

The January Effect: Evidence from Four Arabic Market Indices

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Abstract This study examines the existence of January effect in four Arabic market indices for the recent time period, February 1988 to May 2014. These market indices include Jordan, Egypt, Lebanon and Morocco. Using the OLS and GARCH (1, 1) approach, the results of this paper indicate that January returns provide positive profits and highly statistical significant, especially in Jordanian and Moroccan market indices. For the Egyptian and Lebanese market indices, the current study documents a large economic profit in January month. These results are useful to investors who can formulate their investment strategies accordingly. This study is the first to conduct a comprehensive January effect analysis of four Arabic market indices in an emerging stock market. The results of this paper support literature that indicates the presence of the January effect in market indices returns and it is still providing a serious challenge to the efficient market hypothesis.

Key words Efficient market hypothesis, January effect, monthly effect, Amman Stock Exchange (ASE)

DOI: 10.6007/IJARAFMS/v7-i1/2590

URL: <http://dx.doi.org/10.6007/IJARAFMS/v7-i1/2590>

1. Introduction

The January effect, first documented by Rozeff and Kinney (1976), is the phenomenon that risk-adjusted, returns in January provide abnormally higher return than in any other month. In other words, the January effect indicates a systematic pattern in security prices. According to the January effect, the average raw returns of January month earn significantly profits than average returns of other eleven months of the year. In contrast, the efficient market theory (EMT) is based on the random walk theory, which means that the future of stock prices is unpredictable and fluctuates in no patterns. Actually, the prices are independent and move in random walk. As a result, the presence of January effect in stock market returns is not consistent with the efficient market theory.

This study aims to update and expand the study of Maghayereh (2003) and Alrabadi and AL-Qudah (2012). Maghayereh (2003) investigate whether there is a January effect in Amman Stock Exchange (ASE) over the 9 years period from January 1994 to December 2002. He finds no evidence of the January effect and, therefore, investors cannot useful of information related to the month of the year when investing in ASE. On the other hand, Alrabadi and AL-Qudah (2012) re-examine the possible existence of the January effect in ASE over the 10 following years period from January 2002 to December 2011. Although Alrabadi and AL-Qudah (2012) show statistical significant January effect in ASE, the ten years (10 observations for each month) is not considered enough to have significant results. Therefore, to fill this gap, this study attempts to examine the existence of January effect in ASE by covering a broader period of previous two studies extends from 1988 to 2014. Furthermore, this study not only examines the existence of the January effect in Jordan, but also it investigates the presence of the January effect in other three Arabic market indices which are Egypt, Lebanon and Morocco.

This paper makes the following contributions to the literature in this area. It represents one of the limited numbers of studies that examine empirically the January effect using four Arabic market indices. Therefore, this paper provides an excellent research opportunity to add to the empirical literature. In addition, the current study employs OLS with Newey-West (1987) HAC Standard Errors and Covariance in order to account for heteroskedasticity and serial correlation in the obtained residuals and GARCH (1, 1) as a standard model to control for heteroskedasticity. Unlike the Alrabadi and AL-Qudah's (2012) study that

investigate the January effect by using ASE free float market index , this paper uses MSCI Arabic market index for each country.

2. Literature review

Rogalski and Tinic (1986) find that the market portfolio and portfolios of small-firm stocks have higher returns in January than in other months of the year. They show that small-firm stocks have considerably higher total systematic and residual risks in January than in the other months. In the Istanbul stock market, Balaban (1995) examine month of the year effects in Turkey over the period 1988 to 1993. He uses percentage returns on the Istanbul Securities Exchange Composite Index (ISECI). Balaban (1995) show that three months named January, June and September provide significant large returns. Furthermore, among these three months, January has the largest daily returns of 1 percent. Balaban (1995) expect that asymmetric information among traders play an important role in explaining these anomalies.

Seyhun (1988) examines the seasonal pattern of aggregate insider trading. He suggests that the January effect arises from predictable changes in turn-of-the-year demand for securities or it represents compensation for the higher risk of trading against informed traders at the turn of the year.

Analyzing all stocks in the New York Stock Exchange (NYSE) based on monthly data from 1926 to 1993, Haugen and Jorion (1996) investigate whether the January effect is presence. They show no evidence that the January effect has disappeared from the NYSE in recent years. Sun and Tong (2010) show that the January effect is based on higher compensation for risk in the month. Cooper *et al.*(2006) examine the predictive power for January returns over the period 1940 to 2003. They confirm popular wisdom; they show that January returns have predictive power of the returns over the remaining months of the year. Using a time-series GARCH framework with the conditional variance/covariance as proxies for systematic risk, Sun and Tong (2010) reinvestigate the suggestion by Rogalski and Tinic (1986) that the January effect may be a phenomenon of risk compensation in the month. They find that there is no clear evidence that either conditional volatility or unconditional volatility in January is mainly higher across the sampling years.

In the Jordan market, Maghayereh (2003) investigate whether there is the January effect in the ASE over the period from 1994 to 2003. using three different conditional variance specifications: the standard GARCH, EGARCH and the GJR models, Maghayereh (2003) find that there is no evidence of the January effect. On the other hand, using Amman Stock Exchange ASE data from 2002-2011, Alrabadi and AL-Qudah (2012) investigate calendar anomalies in terms of the day of the week, month of the year, and turn of the month effects. The primary methodologies are used to examine calendar anomalies based on regression analysis with dummy variables. The month of the year effect is examined through estimating the time series regression model which includes twelve dummy variables. The approaches used to estimate the January effect model is OLS with Newey-West HAC Standard Errors and Covariance and GARCH (1, 1). Alrabadi and AL-Qudah (2012) find that returns are significantly higher on Sundays (the first day of trading of the week) and Thursdays (the last trading day of the week) than other days of the week. Furthermore, a highly significant January effect exists.

Using monthly returns for Dhaka Stock Exchange (DSE) in Bangladesh from January 1987 to November 2012, Ahsan and Sarkar (2013) investigate existence of January effect. They show that while there is no evidence of January anomaly, there is significant positive return in June. Therefore, they doubt against efficient market hypothesis and conclude that investors have opportunity to take advantage of this June anomaly. In a more recent study, Patel (2015) investigate January effect in a representative U.S. stock index, developed stock index, different regional stock market indices and the emerging stock market index for the recent time period, January 1997 through December 2014. . The findings of this study confirm growing literature that show that January effect does not exist anymore in stock returns.

Yuan, Tulgaa, and Ou (2015) examine the market efficiency in Asian emerging markets. They use T-test and moving average price index (MA) approach to investigate both the January and momentum effects. Yuan, Tulgaa, and Ou (2015) did not find January effect but they show that there is momentum effect in Asian emerging market. Luu, Pham, and Pham (2016) attempt to test the January effect in Vietnamese Stock Market during the period of 2006 to 2014. They find that the January effect exists. Thus, the Vietnamese stock market is not efficient.

To summarize the January effect, some researchers have investigated the January effect at the level of developed market indices, while few researchers examine the January effect at the level emerging market indices, especially in Arabic markets. Although the study of Maghayereh (2003) addressed the impact of the January effect in ASE, it was short-covering a period from January 1994 to December 2003. Therefore, the total number of observations is only 12 for each month and this period is considered a short to discover the January effect. In addition, although Alrabadi and AL-Qudah (2012) find the January effect in ASE over the period 2002-2011, this period is also considered a short and the total number of observations is only 11 for each month. The current study is distinct from the study of Maghayereh (2003) and Alrabadi and AL-Qudah (2012) that it covers a longer period extends from February 1988 to December 2015 and the total number of observations is 28 for each month, which leads to be more accurate results. In addition, the current study not only addresses the January effect in ASE, but also it addresses the January effect in other three Arabic market indices which are Egypt, Lebanon and Morocco.

3. Methodology of research

The basic units of observation are the monthly returns calculated from monthly prices with reinvested gross dividend of 4 Morgan Stanley Capital International (MSCI) indices. These four MSCI indices related to Jordan, Egypt, Lebanon and Morocco downloaded from Datastream. The study period of each MSCI index vary depending on the available data. All data are downloaded from their first available months until December 2015. For Jordan, the study commences from February 1988 to May 2014, while Egypt and Morocco over the period March 1995 to May 2014. For Lebanon, the study commences from July 2002 to May 2014 because the CRSP database has a less comprehensive. Table 1 summarizes the four Arabic countries, together with average monthly return, standard deviation, maximum and minimum return for each index. The methodology is essentially based on regression analysis with dummy variables. The month of the year effect is investigated by estimating the following time series regression model which involves 12 dummy variables, one for each month of the year. In the final analysis, this paper compared January returns with each specific month returns of the year. Thus, the current study utilizes the following OLS dummy regression equation on each of the four indices as follows:

$$R_{mt} = \beta_1 D_{1t} + \beta_2 D_{2t} + \dots + \beta_{12} D_{12t} + \delta AR(1) + e_t \quad (1)$$

R_{mt} is the market return on month t for each of the four index series utilized in this study. D_{jt} are dummy variables which take on the value 1 when the corresponding month is January, February, ..., or December, respectively and 0 otherwise. The coefficients β_{is} are the regression loadings corresponding to the dummies of the model and e_t is the error term. $AR(1)$ is added to account for the lagged effect of market return. The model is estimated without an intercept in order to avoid the dummy variable trap (Gujarati, 2004). The results of the above-mentioned four regression equations are reported in Table 3.

The approach is used to estimate the previous model, OLS with Newey-West HAC Standard Errors and Covariance in order to account for heteroskedasticity and serial correlation in the obtained residuals and GARCH (1, 1) as a standard model to control for heteroskedasticity.

Table 1. Descriptive statistics

	Average %	S.D. %	Max %	Min %
Egypt	1.73	9.83	56.52	-29.79
Lebanon	1.26	9.03	47.97	-24.08
Morocco	0.92	5.61	26.32	-20.79
Jordan	0.40	5.47	21.57	-25.17

Table 1 reports descriptive statistics of whole sample. The table details 4 Arabic Market Indices, showing the monthly average return, standard deviation, maximum and minimum returns for each index. Table 1 reports differences in the average and standard deviation of returns. The table shows that the Egypt market index has the largest monthly average at 1.73% and the largest average standard deviation of

9.83%, while the Jordan market index has the lowest monthly average at 0.40% and the lowest an average standard deviation of 5.47%.

4. Results

In this section, this paper analyses the results of January effect over the 4 Arabic market indices.

Table 2. The average returns on a monthly basis over the period of the study

	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<i>Panel A: Jordan MSCI index returns</i>												
Average	3.13***	0.18	0.25	1.22	-0.11	0.33	0.43	-0.17	-1.82	1.08	-1.05	1.36
t-stat	(2.76)	(0.18)	(0.33)	(1.21)	(-0.13)	(0.26)	(0.51)	(-0.21)	(-1.6)	(0.76)	(-0.84)	(1.35)
<i>Panel B: Egypt MSCI index returns</i>												
Average	2.38	4.20***	1.60	1.63	0.20	-0.40	1.43	-0.24	2.34	0.42	-1.00	2.60
t-stat	(1.05)	(2.1)	(0.68)	(1.69)	(0.13)	(-0.32)	(1.08)	(-0.21)	(1.34)	(0.24)	(-0.74)	(1.88)
<i>Panel C: Lebanon MSCI index returns</i>												
Average	2.20	-1.20	1.01	1.29***	1.73	3.02	-0.23	-1.53	0.78	-0.91	-0.80	1.43
t-stat	(1.1)	(-1.29)	(1.37)	(2.18)	(1.42)	(1.63)	(-0.24)	(-1.99)	(0.98)	(-0.84)	(-0.85)	(1.03)
<i>Panel D: Morocco MSCI index returns</i>												
Average	1.97*	1.38*	1.74*	0.88	0.46	0.02	0.68	0.32	0.60	0.03	-0.95	0.92
t-stat	(1.74)	(1.65)	(1.76)	(1.11)	(0.3)	(0.03)	(1.05)	(0.41)	(0.71)	(0.02)	(-1.32)	(1.11)

*** indicates statistical significant at 1% level.

** indicates statistical significant at 5% level.

* indicates statistical significant at 10% level.

Table 2 reports the average returns and their *t*-statistics on a monthly basis for the Jordan market index in Panel A, for the Egypt market index in Panel B, for the Lebanon market index in Panel C and for the Morocco market index in Panel D over the period of the study. Panel A of Table 2 shows that the average returns of the Jordan market index earns significant profits. The January effect in Jordan market index generates average returns of 3.13% (*t*-stat 2.76), while the other months doesn't provide any significant profits. The results in Panel B and C and D of Table 2 for the Egypt, Lebanon and Morocco market indices, respectively show positive and large average returns for the January effect. Although the January effect in these three markets indices are not statistical significant, they are still economically large, ranging from 2.38% to 1.97%. Therefore, we next examine the effect of January of the each Arabic market indices using of both OLS and GARCH (1, 1) regressions.

Finally, it is noted that the February month in Egypt and April month in Lebanon achieves high profits and they are statistically significant. These months either February or April in Egypt and Lebanon earns 4.20% with *t*-stat (2.10) and 1.29% with *t*-stat (2.18) per month, respectively. This result opens the field to question and research why profits rise in these particular months.

Table 4. The OLS and GARCH regression results for Arabic Market Indices

Variable	OLS Coefficient	Prob.	GARCH Coefficient	Prob.
Panel A: The OLS and GARCH regression results for Jordan				
JAN	0.031277***	0.0037	0.028683***	0.0012
FEB	0.00215	0.8407	0.001155	0.9137
MAR	0.002532	0.8095	0.001055	0.9356
APR	0.012205	0.2455	0.007113	0.5325
MAY	-0.001132	0.9141	0.000689	0.9449
JUN	0.003273	0.7596	0.001628	0.855
JUL	0.004298	0.6879	0.000138	0.9907

AUG	-0.00175	0.8700	-0.002974	0.7843
SEP	-0.018154	0.0905	-0.019197	0.0307
OCT	0.010815	0.3125	0.005388	0.5439
NOV	-0.010523	0.3257	-0.016451	0.1069
DEC	0.013569	0.2053	0.011948	0.2853
AR(1)	0.151338	0.0082	0.160824	0.0236
Adjusted R squared	0.032323			
Panel B: The OLS and GARCH regression results for Egypt				
JAN	0.032621	0.1525	0.02406	0.2344
FEB	0.059711***	0.0092	0.049427***	0.0027
MAR	0.022143	0.3188	0.024242	0.276
APR	0.02215	0.3183	-0.01212	0.6177
MAY	0.002681	0.9038	-0.00961	0.5914
JUN	-0.00541	0.8119	-0.03146	0.1271
JUL	0.019566	0.3901	0.018013	0.4797
AUG	-0.00334	0.8831	-0.00278	0.9318
SEP	0.032001	0.1604	0.034801	0.1165
OCT	0.00569	0.8025	0.014754	0.5533
NOV	-0.01369	0.5474	-0.0068	0.8043
DEC	0.0356	0.1186	0.034566*	0.094
AR(1)	0.173377	0.0099	0.034076	0.4395
Adjusted R squared	0.019419			
Panel C: The OLS and GARCH regression results for Lebanon				
JAN	0.047683*	0.0653	0.023604*	0.0637
FEB	-0.0269	0.2962	-0.01698	0.2235
MAR	0.022775	0.3762	0.008124	0.6203
APR	0.029083	0.2589	0.000999	0.9437
MAY	0.038967	0.1311	0.015022	0.3747
JUN	0.071101***	0.0089	0.006602	0.6354
JUL	-0.00428	0.8734	0.005863	0.8703
AUG	-0.03309	0.1996	-0.02617	0.4079
SEP	0.016845	0.5125	-0.00677	0.7259
OCT	-0.01965	0.445	-0.01599	0.6134
NOV	-0.01723	0.5028	-0.02303	0.3149
DEC	0.031017	0.2287	0.034964	0.0089
AR(1)	0.128949	0.1424	0.134016	0.313
Adjusted R squared	0.055212			
Panel D: The OLS and GARCH regression results for Morocco.				
JAN	0.026942**	0.0395	0.031117**	0.0104
FEB	0.0196	0.1333	0.01414	0.3527
MAR	0.023541*	0.0647	0.013526	0.1883
APR	0.011921	0.3481	0.013929	0.3308
MAY	0.006185	0.6261	0.008847	0.2922
JUN	0.000242	0.9852	0.001585	0.9601
JUL	0.009257	0.4774	0.008488	0.6171
AUG	0.004321	0.7400	0.007662	0.574
SEP	0.008147	0.5317	0.013627	0.2715
OCT	0.000384	0.9765	0.005793	0.6411
NOV	-0.01306	0.3165	-0.01806	0.2743
DEC	0.012611	0.3333	0.00995	0.5131
AR(1)	0.026307	0.6979	0.053465	0.5367
Adjusted R squared	-0.0172			

*** indicates statistical significant at 1% level.

** indicates statistical significant at 5% level.

* indicates statistical significant at 10% level.

Table 3 reports the average monthly returns for each month based on OLS and GARCH regression over the study when applied to the Jordanian market index (Panel A), the Egyptian market index (Panel B), the Lebanese market index (Panel C) and Moroccan market index (Panel D). Column 1 details the month names, while columns 2 through 5 lists the average monthly returns and their probabilities for each month.

The regression analysis in Table 3 in all Panels A, B, C and D shows consistent results. The results of both OLS and GARCH (1, 1) show a positive and significant January effect. In other words, a closer observation of each individual month return reveal January returns perform relatively strong and is ranked higher in performance in comparison to most of the other eleven months of the year in each of these four market indices. Other monthly returns are insignificant and sometimes negative. Using both OLS and GARCH models, Tables 3 shows that market returns are highest in January confirming the January effect. For example, the January month returns in Jordanian and Moroccan market indices in Panel A and D are both large (3.12% and 2.69% per month) and statistically significant (p -value 0.03 and 0.02), respectively. On the other hand, while the January month returns in Egyptian and Lebanese market indices in Panel B and C are weakly and statistically insignificant, they are still large and economically significant (3.26% and 4.76% per month), respectively.

The result in Table 3 in Panel A indicates that Jordanian market return is statistically significant in January and this finding is consistent with Alrabadi and AL-Qudah (2012) who show strong evidence of January effect in the ASE returns over the period 2002 to 2011. Conversely, this finding contradict Maghayereh (2003) finding who shows no evidence of January effect in the ASE returns over the period 1994-2002.

In short, as reported in Table 3, January month returns are positive in four market indices. In particular, the January month produces statistically and strong risk-adjusted profits in both Jordanian and Moroccan market indices. Although the January month generates weakly significant risk-adjusted profits in Lebanese market index and insignificant profits in Egyptian market index, they are still economically larger. Overall, the results in Table 3 confirm the presence of January effect in four Arabic market indices.

5. Conclusions

Efficient market hypothesis (EMH) reported by Fama (1970) states that new information reaches in a random way and prices reflect this information directly and precisely. Therefore, an investor can't achieve abnormal returns by utilizing the price behavior in any investment strategy. The existence of January effect violates the efficient market hypothesis.

Previous studies have reported evidence of January effect at the level of developed market indices and at the level of emerging market indices. This paper differs from prior research by examining the evidence for the January effect at the level of four Arabic market indices. Applying OLS and GARCH (1, 1) regression analysis employing dummy variables on monthly returns of the four Arabic market indices, the current study documents a strong evidence of the January effect for four Arabic markets. For example, the January effect provides significant returns of 3.12% and 2.69% on average based on OLS regression for Jordanian and Moroccan market indices, respectively. The January effect generates economically significant returns of 3.26% and 4.76% on average based on OLS regression for Egyptian and Lebanese market indices. On the other hand, based on GARCH regression, the January effect provides significant returns of 2.86% and 3.11% on average for Jordanian and Moroccan market indices, respectively. For Egyptian and Lebanese market indices, the January effect generates economically significant returns of 2.40% and 2.36% on average.

This paper provides important implications for fund managers, investors and researchers who can formulate their investment and take into consideration the January effect to generate large abnormal profits. This paper has concentrated on the existence of the January effect in four Arabic market indices. A worthy topic for future research would be to investigate about the possible reasons of the January effect. Therefore, there is still much to be done in this area.

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