0010	-0.0895	0.0002	0.0775	0.3502

R_t represents monthly continuously compounded returns for the price indices. N, the number of daily observations. The constant term μ represents the daily mean returns over the May-October periods. The daily mean return over the November-April periods is represented by $\mu+\alpha_1$. The impact of January returns represented by α_2.

suggests that average returns are higher during the period November-April than during the period May-October, one might argue that since the January effect generates high positive returns in many stock markets. The Sell in May effect is simple a January effect in disguise. To test this hypothesis, we considered an additional regression and give the Sell in May dummy the value 1 in the period November to April, except in January while for January we add an additional dummy (equation 2). Table 4 presents the results of the Halloween effect with adjustment for January effect. The results indicate that all access returns in January are entirely due to a January effect (α_2) and not caused by Sell in May effect, Note that the Halloween effect which presented by α_1 still the same, highly statistically significant without any noticeable reduction in α_1's value except for Egypt, which α_1 parameter changes from 0.1977 to 0.0952 but still significant at 5 percent level. Indicating that despite the addition of January dummy, the Sell in May effect still exists for 7 of 9 countries under study in the Arab equity markets.

VI. CONCLUSION

The Halloween effect is considered an exploitable anomaly, which is taken as another example of market inefficiency. The rule is to sell stocks at the end of April and buy stocks at the end of October with all proceeds invested in a risk-free investment in the interim. Based on the old market saying "Sell in May and go away", Bouman and Jacobsen (2002) examine this phenomenon and find significant Sell in May effect in 36 out of 37 countries examined. Marberly and Pierce (2003) extend prior research on the Halloween effect to Japanese equity market and find that a significant Halloween effect is documented but only over the period to the internationalization of Japanese financial markets. The same authors in 2004 (Marberly and Pierce, 2004) find that the documented Halloween anomaly in the U.S., disappears after an adjustment is made for the impact of outliers. This paper extends prior researches on the Halloween effect to some Arab equity markets. A highly significant Halloween effect is documented for 7 out of 9 Arab equity markets used in this study in the Middle East region. Even after taking in account the January effect, the Halloween effect still exists in 7 of 9 Arab equity markets. The implication of such result put the issue of market efficiency under suspicion, at least in its weak form for the Arab stock markets under examination here. Since an efficient market anomalies should not exist.

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