Ilkogretim Online - Elementary Education Online, 2021; Vol 20 (Issue 6): pp. 1366-1378
http://ilkogretim-online.org
doi: 10.17051/ilkonline.2021.06.140

Month Of The Year Effect In The GCC Stock Markets

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Abstract. We tested the effect of the month of the year on the average monthly returns of the Gulf Cooperation Council stock marketsover the period 2004-2019 using the Kruskal-Wallis and Chi-Square tests.Our results on the level of the GCC markets as a whole indicated a significant impact for the month of the year, as the rate of return increased to the highest level in April and the rate of return decreased to the lowest level in November.As for each country in the Gulf Cooperation Council, the impact of the month of the year was significant only in the markets of Dubai and Abu Dhabi, where the rate of return of the Dubai market reached its highest level in the month of February. Regarding the return of the Abu Dhabi market, it reached its highest level in the month of April, while the return of the two markets together reached its lowest level in November.

Keywords: Stock market anomalies, emerging stock markets, monthly effect in stock returns, GCC stock markets

INTRODUCTION

The anomalies in the calendar receive great interest from researchers during recent decades as a result of the existence of theoretical and practical incentives for that. On the theoretical side, the presence of these anomalies weakens the theory of market efficiency (Fama 1965), and on the practical side, traders and decision-makers in the stock market benefit from these anomalies. As they can predict the direction of securities prices in the future and then maximize the rate of return on their investments(Arendas, Malacka et al. 2018). Where speculators can know the appropriate timing to open and close their trades. Where speculators can know the appropriate timing to open and close their trades and this also helps investment fund managers in determining the appropriate timing to purchase securities whose value falls below the fair value, in addition to the possibility of maximizing the return on investing the short-term financial surplus of companies.

There is reasonable evidence to suggest that there is seasonality of return on stock markets in most countries of the world, as the impact of January and the weekend has been studied extensively by researchers(Aziz and Ansari 2018).Researchers in the nineteenth century wondered about the positive impact of August and December and the negative impact of October on stock prices, and the results of the study conducted by (Zhang and Jacobsen 2013) on the data of the British stock market for 300 years showed that there is a strong monthly anomaly where the returns of January and December exceed the average While the returns of July and October are significantly lower.After analyzing the US market data from 1926 until 2013, it was found that there are anomalies where the average rate of return in January exceeds the average rate of return for the remaining eleven months(Hamid and Habib 2017).

This research seeks to identify the impact of the months of the year on the return ofsecurities traded on the stock exchanges of the Gulf Cooperation Council countries(GCC; Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the UAE). The economies of the Gulf Cooperation Council countries play an important role in the world economy as they own 40% of the world's proven oil reserves and 23% of the proven gas reserves(Sedik and Williams 2011).The behavior of stocks in these exchanges is still under study until now(Balcılar, Demirer et al. 2015). The literature indicates anomalies in monthly, weekly or even daily stock returns, and we seek in our study to identify anomalies in monthly stock returns over fifteen years starting from 2004 and ending in 2019 on the GCC stock exchanges.

Literature Review

The previous studies can be divided into three groups. The first group was concerned with studying anomalies in the daily return of stocks in global stock exchanges. (Agrawal and Tandon 1994) explained through the study he conducted on eighteen countries that there is an effect of the day of the week on the return on shares in all the countries of the study, while it was striking that this effect did not exist during the 1980's, and they also explained that low and negative returns occur on Monday in nine countries. While it appeared in the remaining eight countries on Tuesday and indicated that the largest returns occurred on Friday in seventeen countries.

(Abalala and Sollis 2015) studied the effect of the day of the week on the Saudi stock market during a period when Saturday was the first day of the week in order to measure the effect of Saturday on the return of the Saudi stock index and the return of the 15 main market sectors indices, and it was found that there is a positive effect on Saturday on the daily return. The study that was conducted on the stock market in the United Arab Emirates by (Al-Khazali 2008) reached a significant evidence of the existence of the effect of days of the week on stock returns, and also concluded that this effect is affected by the decrease in trading volume. When the effect of weekdays on the return of a group of stocks in the Zimbabwe stock market was studied by (Mazviona and Ndlovu 2016) , it was found that weekdays affected 26% of the stock returns that were applied to them, as they were negatively affected on Mondays and Thursdays.

The second group of studies focused on studying the anomalies in the monthly return in the stock markets of different countries in the world. (Harshita, Singh et al. 2019) explained through their study, which covered 20 years in the Indian stock market, that the returns of November and December are higher than the rest of the months and that companies whose size is less than the average size of the rest of the companies their returns are affected by April, May, November and December. The study that (Compton, Kunkel et al. 2013) conducted on the Russian stock market concluded that the average daily return for the months of January, February, March and April is higher than the average daily return for the rest of the months of the year. The study conducted by (Kayacetin and Lekpek 2016) tested the effect of turn-of-the-month (ToM) on the return of the Turkish capital market and found that there was a strong significant effect of turn-of-the-month on the yield during the period from 1988 to 2014. When (Mangala and Lohia 2013) tested the effect of the month in nine developing stock markets, they found that the return of the months of November, December and January was higher than the rest of the months on the Argentine, India, Malaysia and Russia stock exchanges, as for the returns of August and September, it was less than the rest of the months of the year in most of these markets.

As for the study conducted on the Pakistan Stock Exchange in the period from 2000 to 2017 by (Rashid and Kausar 2019) , it found significant evidence of the January effect. (Yakob, Beal et al. 2005) explained through the study that they conducted in Asia Pacific stock markets that there is an effect of the month in all the markets that they applied to, except for Japan and Singapore, where the daily rate of return for the month of January in Taiwan and Malaysia increased over the rest of the months, and increased in India in the months of May, November and December, and in Australia increased in the months of August, October and December. When studying the effect of the month on the returns of the stock market indices of the Gulf Cooperation Council countries, through the study conducted by (Ariss, Rezvanian et al. 2011) from 1994 to 2006, it was found that the return increases in December than in the rest of the year. It was found through the study that (Zhang and Jacobsen 2013) conducted on the British stock market using 300-year data that the effect of January was negative in the first hundred years and then became positive in the rest of the period, which shows the possibility of changing the impact of the months of the year on the rate of return in the financial markets over time and thus highlights The importance of re-studying the impact of the months of the year continuously.

The third group studies was concerned with the effect of special seasons or events on the prices of shares traded in different countries of the world, as the study conducted by (Fan and Wang 2018) studies the effect of sports days on stock prices in the United States, and they concluded that prices generally decline on days of important sporting events, and if The result was a victory, the stock prices would rise, while if the result was a defeat, the share prices would drop. This was explained by the effect of traders' feelings on their positions in the stock market. Using stock prices in the London market over a period of 60 years, the study conducted by (Arsad and Andrew Coutts 1997) showed that there are anomalies in the stock market that appeared through the effect of vacations and the weekend. As for the study conducted by (Auer and Rottmann 2014), it was concerned with studying the impact of Friday the 13th in eight Asian stock markets during the period from July 1996 to August 2013 and concluded that there is substantial evidence of the effect of Friday the 13th on the Philippine and South Korean stock markets.

To the best of our knowledge this is the first work that studies the impact of the months of the year on the returns of the GCC stock market indices during the period from January 2004 to December 2019.

Objectives, hypotheses, data and Methodology

Objectives

After reviewing the previous studies, researchers are encouraged to conduct this study to reach the following objectives:

O1. Identify the extent of the significant difference between the average rates of return for the months of the year for the stock market indices of the GCCduring the period from January 2004 to December 2019.

O2. Identify the extent of a significant difference between the average rates of return for the months of the year for each stock market index from the GCC stock market indices during the period from January 2004 to December 2019.

O3. Identifying the significance of the difference between the average monthly rates of return for the GCC stock indicesduring the period from January 2004 to December 2019.

Hypotheses

To achieve the research objectives, we will test the following hypotheses:

H1. There is no significant difference between the average rates of return for the months of the year for the GCC stock market indicesduring the period from January 2004 to December 2019.

H2. There is no significant difference between the average rates of return for the months of the year for each stock market index of the GCC stock market indicesduring the period from January 2004 to December 2019.

H3. There is no significant difference between the monthly rates of return for the GCC stock market indicesduring the period from January 2004 to December 2019.

Data

To achieve the research objectives by testing the research hypotheses, we have relied on the monthly closing prices of the stock market indices of the Gulf Cooperation Council countries with a total of 1152 observationsduring the 16 years from January 2004 to December 2019 from the stock markets of the United Arab Emirates, the Kingdom of Bahrain, the Kingdom of Saudi Arabia, the Sultanate Oman and Qatar, and the Kuwait stock market index was excluded due to the change in the market index during the search period, as the market was divided into three markets: the first market, the main market and the auction market. Table1 shows the details of the observationsthat were relied upon.

Table 1 Countries, stock markets and number of observations.

Country	Stock market index	observations
United Arab Emirates	DFMGI	192
	ADI	192
Kingdom of Bahrain	BAX	192
Kingdom of Saudi Arabia	TASI	192
Sultanate Oman	MSM 30	192
Qatar	QSI	192

Source: The authors.

Methodology

$$R_t = \frac{P_t - P_{t-1}}{P_{t-1}}$$

The monthly return of stock market indices was calculated as follows:

where Rt is the return at time t and Pt and Pt-1 are prices at time t and t−1.

To test the study hypotheses, Initially, we use the Kolmogorov-Smirnov test and the Shapiro-Wilk test to test the normality of the data and decide whether to use parametric or non-parametric statistical methods to test hypotheses.After using the above tests, it was found that the data does not follow the normal distribution, so we will use non-parametric statistical methods to test hypotheses.Therefore, we use the Kruskal-Wallis test for the firstand third hypothesis tests and the chi-square test for the second test.

Analysis and Results

The research is based on the stock exchanges of the Gulf Cooperation Council countries, which are represented in six markets (TASI-ADI-DFMGI-BAHRAIN-MSM-QSI) in five countries that included monthly rates of return for each market during the period from 2004 to 2019, and Fig. 1 shows the average monthly rates of return achieved during the study period for each market.From this figure it is clear that the Dubai market index achieved the highest average monthly rate of return during the study period, reaching 0.99% and, in contrast, the Bahrain market index achieved the lowest average monthly rate of return.

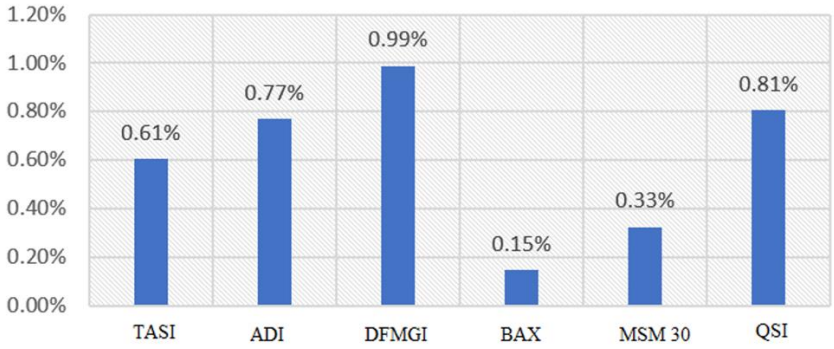

Fig. 1. Average monthly rates of return for the GCC markets during the period 2004 to 2019.

Source: The authors.

Normality Test

We used the Kolmogorov-Smirnov test and the Shapiro-Wilk test to test the normality of the data and decide whether to use parametric or non-parametric statistical methods to test hypotheses. Table 1 shows that the value of the sig. statistic for most of the data is greater than the value of the 5% level of significance, and therefore the data do not follow the normal distribution, which makes us apply a group of non-parametric tests to test the research hypotheses.

Table 2 Kolmogorov-Smirnov and Shapiro-Wilk tests results.

Tests of Normality							
Market	Monthly Series	Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
TASI	Min	.111	16	.099	.874	16	.031
	Max	.197	16	.138	.980	16	.963
ADI	Min	.090	16	.000	.550	16	.000
	Max	.350	16	.109	.980	16	.964
DFMGI	Min	.113	16	.010	.846	16	.012
	Max	.247	16	.151	.977	16	.935
BAX	Min	.113	16	.004	.750	16	.001
	Max	.264	16	.120	.967	16	.787

MSM 30	Min	.125	16	.004	.654	16	.000
	Max	.263	16	.066	.971	16	.850
QSI	Min	.108	16	.004	.765	16	.001
	Max	.266	16	.165	.976	16	.924

Source: The authors.

H1 test and results

Table 3 shows the results of the Kruskal-Wallis test to know the significance of the difference between the monthly rates of return for the markets under study, given that the markets of the countries of the Gulf Cooperation Council represent a unit and the extent of the differences is tested according to the month of the year.

Table 3 H1 Kruskal-Wallis Test Statistics.

Test Statistics	
	R
Chi-Square	66.456
df	11
Asymp. Sig.	.000

Source: The authors.

It is evident from this table that the value of the test statistic sig. is less than the value of the 5% level of significance and therefore the null hypothesis can be rejected, and the alternative hypothesis accepted, and therefore there is a significant difference between the average rates of return for the months of the year when the six equity markets are considered as a single market. Fig. 2 shows the average monthly returns for the six markets combined. Which shows through it that in each of the months (February - April - July - September - December) the rate of return increases, while the months (May - November - October) the rate of return decreases to become losses, and the months (January - March - August) act as ashift points Between Profit and Loss for GCC Markets Combined.

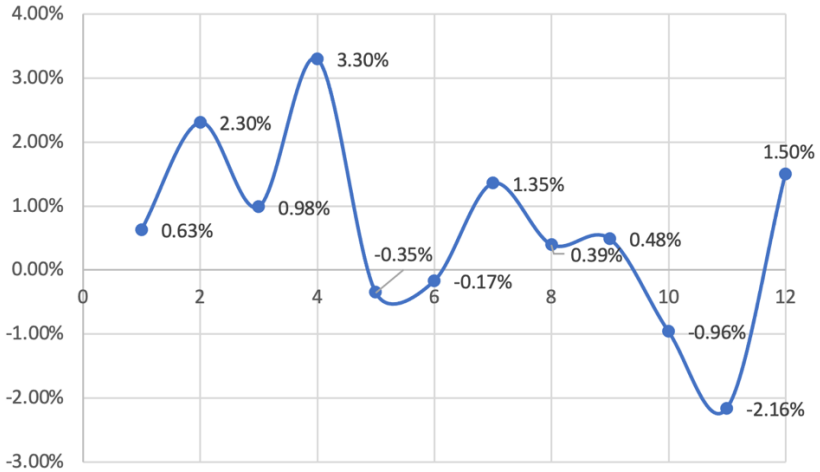

Fig. 2. Average rates of return for the months of the year in the GCC equity markets combined.

Source: The authors.

H2 test and results

Table 4 shows that there is a significant difference between the monthly average rates of return for each of the indices (ADI, DFMGI), where the value of the SIG test statistic was less than the value of the significance level 5%. Therefore, the average monthly rate of return of these indices varies according to the months of the year. In contrast, the Chi-Square test found that there was no significant difference between the average monthly rate of return for each of the indices (TASI, MSM 30, BAX, QSI) because the value of the test statistic SIG was below the 5% level of significance.

Table 4 H2 Chi-Square Test Statistics.

Test Statistics						
	TASI	ADI	DFMGI	BAX	MSM 30	QSI
Chi-Square	11.659	25.195	19.866	17.279	16.266	17.024
df	11	11	11	11	11	11
Asymp. Sig.	.390	.009	.047	.100	.132	.107

Source: The authors.

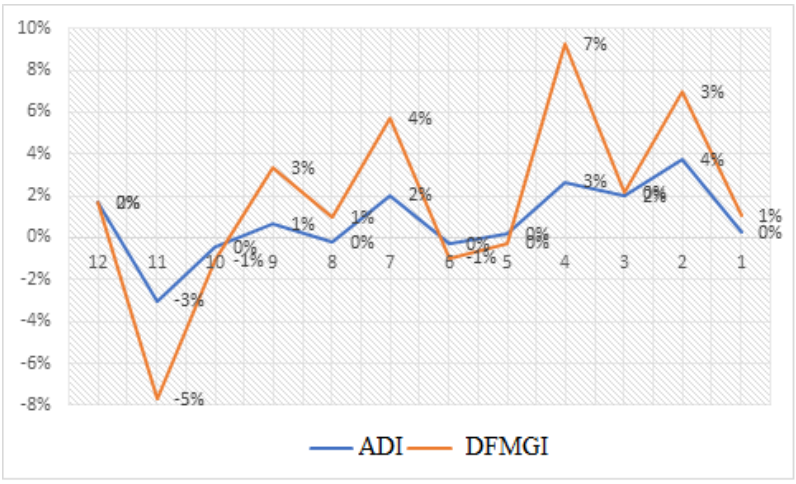

Fig. 3. Average rates of return for the months of the year in ADI and DFMGIindices.

Source: The authors.

It is evident in Figure 3 that the index average monthly rate of return (ADI, DFMGI) decreases during the months (January-March-May-June-August-October-November) and increases during the rest of the months. It is clear that the monthly average rate of return for the Dubai market takes on higher values than its counterpart in the Abu Dhabi market, either by profit or loss, and the reason for the similar trend for each of them may be that They are two emirates in the same country, which is the United Arab Emirates.

H3 test and results

Figure 4 shows that there is a difference between the average return rates for the indicators under study during the period from 2004 to 2019, but when using the Kruskal-Wallis test to determine the significance of this difference as shown in the Table 5, the value of the test statistic sig. is greater than the value of the significance level used in the test. Based on this, we accept the null hypothesis that there is no significant difference between the average monthly rates of return of the markets under study.

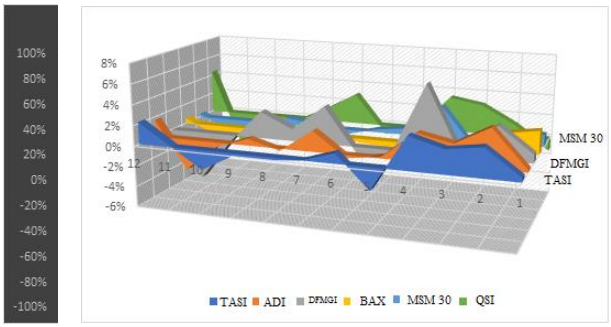

Fig. 4. Average rates of return for the months of the year in GCC indicesduring the period 2004 to 2019.

Source: The authors.

Table 5 H3 Kruskal-Wallis Test Statistics.

Test Statistics	
	R
Chi-Square	2.223
df	5
Asymp. Sig.	.818

Source: The authors.

Discussion

The results showed that the monthly average rate of return for the GCC stock indices increases in the months (February - April - July - September - December) and the rates of return reach the highest level in the month of April, while the study carried out by (Ariss, Rezvanian et al. 2011)on the same markets showed that the rates of return reach their highest limit in December, and the reason for the difference in results may be the difference in time period or the exclusion of the State of Kuwait from the current study.When comparing our results with the results of studies conducted on the US stock market(Keim 1983, Reinganum 1983, Haugen and Jorion 1996, Lucey and Zhao 2008), we find that the highest rate of return was in January, and (Riepe 2001) noted that this rate began to decline in recent years.When we follow studies done on the UK stock marketwe find that the highest rate of return was in the month of April as we have achieved, but that it ended in 1965(Reinganum and Shapiro 1987) and then turned into January after that(Mills and Andrew Coutts 1995). What we have achieved in the GCC stock markets also differs from previous research results in the markets of Japan(Comoli and Ziemba 2000), Australia(Brown, Keim et al. 1983), Thailand (Holden, Thompson et al. 2005) and Latin America(Cabello and Ortiz 2005), which achieved the highest rate of return in January.There are studies whose results are consistent with the current study as studies conducted inNigerian(Adinya, Oke et al. 2019) and Indian(Harshita, Singh et al. 2018) stock exchanges, which achieved a high rate of return in April. Our results showed that the rate of return in GCC countries turns into losses with losses reaching their highest level in November, while(Ariss, Rezvanian et al. 2011) showed negative returns are achieved in January in the same markets.Likewise, there are many studies conclude that the rates of return decrease from May to October(Bouman and Jacobsen 2002, Maberly and Pierce 2004, Jacobsen and Visaltanachoti 2009, Dichtl and Drobetz 2014), and this is consistent with our results in the GCC markets in the months of Mayand October, while it differs in November.

Conclusion

we concluded that the difference between average rates of return for the month of the year at the level of the Gulf Cooperation Council countries differs from one country to another, as average rates of return increase in the months of February, April, July, September and December, while they decrease in the months of May, November and October. The months of January, March and August were turning points for the trend. At the level of each country, we found that the difference in the rates of return for the month of the year is significant only in the Dubai and Abu Dhabi markets, as its rates of return increase in the months of February, April, July, September and December, while

it decreases in the months of January, March, May, June, August, October and November. Upon studying the significant difference between the average monthly rates of return between the markets of these countries, it was found that there is no significant difference between them.

Acknowledgments: This paper is an outcome of Project No. 2019-155-ASCS, fundedby Deanship of Scientific Research at the Imam Abdulrahman bin Faisal University.

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