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Cross-cultural differences in seasonality

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ABSTRACT

This paper analyzes daily market index and company level stock return data across the Gulf Cooperation Council (GCC) region in search of calendar effects well documented in many international stock markets. The presence of day-of-the-week anomalies suggests the existence of a global phenomenon. In spite of the unique status of the Gulf region as a tax haven, company level data shows spill-over effects of tax-selling that can be used to identify market segments with a high presence of foreign investors trying to reduce the home tax burden as traces of the January effect are found in these segments. Lastly, the magnitude of the holiday effect depends not only on the cultural/religion setting of a country market but on the cultural/religious background of its participants. If a local market is dominated by foreign investors, their belief system, even if different from that of local investors, is reflected in the return behavior of the local market.

1. Introduction

Since the preliminary observations of Wachtel (1942), evidence of stock return seasonality has been documented in abundance for developed and to a much lesser extent for developing and emerging markets. Among the most widely documented seasonality effect are the Monday effect (day-of-the-week effect), the January effect, and the Holiday effect. This paper analyzes daily stock market returns across the widely untapped GCC region in search of all three return anomalies.

1.1. Day-of-the-week effect

Several works have documented lower daily returns on Mondays compared to other trading days during the week, the so called Monday effect, which was known to traders since the 1920s (Pettengill 2003), and documented, e.g., by French (1980) and Jaffe and Westerfield (1985). Damodaran (1989) states that companies tend to report bad news after market closings on Fridays, leaving disappointed investors without a chance to sell before the subsequent Monday. Lakonishok and Maberly (1990) find investors to generally increase their trading activities particularly selling. In contrast, higher abnormal returns are found by Pettengill, Wingender, and Kohli (2003), while others cannot detect any day-of-the week effect at all, e.g., Pena (1995).

Chang, Pinegar, and Ravichandran (1993) find significantly negative Monday returns in 13 out of 23 international markets. Their findings are further supported by Tong (2000) and Kunkel, Compton, and Beyer (2003) after studying a range of European, Asian, and North American markets. Aggarwal and Rivoli (1989) detect negative returns on Mondays and Tuesdays in four emerging Asian markets, suggesting the time zone difference between these markets and the New York market to be responsible for the effect. Basher and Sadorsky (2006) report divergences between day-of-the week effects across 23 emerging markets. While Gibbons and Hess (1981) relate Monday effect to settlement lags, Keim and Stambaugh (1984) and Madureira and Leal (2001) point to measurement errors. Keim (1989) suggests systematic movements within the bid-ask spread may lead to Monday effect.

1.2. January effect

Most popular among the calendar effects is the January effect, with stock returns significantly higher than those found in other months [Jegadeesh (1991) and Musto (1997)], which Brown, Kleidon, and Marsh (1983) found to be particularly true for low-capitalization stocks. While Stoll and Whaley (1983) suggest that transaction costs can explain the size effect, Brown et al. (1983) contend that at least part of the size effect is due to an unspecified risk variable causing a premium shift but fail to explain its recurring nature. Roll (1981) argues that observed autocorrelations of abnormal returns for small firms may be due to infrequent trading.

Roll (1983) notices that the upward shift in stock prices occur in the few trading days around the turn of the year. Haugen and Lakonishok (1988) suggest portfolio disclosures being responsible for the price shifts. Musto (1997) follows this line of reasoning and stated that debt and equity pattern reflect agency problems related to

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[1] The Gulf Cooperation Council (GCC), created on May 25, 1981, includes Bahrain, Kuwait, Qatar, Oman, Saudi Arabia, and the United Arab Emirates.

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portfolio disclosures. Dyl (1977), on the other hand, reports abnormally heavy trading volume at year-end for shares with previous twelve-month price declines and interprets the results as evidence of tax loss selling. Branch (1977) favors this competing tax-loss selling model, which identifies investors' pursuit of tax benefits of realizing capital losses at year end as the roots cause of the documented price shifts. Other authors, e.g., Chan (1986), Ritter (1988), and Hillier and Marshall (2002) conclude that tax loss selling hypothesis can explain seasonal pattern in trading volume but offers little help in regards to the size effect. A combination of tax-loss selling and window dressing is offered by Sias and Starks (1997).

More recent studies have looked at emerging markets and documented seasonality effects in stock markets of Thailand and India [Chan, Khanthavit, and Thomas (1996)], Malaysia [Pandey (2002)], and Nigeria and Zimbabwe [Ayadi, Dufrene, and Chatterjee (1998)]. In the Middle East, only the stock market of Kuwait has been analyzed for seasonality effects [Al-Deehani (2006)]. The results of the studies, however, are inconclusive with regard to the January effect.

1.3. Holiday effect

Disproportionally frequent advances on days preceding holidays have been documented for many years in the stock markets of the US [Ariel (1990)], UK [Mills and Coutts (1995)], Japan [Ziemba (1991)], India [Arumugam (1999)], Greece [Coutts, Kaplanidis, and Roberts (2000)], Thailand [Holden, Thompson, and Ruangrit (2005)] and other markets [e.g. Cadsby and Ratner (1992), Kim and Park (1994) and Chan et al. (1996)]. Rogalski (1984) and Pettengill (1989) offer what they found to be an inverse relationship between firm size and the holiday effect as plausible explanation for this market anomaly, while Kartono and White (1994) suggest the level of economic activity to be the determinant of the magnitude of the holiday effect.

Major holidays are associated with a strong cultural component as the meaning of a particular holiday differs across cultures. It would be plausible to assume the magnitude of a given holiday effect be determined by the cultural background of the majority of the market participants, e.g., documented pre-Christmas price run-ups should be less pronounced in predominantly non-Christian country markets. By the same token, Islamic holidays should have little bearing on investors' behavior in most of the Western world. Eid Il-Fitir, the festive period marking the end of Ramadan, affects return behavior in the stock market of predominantly Muslim Malaysia (Wong, Neoh, & Thong, 1990). Cadsby and Ratner (1992) find that where holidays differ across countries, domestically generated country-specific holiday effects are detected. In the Asian region, the authors find strong evidence for the Chinese New Year effect in Hong Kong. The same effect is found in Taiwan [Tong (1992)]. Traces of the Chinese New Year effect have also been detected in Japan, Malaysia, Singapore, and South Korea [Yen and Shy (1993)]. This paper documents regional difference in holiday effects by gauging investors behavior to a set of Muslim and non-Muslim holidays. Further, a case is made that the magnitude of the holiday effect depends not only on the cultural/religion setting of a country market but the cultural/religious background of its market participants. Thus, if a local market is dominated by foreign investors, their belief system, even if different from the local investors, should be reflected in the return behavior of the local market.

Growth and performance of the young GCC stock markets gained the attention of international investors, but it is only recently that the research community discovered the stock markets of the Middle East. These local stock markets provide a valuable opportunity for researchers to investigate anomalies such as the calendar effects, that are documented across most of the Western hemisphere but with its root causes still in dispute, for three reasons. First, GCC markets follow a different schedule for the trading week, i.e., trading takes place from Sunday to Thursday in Bahrain, Oman, Qatar, and the UAE but from Saturday to Wednesday in Kuwait. In Saudi Arabia, the trading week has six days with markets closed only on Fridays.[2] It would, therefore, be interesting to investigate possible spillovers of day-of-the-week effects found in Western financial markets, with Monday to Friday trading weeks, into GCC markets. Second, popular explanations for month-of-the-year effects found in Western markets cannot readily be applied to GCC markets, i.e., the nature of the January effect is commonly perceived to be tax-induced, the GCC markets, however, operate in a non-income, non capital gains tax environment. Thus, the existence of a January effect in GCC markets would have to be based on a different source. Such a finding would add a new aspect to the existing literature on Western markets anomalies. Third, the degree of openness to foreign stock ownership differs across the markets of the Gulf region. Even within each country market, companies can, to a certain extent, set its own limits to foreign ownership. Thus, we investigate investors' cultural background as a potential driver of markets' reaction to festive events.

2. Data and methodology

In search of seasonality effects, this study analyzes historic daily prices of SHUAA Capital indices[3] for the six member countries of the GCC region. The data range is 1/2000 to 9/2009 for the stock markets of Bahrain, Kuwait, Qatar, Oman, Saudi Arabia, and the United Arab Emirates. For each price index, a series of weekly logarithmic differences, $\ln(P_t/P_{t-1})$, is created, totaling 2551 daily return observations.

To test for day-of-the-week effects, an OLS regression model is subsequently applied, which includes a complete set of return dummy variables each representing a particular trading day.

$$Ri = \sum_{i=0}^{n} R_i D_{i,t} + \varepsilon_t \quad (1)$$

where:

R_i = the daily return on country market i,
$D_{i,t}$ = a set of n day-of-the-week dummy variables that each is assigned a value of one on a particular day of the week, zero otherwise; for all GCC markets $n=5$ except Saudi Arabia where $n=6$, and
ε_t = the error term.

Since, $\sum_{i=0}^{n} D_{i,t}=1$ for all t, no intercept term was applied.

Subsequently, the regression model is altered to analyze the January effect, with a set of month-of-the-year dummy variables, and the holiday effect, with dummy variables marking a range of ± 5 trading days before and after a particular holiday. The holidays under investigation are listed and briefly explained in Table 1.

To determine whether the magnitude of a given calendar effect is contingent upon the level of market openness and, thus, the influence of non-local investors, individual stock return data is employed and the above analysis is repeated at the company level. Stocks are grouped according to the level of foreign ownership (GCC stock market statistics and ownership restrictions are shown in Table 2). The ceiling for foreign stock ownership is set by the Government of the individual countries below which each company can determine the actual limit.[4] For any given country,

[2] The timing of the official weekend in the UAE was changed from Thursday/Friday to Friday/Saturday in September of 2006.

[3] The data series were provided by SHUAA Capital p.s.c., Dubai, a leading investment banking firm in the GCC region. Its indices are capitalization-weighted market indices, computed in US dollar terms.

[4] The term "foreign" refers to non-GCC citizens or entities.