Investors' Happiness and Stock Market

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Abstract

Investor feelings can affect their investing behavior in the market which may impact the stocks prices and volatility. Investor's happiness represents a very important feeling that can affect investing behavior. The main question here is whether the launching of a country wide happiness program can affect the investors' behavior in the stock market and consequently the prices and volatility of stocks. The methodology followed to answer this question was a quantitative methodology using data from the stock market of United Arab Emirates for the years 2015 – 2017 and information about the country's "national program for happiness and wellbeing" that was started in 2016. Data were analyzed using paired t-test and descriptive statistics. Results revealed that happiness can affect the volatility of stock prices but not the returns of stocks in the market.

Keywords: happiness program, UAE, happiness and stock returns, happiness and volatility

1. Introduction

One factor that can impact stock markets is the investors emotions; these emotions include many feelings like anger, fear, love, guilt, shame, jealousy, sadness, and happiness (Goodell et al., 2023). The problem is that these emotions can affect the investing decisions of investors (Hossain & Siddiqua, 2022) and consequently, affect the stock market and the economy without knowing what triggered it. Some events or initiatives may have a negative impact on the feelings of investors and the stock market without being noticed and some other events may have a positive impact on the feelings of investors without being identified, encouraged, and shard with other countries. The specific problem is that the effect of happiness feelings, caused by happiness initiatives in some countries, on the investors' behavior and on the stock market is still unidentified which is, in part, the same problem for many other emotions and feelings (Goodell et al., 2023). One of these initiatives is the "national program for happiness and wellbeing" in the United Arab Emirates (UAE) that was approved in 2016 (*Happiness*, 2023). This program is implemented in all federal institutions including the "securities and commodities authority" which regulates both Abu Dhabi stock exchange and Dubai exchange (the two exchanges included in this study). Based on this, all happiness requirements and initiatives in the program are applicable to the main two stock exchanges in UAE and thus, are hypothesized to affect the happiness of investors in these exchanges and consequently, impact the stock market prices and volatility.

The effect of happiness feelings for investors on the stock markets was studied by many researchers including Naeem et al. (2020), Li et al. (2021), Zhao (2019), and Saurabh and Dey (2020). Most of those researchers used data from Twitter as a proxy for investors' happiness. In this study, a more direct approach was followed regarding measuring happiness level which is related to implementing of the happiness program in UAE. The objectives of this program include encouraging private and government sectors to launch initiatives related to happiness policies and procedures, spreading happiness in the lifestyle of the community, and encouraging initiatives for publishing books about happiness (*Happiness*, 2023). This program is mandatory in all federal institutions including the "securities and commodities authority" which is overseeing both Abu Dhabi stock exchange and Dubai stock exchange which means that happiness procedures and services are also rendered to investors in these two stock exchanges and that can increase the level of happiness for them and affect the stocks prices and volatility. The objective behind this study was to explore whether happiness feelings can affect the behavior of investors as reflected in the stocks' prices and volatility. Happiness level was assumed to change after the date of implementing the "national program for happiness and wellbeing" in UAE and thus, the stocks' prices and volatility were also assumed to change as a result of change in happiness. The value that this study can add to the literature is derived from uncovering the effect of investors' feeling of happiness on their investing behavior using a different measure of happiness which is implementing a happiness program with all of its

related policies, procedures, and initiatives that target the increasing of the happiness of investors in the stock market which may represent a better indicator of happiness than a twitter based index that was used in many previous studies as an indicator of investors' happiness. Revealing the effect of investors' happiness on the stock market may benefit investors by following an investment strategy based on new happiness initiatives in the stock markets. For instance, if happiness was concluded to have a positive effect on stock prices, investor may buy stocks and hold it until a new happiness initiative is announced and sell it the day after the announcement to gain some return. In addition, regulators of stock markets can benefit from the results of this study by using it to mitigate high levels of volatility and decrease in prices especially during the time of market bubbles and financial crises. The study can also benefit in uncovering more aspects of the effect of investors' behavior on the stock markets which may help in adding a new piece toward completing the entire picture of behavioral finance. The main hypothesis in this study was that implementing a happiness program for investors in the stock market can affect the stocks prices and volatility.

2. Literature Review

2.1 Emotions Effect on Stock Market

Emotions can be defined as a shape of feelings that affect ideas and behavior through causing psychological and physical changes (Kovalkova, 2019). Like other people in the community, investors in the financial markets have emotions and feelings which can affect their behavior in making investment decisions (Sattar et al., 2020). These feelings include positive emotions like happiness (Kumar & Prince, 2022) and hope (Aren & Hamamci, 2020) and negative emotions like sadness (Kumar & Prince, 2022), and anger and fear (Aren & Hamamci, 2020). It can be understood from the definition of emotions that it can change the psychological state of the investors which may push them to take some investment decisions different than those taken in normal situations. For example, positive emotions like hope may encourage investors to buy some stocks with potential for high growth while negative emotions like fear may cause hesitation in investment decisions or even wrong investment decisions because of the feeling of unsafe. In addition, emotions may change the thoughts of investors about stocks and about the entire stock market. This change in thoughts may be reflected in the investment behavior by selecting some stocks based on the new thoughts and not based on the market information and eventually, affect the stock market.

The effect of emotions on stock markets was studied by some researchers. Some emotions were concluded to have an influence on the stock market while others have a small or no effect. Griffith et al. (2020) explored the effect of investors' sentiment measures on stock returns and volatility. They concluded that feelings of gloom, stress, and joy have small or no effect on stock returns and that the emotions of fear have a significant effect on stock returns and volatility. In addition, the investment decision of investors can be impacted by the emotions of anger, fear, and stress (Moueed & Hunjra, 2020); these decisions may affect the stock prices and volatility. Moreover, Emotions can affect stock prices and volatility because it can influence market dynamics as concluded by Vamossy (2021). Based on this, it can be concluded that emotions of investors may influence the stock markets as previously concluded by Sun et al. (2020) but the specific effect and context of each emotion is still unknown (Goodell et al., 2023). These emotions include six basic types (Cherry, 2022): fear, disgust, anger, surprise, sadness, and happiness. In this study, the authors tried to uncover how happiness can affect stock markets through affecting the prices and volatility of listed stocks using the implementation of investors' happiness programs as a measure for happiness.

2.2 Happiness and Stock Markets

Happiness is the most desirable feeling for people because it includes emotions of joy and satisfaction (Cherry, 2022). The positive emotion of happiness can affect the stock markets as stated by Kumar and Prince (2022); this effect may be generated by decreasing the level of stress and fear for investors which provides a pleasant environment for investment decision making and enhance the process of selecting, buying, and selling of stocks in the market. Consequently, the stock market will be better if all investors are taking the correct investment decisions considering all available information without any pressures from negative feelings like sadness and fear. One effect for happiness on the stock market is that it can affect the implied volatility of the stocks and the investors risk aversion as concluded by Naeem et al. (2020) and Li et al. (2021). Moreover, happiness was concluded to influence the stock returns by some researchers including Zhao (2019) and Saurabh and Dey (2020). Most of previous studies about the effect of happiness on the stock market used a twitter-based happiness index as a proxy for happiness while in this study, the implementation of happiness program was used to measure the effect of happiness on the stock market by comparing socks' returns and volatility before and after the beginning of that program. The use of happiness program instead of twitter- based happiness data represents the difference

in this study from other studies and indicates the value it can add to the literature.

The "national program for happiness and wellbeing" was started in March 2016 in UAE which is an Arabic country with a world happiness rank of 26 based on the average ranking for three years from 2020 to 2022 (Helliwell et al., 2023). The program was launched to help in achieving the national goal of making UAE the happiest of all nations and a source of pride to all its citizens (*Happiness*, 2023). This goal is to be achieved by including happiness in the policies and procedures of all government institutions, promoting happiness in the community, and measuring happiness level in the country; one additional objective behind this program is to encourage the private and public sector entities start happiness initiatives (*Happiness*, 2023). Some of happiness initiatives in the public sector (federal government) were mentioned in the program which is called also "the national charter of happiness", these initiatives include: hiring chief executive officer (CEO) for happiness in each government entity, establishing a happiness and wellbeing councils for federal government entities, allow some time for happiness activities in governmental entities, establishing happiness and wellbeing offices in the government entities, and changing the "customer services centers" in the government to be "customer happiness centers" (*Happiness*, 2023).

2.3 Happiness in the UAE Stock Markets

The "national program for happiness and wellbeing" of UAE is applicable for all federal entities in the country including the "securities and commodities authority" (SCA) which is a federal entity responsible for regulating the stock markets in UAE (*Vision, Mission and Regulatory, 2023*). There are two main stock exchanges in UAE (*Financial Markets*, 2023): Abu Dhabi Securities Exchange (ADX) and Dubai financial Market (DFM). ADX is the second biggest financial market in the Arab world and was established in the year 2000 as a market for trading stocks, bonds, and exchange traded funds (*Overview*, 2023). The number of listed companies in this exchange as on October 21, 2023 was 104 companies belonging to 13 sectors (*Market Watch*, 2023). DFM was founded in the year 2000 also and became the region's first publicly listed exchange in 2007 (*Why DFM,* 2023). The number of listed companies in this exchange as on October 21, 2023 was 125 companies grouped into 10 sectors (*Listed Securities,* 2023). The main index for ADX was called ADI and then changed in the year 2022 to be FTSE ADX general index after the agreement between ADX and FTSE Russel to administrate the co-branding of the ADX indices (*FTSE Russel,* 2023) while the main index for DFM is the DFM general index.

Both ADX and DFM are regulated by SCA which is a federal institution mandated to comply with the requirements of the national program for happiness and wellbeing and based on this, it should follow all these steps stated in the program toward investors' happiness. Many researchers concluded that happiness can affect the stock markets (Li et al., 2021; Naeem et al., 2020; Saurabh & Dey, 2020; Zhao, 2019) but most of studies used a twitter-based happiness information to represent the happiness variable. In this study, however, happiness is measured using a different variable which is the happiness program implemented since 2016 to enhance the happiness of investors in the UAE stock markets. The use of a new source of information about investors' happiness represents the value that can be added by this study to the current literature to provide new evidence about the effect of happiness on the stock markets. Studying the effect of investors' happiness on the stock markets using a different proxy for happiness can be useful in confirming the effect if it exists or confirming that the effect wrongly found in the previous studies resulted from choosing the wrong measure of investors' happiness. Based on the results of many previous studies that indicated the existence of happiness effect on the stock markets, it's hypothesized in this study that investors' happiness does affect the returns and volatility of stocks in the financial markets.

2.4 Hypotheses

The impact of emotions on the stock markets was evidenced by many studies including Griffith et al. (2020), Moueed and Hunjra, (2020), Vamossy (2021), and Sun et al. (2020). In addition, some of previous studies were focused on studying the impact of happiness in specific and proved that happiness can affect stock markets (Li et al., 2021; Naeem et al., 2020; Saurabh & Dey, 2020; Zhao, 2019). The new aspect introduced in this study is the use of information about happiness other than that used by most of previous studies in which twitter-based data were used. Happiness programs and initiatives in the stock markets were used in this study to reflect the happiness of investors. Based on the evidence in the literature about the effect of happiness on the stock markets, the main hypothesis of this study was developed to test whether investors' happiness, measured by the implementation of the happiness program, does impact the stocks' returns and volatility. The hypotheses of this study can be presented as follows:

H1: Investor's happiness, as measured by implementation of happiness program, does impact the stocks returns in the financial markets.

H2: Investor's happiness, as measured by implementation of happiness program, does impact the stocks volatility in the financial markets.

The test of these hypotheses was conducted using data from the two main stock exchanges in UAE: ADX and DFM.

3. Method

3.1 Research Data

Data for this study included data about the independent variable of happiness and about the dependent variables of stocks returns and volatility. To test the effect of the independent variable on the dependent variables, a paired *t*-test was utilized. Information about the "national program for happiness and wellbeing" were downloaded from "United Arab Emirates portal" or u.ae (*Happiness*, 2023). Weekly average returns and volatility for the main index in ADX and DFM (ADI and DFM general index) were calculated using the daily closing prices of both indices. Closing prices for the indices were downloaded from investing.com website (Investing.com, 2023). These prices were downloaded for one year before the starting of the happiness program which is March 20, 2016 and one year after that date. Based on this, closing prices were downloaded for the period from March 20, 2015 to March 19, 2017. The year after the starting of the happiness program was selected because the effect of the program initiatives may be very clear at the early stages of implementation because its new and many initiatives are starting while after the first year, number of initiatives may decrease and the happiness level variation may become lower. The national program for happiness and wellbeing was approved on March 20, 2016 and was planned to be implemented directly without any delay and without dividing its implementation into stages and based on this, all federal institutions including SCA started its initiatives related to happiness at the same date.

3.2 Research Design

The quantitative study design was utilized in this study to explore the effect of happiness emotions on the stock market's return and volatility. The independent variable here was the implantation of happiness program and the dependent variables were the returns and volatility of the included indices. The first step was to calculate the weekly average of daily returns for the two included indices using the daily closing prices of the indices and then estimate the weekly volatility using these returns. Daily return for indices was calculated as follows:

$$R_i = [(P_{it} - P_{it\text{-}1}) / P_{it\text{-}1}] * 100 \tag{1}$$

Where R_i is the return on index i, P_{it} is the closing price of the index at day t, $P_{it\text{-}1}$ is the closing price of the index at the previous day or day t-1. The average returns for a week were calculated as follows:

$$\sum R_i / N \tag{2}$$

where N is the number of trading days in the week (normally 5 days less any holidays). Weekly volatility was estimated as the standard deviation of the average of daily returns in a week following Choi (2020). After that, weekly returns and volatility data were tested to check if it meets the conditions of the paired *t*-test and finally, data for one year before the implementation date of the happiness program (from March 22, 2015 to March 17, 2016) and for one year after it (from March 21, 2016 to March 19, 2017) were compared using the paired *t*-test. The paired *t*-test was selected because the objective of the data analysis in this study was to determine whether the returns and volatility of the included indices after the implementation of the happiness program are significantly different than those before the implementation of the program.

4. Results

4.1 Descriptive Statistics

Table 1 includes a summary of descriptive statistics about the two indices covered in this study, ADI and DFM general index, for the entire period of the study from March 20, 2015 to March 19, 2017. It can be noticed from the table that the volatility, represented by the standard deviation, for the DFM general index was higher than that for the ADI index during the period and the maximum weekly volatility for DFM general index was significantly higher than that for ADI index. In addition, there were no significant differences between the two indices in the values of average return, minimum return, maximum return, and the weekly volatility of the entire period. Spearman's correlation coefficient between the prices of the two included indices was .898 and significant at .01 level of significance which means that the prices of both indices are moving in same direction and with very close values.

Table 1. Descriptive Statistics for the Indices: ADI and DFM General Index for the period from March 20, 2015 to March 19, 2017

Details / Index	ADI DFM general index	DFM general index
Average return%	0.009	0.011
Standard deviation (SD)%	0.984	1.294
Minimum return%(date)	-5.008 (23/08/2015)	-6.964 (23/08/2015)
Maximum return%(date)	4.678 (19/06/2016)	5.153 (24/01/2016)
Minimum weekly SD	0.107	0.125
Maximum weekly SD	2.719	4.237

4.2 Hypotheses Testing

4.2.1 Testing the First Hypothesis

The first hypothesis was developed to determine whether the implementation of the happiness program in UAE affected the returns of the stocks in the included indices. this hypothesis was formulated as follows:

H1: Investor's happiness, as measured by implementation of happiness program, does impact the stocks returns in the financial markets.

This hypothesis was tested using paired t-test by arranging the data as weekly averages of returns for each index for the period of one year before the implementation of the happiness program and one year after it. The result was paired weekly returns; each pair consisted of the return for the same week before the implementation of the program and the return after the implementation. These data were cleaned first from outliers and then tested for the assumption of normality before using the paired t-test. Results of Shapiro-Wilk test of normality are summarized in Table 2. As can be noticed from the table, the differences between the pairs of weekly returns are normally distributed because the test was non-significant for both indices at 5% level of significance.

Table 2. Results of Shapiro-Wilk test of normality for hypothesis one

Index	Statistic	*P* value
ADI	.977	.396
DFM general index	.982	.598

A paired t-test was conducted to test the first hypothesis related to the differences in weekly returns before and after the implementation of the happiness program. The results of the test are shown in Table 3. Based on these results, there was no difference in the weekly average returns for both indices before the implementation of the happiness program and after it ($t_{51} = 0.284$, $p = .778$ for ADI and $t_{51} = -0.320$, $p = .750$ for DFM general index). In other words, the implementation of the happiness program with all its initiatives did not affect the returns of both indices in the UAE and the first hypothesis can be rejected.

Table 3. Results of paired t-test for Hypothesis One

Index	*t* statistic	*P* value
ADI	0.284	.778
DFM general index	-0.320	.750

4.2.2 Testing the Second Hypothesis

The second hypothesis was about the difference in the indices' volatility before and after the implementation of the happiness program. This hypothesis can be expressed as follows:

H2: Investor's happiness, as measured by implementation of happiness program, does impact the stocks volatility in the financial markets.

To test this hypothesis, the weekly volatility for each index was calculated as the standard deviation of the daily returns of each week and then the weeks of one year before the implementation of the happiness program were paired with the weeks of one year after the program. After that, Data were cleaned from outliers in differences and then tested for normality using the same test in the first hypothesis. The results of Shapiro-Wilk test of normality are shown in Table 4. The results of normality test indicated that the difference between the pairs of volatility is normally distributed as the test was non-significant for both indices at 5% level of significance.

Table 4. Results of Shapiro-Wilk test of normality for the Second hypothesis

Index	Statistic	P value
ADI	.967	.156
DFM general index	.960	.080

The next step was to run a paired t-test to determine whether the weekly volatility of each index was different before and after the implementation of the happiness program. The results of the test are summarized in Table 5. From these results, it can be noticed that results for ADI were non-significant, $t_{51} = -0.825$, $p = .413$ while it was significant for DFM general index, $t_{51} = -5.170$, $p < .001$. In addition, the mean of volatility for DFM general index before the implementation of the program was 1.106 reduced to 0.721 after the implementation. This means that the implementation of the happiness program reduced the volatility of the stock prices in Dubai stock market and did not affect the volatility of prices in Abu Dhabi stock market.

Table 5. Results of paired t-test for the Second Hypothesis

Index	t statistic	P value
ADI	-0.825	.413
DFM general index	-5.170	<.001

5. Discussion

As indicated by the analysis results, investors' happiness does not affect the stock returns of the two main indices in UAE when measured using the implementation of happiness program of the country. The volatility of stocks' returns was not affected in ADX by the program while it was reduced in DFM after implementing the program. From these results, it can be concluded that investors' happiness does not affect the returns of stocks but it can affect the volatility of those returns. On one side, the results regarding volatility are in line with claims of researchers like (Kumar & Prince, 2022), (Naeem et al., 2020), and (Li et al., 2021) in that happiness can affect the volatility of returns in the market. On the other side, the conclusions of this study regarding the effect of happiness on the stocks' returns are apposite to what was concluded by other researchers including (Zhao, 2019) and (Saurabh & Dey, 2020) who concluded that happiness affects the returns of stocks in the market. One possible cause of concluding different results than previous studies is using a different measure for happiness in the stock market. Most of researchers used Twitter-based data to measure happiness in the stock market while in this study, a more direct measure was utilized. This measure was the implementation of the happiness program for which the main goal is to increase happiness among investors as the main customers of the financial markets while twitter-based happiness data relied on what is said in Twitter posts which may or may not reflect the real happiness in the stock market.

The results of this study can be generalized to another middle eastern countries with same programs for investors' happiness because investors in these markets are affected by almost the same factors; events that cause happiness and sadness in one country can also cause these feelings in other Arab countries .In fact, all investors are humans and have feeling that affect their investment behavior in the market and this fact make the results of this study generalizable to all stock markets all over the world except markets in which all investors are robots. This study is the first study about testing the effect of happiness on the stock market using happiness program and initiatives as an indicator for investors' happiness instead of Twitter-based happiness data. Based on this, this study can add value to the literature by uncovering the positive effect of happiness on the volatility of the stock prices even when a different measure of happiness is used and by reveling that the claimed effect of happiness on the returns of the stocks disappears when the researcher looks at happiness from a different perspective. Study conclusions

can be very important to the management of the stock market in UAE because it provides them with a tool to mitigate the volatility of the prices by increasing the happiness initiatives. In addition, it's important to the management of stock markets in other countries where it can be used also to decrease the volatility of the prices during financial crises and bubbles. Future research can be conducted to measure the effect of happiness on stock markets using other different estimates and even another research tools like questionnaire that measure the satisfaction and happiness of investors instead of using Twitter-based data or happiness programs and initiatives.

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