The Effect of Using Technical and Fundamental Analysis on the Effectiveness of Investment Decisions of Traders on the Egyptian Stock Exchange

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Abstract:

The approach used by the traders plays an important role in the effectiveness of their investment decisions. as after drawing a sample of individual traders on the Egyptian Stock Exchange. it became clear that the percentage of traders whose investment decisions are effective (who achieved a rate of return above the average market return during a full year) is only 5% of the total sample. which Motivated researcher to try to identify whether the traders use of fundamental analysis tools and technical analysis tools can help them to increase the effectiveness of their investment decisions.so, this research aims to identify the impact of traders' use of basic analysis tools and technical analysis tools on the effectiveness of their investment decisions on the Egyptian Stock Exchange in order to define the approach that can be used to serve traders to make effective investment decisions in the capital market. "In order to achieve this goal, the researchers tested the following hypothesis. There is no significant effect of the traders' use of fundamental analysis tools and technical analysis tools on the effectiveness of their investment decisions on the Egyptian Stock Exchange and the result of testing this hypothesis confirmed that there is significant impact of traders' use of fundamental analysis tools and technical analysis tools on the effectiveness of their investment decisions on the Egyptian Stock Exchange, and therefore we recommend traders to use fundamental analysis tools and technical analysis tools to make effective investment decisions in Egyptian Stock Exchange.

Keyword: Fundamental analysis; Technical analysis; Investment decisions, trading.

1.   INTRODUCTION

The approach is the one through which the trader can reach an answer to a very important question which is Do I open a long or short position now? Knowing that there is no trader who can learn all the methods through which this question can be answered. where the markets flow from it There is an enormous amount of information and there are two types of analysis that traders use to collect and analyze this information in order to help him make market decisions.

1.1.   Fundamental Analysis

The fundamental analysis focuses on the economic strength of supply and demand that leads to price movements to rise, fall, or stay as it is. The basic analysis studies all the factors that affect the price in the market with a view to determining the fair value of the share, and the basic analysis determines the fair value of the share through the law of supply and demand. If the fair value of the share is less than its current price in the market. this means that the price in the market is exaggerated in its rise and this stock must be sold and if the fair value is higher than the current price of the share. this means that the share price is exaggerated in its decline and this stock must be purchased[1].

There are two approaches to the fundamental analysis.

1.1.1.   Top-Down: This Approach begins with an analysis of the economic conditions then the industry then the company. this Approach is usually used if there is no specific share in the mind of the trader and searches for the best stock to invest in and on this basis the basic fundamental logically grades from the generalities of the specificities where the trader examines the following.

- Economic environment: To infer the future direction of stock prices. For example, high interest rates and increased inflation are an indication that stock prices will decrease.

- Industry conditions: The examination of industry conditions is due to the fact that industries show different reactions to changes in the economic environment. so, the demand for high-priced commodities such as cars, home appliances and real estate tends to respond significantly to changes in the level of economic activity, while the demand for other products such as necessities is less in response to changes in economic activity.

- Organization conditions: As what applies to industry and the economy in general may not apply to a particular organization, some organizations have poor performance even during periods of economic prosperity. for example, in the eighties the American company continued to achieve losses while other airlines achieved Many record profits and vice versa as well as some organizations thrive in times of economic recession, and these securities may be a good opportunity to buy even if it appears that the whole market will decline.

1.1.2.   Bottom-Up: It begins with analyzing the shares of a particular company we want to make a decision to invest in, then analyzing the industry to which the company belongs and finally analyzing the general economic conditions to reach the real value of the security. We will briefly address the most important elements of the fundamental analysis, as follows[2].

1.1.2.1. **Analysis of economic variables**: The economic analysis represents the first step in the fundamental analysis as it analyzes the largest and broader environment for the capital market and there are multiple economic variables that the trader must take into account for its tangible impact on the capital markets include the following.

- Monetary policy.
- Financial policy.
- Inflation and deflation.
- Gross domestic product

1.1.2.2.   **Industry analysis**: The analyst at the beginning must define the industry and its location in relation to other industries. Defining the industry on the basis of the product it provides may make competition come from industries that do not fall within the same sector. The analyst needs to carry out a classification process for industries, their impact on the economic situation. the relationship between the industry and other industries. the impact of the business cycles on each of them and the degree of government intervention in each of these industries. The process of analyzing the industry should include the following.

- Evolution of sales and profits.
- Evolution of demand and supply.
- competition conditions.
- Industry technology and product nature.
- Government intervention.
- Consumption trends.
- The relationship between stock prices and profits[2].

1.1.2.3. **Company analysis**: The company is analyzed through the following: Comparative analysis which aims to identify the competitiveness of the company within the industry. Among the most important factors that are taken into account when doing it are the following.

- The number and types of company products compared to competitors.
- The size of the company's resources compared to competitors.
- The company's product success levels compared to competitors.
- The company's ability to innovate and diversify production compared to competitors.
- Analyzing the company's financial position. the financial statements included in the financial statements of the company are used in calculating many financial ratios in order to identify the main

trends in the company's performance during the past years and compare it to the average performance of the industry during those years [3].The financial ratios required to analyze the financial position of the company are Liquidity ratios which used to measure the company's ability to meet short-term obligations without delay. Activity ratios which used to measure the rotational speed of different assets such as accounts receivable, inventory and fixed assets. Debt use ratios which used to measure the degree of a company's use of debt to finance its various assets in addition to its ability to cover the interest of that debt. Market value ratios which used to identify the investor's assessment of the company's performance by identifying the relationship between the market value and the book value of the stock. Profitability Ratios which used to measure the company's ability to obtain a sufficient return on sales[4].

1.2.   Technical Analysis

[5] defines technical analysis as the study of any market through the use of price information and the amount of trading in order to predict a change in the direction of price in the future, as it [1] defines it as the study of price information, the amount of trading and existing deals in order to predict the price trend in The future, and therefore the trader can use technical analysis to predict the direction of prices in the future and thus achieve effectiveness in his decisions. The following is a detailed view of the technical analysis.

1.2.1.   The Philosophy of Technical Analysis

Technical analysis is based on three basic assumptions as following.

➢   Prices and trading volumes represent the decisive forces

This assumption is a cornerstone of technical analysis. Where technical analysts believe that anything that can affect the price, such as economic, political, natural, psychological and other factors. ultimately is reflected in the price and amount of trading in the market. therefore, the study of price and the amount of trading means studying all of these factors. The technical analyst sees that any movement in the price of a specific stock reflects the change in the demand and supply of that stock in the market. If the demand for a particular share is higher than its offer as a result of economic, political, natural, psychological factors or any good factors specific to the company. this is reflected in the image of a high share price in the market. but if the demand for a particular share is less than its offer as a result Economic, political, natural, psychological or any bad factors specific to the company as this is reflected in the low stock price in the market. therefore, the analysis of prices and the amount of trading means analyzing the economic, political and factors of the company indirectly.

➢   The price is moving in direction

The term "trend" is a key term in technical analysis. As the main purpose of analyzing the stock price chart is to determine the price trend in its early stages where deals are agreed with it. as prices move in a direction and this trend often continues until it is reversed, and this can be inferred through the Newton's first

law of movement which It is that the trend is more likely to continue its movement than it is to be reversed. Figure 1 shows a downtrend.

> ➤ History repeats itself

The psychological factors of market participants are analyzed through technical analysis where the patterns of the chart that have been recognized for a hundred years reflect the direction of the dealers towards the market in times of rise or fall and suggest the continuation or stopping of the current trend. As it studies the psychological factors of dealers in the past which will not change in the future which enables it to predict the direction of the market in the future depending on what happened in the past.

Figure 1. Downtrend.

1.2.2.   Technical Analysis Using the Chart

This type of technical analysis is based on analyzing the different types of chart and identifying the price trend through signals that give it some of the patterns in which the chart is formed and are represented in the level of support and resistance[6], the trend[1], the head and shoulders pattern[7], the multiple head and shoulders pattern[8], and the Two consecutive peaks and bottoms pattern, gaps, rectangles, Flags And Pennants[9].

1.2.3.   Technical Analysis Using Indicators.

Indicators can help determine the direction of the market and determine when it will change. as well as know the strength of both buyers and sellers. technical analysis using indicators is more objective than technical analysis using the graph. the problem with indicators is that they can conflict with each other. some of which can be relied upon well in the market when it takes a particular direction. while others can be relied upon in a market that is without a trend.

Professional technical analysts divide the indicators into three groups: indicators tracking the direction of the market, indicators of volatility and various indicators. indicators tracking the direction of the market work well when there is a direction of the market but do not work well when the market is without a direction. while oscillators work well when The

market is without direction but it does not work well when the market begins to take a certain direction. while we find that the various indicators give a good image of the psyche of the largest part of the market dealers, and technical analysts use more than one type of indicators at the same time as You will lead to the cancellation of false signals that appear through one indicator when used alone. while the use of more than one indicator at once confirms the good signals.

The market tracking indicators are the Moving Average, the Moving Average convergence divergence[10]. the Skewed Moving Average in the form of columns, the Steering System and other indicators.

The oscillators are Stochastic[11], rate of change, RSI, William and other indicators.

While we find that the various indicators are represented in the index of new levels of rise and fall. the index of the extent of buyers' agreement, the index of the commitment of traders. the rate of increase and decrease and other indicators.

2.   LITERATURE REVIEW

By reviewing a set of previous studies on the trader's approach. the researcher found studies dealing with the use of technical analysis including the study by [12] through which he concluded that the use of buy and sell signals that appear through the simple average as one of the tools Technical analysis achieves a rate of return of 25% annually which exceeds the average market return of 10.56% annually and this means that the use of a simple average as one of the tools of technical analysis affects the effectiveness of investment decisions for traders by applying to the Cyprus Stock Exchange. [13] stated that the use of buy and sell signals that appear through the moving average as one of the technical analysis tools achieves a higher rate of return than the market average and therefore the use of technical analysis affects the effectiveness of investment decisions for traders by applying to the shares of large companies listed in the ASE index. agreed with them [14] Where she concluded that extraordinary profits can be achieved in the foreign exchange market that exceeds the randomly generated profits when following the technical analysis tips.

While [15] disagreed with them. they concluded that the use of technical analysis during the session on the American Stock Exchange does not achieve profits higher than the average market and therefore does not affect the effectiveness of investment decisions of dealers during the period from the beginning of 2002 to the end In 2003, in the same direction [16] concluded that the use of technical analysis on the New Zealand Stock Exchange does not achieve profits higher than the average market in the period from the beginning of 1992 until the end of 2002, and [17] found That the use of buying signals that appear through technical analysis tools makes a profit while Using sales signals that appear through the technical analysis tools achieving loss in the Madrid Stock Exchange.

And [18] worked on a trading system through which information is gathered from a large number of trading recommendations that are based on fundamental analysis in

order to increase the effectiveness of investment decisions for customers. [19] reached through their study Which has been applied to four European countries that the variables that are studied through the fundamental analysis especially the interest rate affect the prices in the market and this indicates the necessity of using the basic analysis when trading in the market and thus the possibility of using it on the effectiveness of the decisions of traders in the market.

[20] concluded that the use of fundamental analysis leads to achieving a rate of return above the average market return which affects the effectiveness of investment decisions for traders. in the same direction [21] concluded that traders Using the fundamental analysis to identify the expected return for companies and to open short positions by selling the shares of companies whose return is expected to decrease in the future and then cover these positions by buying back the shares of these companies. when the fundamental analysis indicates the possibility of the return of these companies to rise again This is from the Chance of Increasing Effectiveness Investment decisions for traders.

There are many previous studies that have studied the impact of some of the characteristics of the traders including the study through which [22] sees that over confidence traders achieve a higher rate of return than their rational thinking colleagues in addition to being more able to continue in the market, due to this. To their enthusiasm and attacking ability to make decisions. [23] also believes that successful, disciplined and rational traders tend to quickly get rid of losing trades and keep winning trades for longer periods than they keep losing trades and thereby They were higher than the rate of return traders who are overconfidence, as [24] added that the traders who are not over confidence they close money-losing trades, leading to increase the size of their losses.

[25] studied the extent to which professional and novice traders accept short-term losses, and it turns out that professionals are more receptive to losses than beginners and this implicitly agrees with what [23] reached, where their study found that effort What the traders make increases after they stop their losses, in addition to stopping the losses that do not lead to the deterioration of the performance of the traders. and [26] concluded that the fundamental analysis can be used to determine the winning and losing stocks, [27] also tested the possibility of using neural networks to design a system based on fundamental analysis, and the results showed that fundamental analysis achieves a rate of return that exceeds that of the market index.

[28] was able to improve the performance of ATS electronic trading systems by improving the benefit accruing to the trader it uses in addition to making it more appropriate to its capabilities by applying to the New York and Chicago futures market and indicated that this improvement can also be used in the stock markets and Currencies markets. [29] combined two models for determining profit-loss trades in order to arrive at a model through which an indicator is calculated that assists traders in managing money by determining profit-loss trades before opening them, by identifying the amount The transaction and expected movement Prices on the stock market.

While the study conducted by [30] dealt with how to test trading systems that rely on neural networks through a model that reached the study. away from the characteristics of the traders who use the model. [31] reached by polling the opinions of financial analysts Their belief in the importance of diversifying the trader's securities portfolio in order to reduce the risks that these traders are exposed to and thereby reduce their losses which affects the effectiveness of their investment decisions. When [32] designed a model that combined time series and technical analysis. he found that this model achieved a higher rate of return than that achieved only in time series. While [33] concluded that the prediction model that depends on economic variables achieves a higher prediction accuracy than the model that relies on technical analysis.

The researcher extracts from the previous studies the following.

- The difference of the results of previous studies on the effect of technical analysis on the effectiveness of the traders 'investment decisions. according to the different markets to which the studies were applied.

- The effect of using fundamental analysis on the effectiveness of investment decisions of customers.

- Previous studies did not study the effect of both the use of technical analysis and the use of fundamental analysis at the same time on the effectiveness of investment decisions for customers, through studying the approach of the traders on the effectiveness of their investment decisions.

3.   METHODOLOGY

3.1.   Exploratory study

The researcher conducted an exploratory study through a set of in-depth personal interviews with a group of clients account managers, managers of brokerage firms in securities, and dealers in the stock exchange mentioned in Appendix A and the interview framework was to find out the following.

- The extent to which traders use a certain approach when trading on the stock exchange.

- The effect of using technical analysis on the effectiveness of investment decisions of customers.

- The effect of using basic analysis on the effectiveness of investment decisions of customers.

The results of these interviews were as follows.

- There is confusion among the dealers between the curriculum and the trading system, and most of the dealers do not use a specific method when trading on the stock exchange, while it depends on the recommendations of experts and intuition.

- It is not possible to know the effect of using technical analysis on the effectiveness of traders' investment decisions.

- It is not possible to identify the effect of the use of fundamental analysis on the effectiveness of investment decisions of customers.

3.2. Research problem

Through what has been revealed from the review of previous studies and the results of the survey study. the research problem can be formulated as follows.

 Although it is important to know the effect of the traders' use of fundamental analysis tools and technical analysis tools on the effectiveness of their investment decisions on the Egyptian Stock Exchange. this effect has not been studied in a controlled manner through scientific research.

3.3. Research objective

The researcher seeks through this research to Knowing the effect of the traders' use of the basic analysis tools and the technical analysis tools on the effectiveness of their investment decisions on the Egyptian Stock Exchange in order to determine whether the traders should use the technical and fundamental analysis as a method for dealing in the stock market so that their investment decisions in the capital market are effective.

3.4. Research hypotheses

To achieve the Research objective, the researcher has tested the following hypotheses.

H1. There is no significant effect that traders use of fundamental analysis and technical analysis tools on the effectiveness of their investment decisions on the Egyptian Stock Exchange.

H1(a). There is no significant effect for traders using basic analysis tools on the effectiveness of their investment decisions on the Egyptian Stock Exchange.

H1(b). There is no significant effect that traders use of tools for technical analysis on the effectiveness of their investment decisions on the Egyptian Stock Exchange.

3.5. Research community

The research community is represented by the individual traders registered in the Egyptian Stock Exchange which numbered 17.1 million trader.

3.6. Sample

The research sample is represented by 384 traders from the aforementioned community, because the size of the community is more than 100000 items. a simple random sample of brokerage firms was selected in the securities registered on the stock exchange at a rate of 5% which is shown in Table No. 1. Then, the number of traders in each company was determined

according to the ratio of the number of operations that took place during the month of July 2019 for each company to the total number of operations for all companies as shown in Table No. 1.

Table 1. The sample is distributed to brokerage firms.

Securities Brokerage Firms	Number of Operations	Number of Operations %	Number of traders
Hermes	45796	27%	104
Pioneers	45455	27%	104
Arabia Online	43207	25%	96
Mubasher	11892	7%	27
Roots	8673	5%	19
Honest	8275	5%	19
Pyramids Capital	7132	4%	15
Total	170312	100%	384

3.7. Variables and measurement

3.7.1. Measurement

The researcher used a questionnaire that dealt with the dealers 'use of basic analysis tools and technical analysis tools, and the average return they achieved, to obtain the preliminary data necessary to complete the study. The researchers gave great care to this questionnaire in the preparation and were presented to a group of professors and make the required adjustments, then made a pretest test for this questionnaire on a sample of traders. Based on this test. the researchers made the required amendments to the questionnaire and prepared them in their final form. then the researchers collected Data during the period from July 2019 to October 2019.

3.7.2. Variables

Independent variables include using fundamental analysis was measured by the respondents' answers to questions No. 1 to 4 in the questionnaire. using technical analysis was measured by the respondents 'answers to questions from No. 5 to No. 22 and This variable includes three sub-variables represented in the analysis using the chart which measured by Traders answers on questions No. 5 to No. 14, Analysis using indicators which measured by the respondents' answers to questions No. 15 to No. 19.

Trading system which measured by the respondents' answers to questions No. 20 to No. 22. The dependent variable is represented in the effectiveness of the investment decisions,

which were measured through the return achieved by the customers during the period from 15 July 2018 to 14 July 2019, through the response of the traders to question No. (23), in which the different levels of the average return were determined. Based on the rate of return achieved by the thirty index of the Egyptian Stock Exchange EGX30 during the same period previously mentioned, which was calculated as follows.

R = (EGX30 value in year t - EGX30 value in year t-1)/ EGX30 value in year t-1

3.8. Statistical methods

3.8.1. Normality Test

The researcher used a Normality Test of the probability distribution of the remainder in order to identify the suitability of the nature of the data collected with the statistical method used in the hypothesis test, which is the analysis of multiple linear regression.

3.8.2. Durbin-Watson Test

The researcher used the Durbin-Watson Test to test the autonomy of the remaining so that he can identify the suitability of the nature of the data collected with the statistical method used in the hypothesis test, which is the analysis of multiple linear regression.

3.8.3. Contrast stability test

The researcher used the contrast stability test to identify the suitability of the nature of the data collected with the statistical method used in the hypothesis test, which is the analysis of multiple linear regression.

3.8.4. Multiple linear regression analysis

The researcher used the multiple linear regression analysis method to test the ability of the two independent variables to affect the dependent variable because it takes into account the two independent variables together. The researchers formulated the multiple regression model through which the main research hypothesis will be tested through this method as shown in Figure No. 2 The second hypothesis will be tested through this method as well, as shown in Figure No. 3.
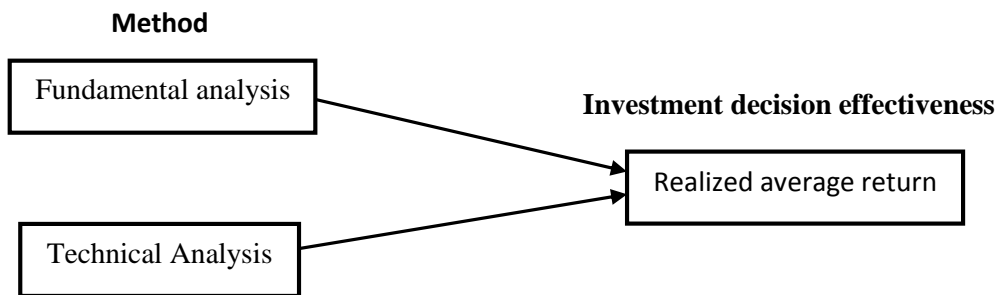

Figure 2. H1 test model.

$$R = a + B_1 ME_1 + B_2 ME_2$$

Where R is Realized average return. ME1 is Fundamental analysis. ME2 is Technical Analysis.
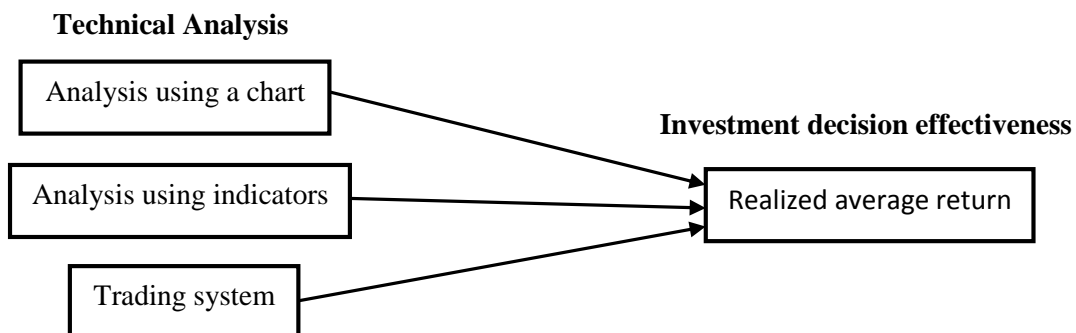

Figure 3. H1(b) test model.

$$R = a + B_1 T_1 + B_2 T_2 + B_3 T_3$$

Where T1 is Analysis using a chart. T2 is Analysis using indicators. T3 is Trading system.

3.9. Test the suitability of statistical methods for the nature of the primary data

Through this stage the researcher seeks to test the suitability of the primary data collected through the survey with the statistical analysis method that he will use in testing the study hypotheses, which is a multiple linear regression by testing the availability of the following conditions.

3.9.1. Theoretical conditions.

- Rationale of Signals and Value of Regression Coefficients: There are no specific limitations in the study about regression signs or coefficients, so this condition is available in the data.

- Explanatory power of the model: The determination coefficient resulting from the operation of data according to the regression model has a value of 0.566, which means that the independent variables of the study explain 56.6% of the changes that occur in the dependent variable and the rest is due to other factors, including random error, and therefore this condition is available in the data.

3.9.2. Regular Least Square Conditions.

- Moderate probability distribution of residual Normality Test: The researchers studied the moderation of the probability distribution of residues by the graphic method, by examining the graph o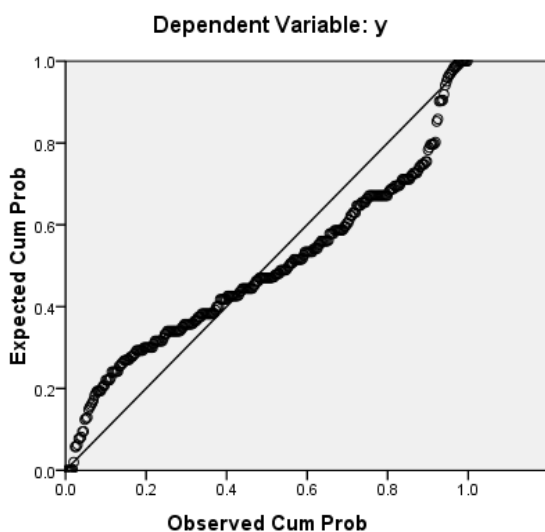f the relationship between the observed aggregate probability and the expected aggregate probability of the standard residues, and as shown in Figure No. 4, we find that the residues are randomly distributed on both sides of the line, which means that the rest Distributed in a moderate manner.

- The autonomy of the remnants: The researchers tested the residual autonomy through the Durbin-Watson Test, and the researchers found that there was an autonomy of the residue as the value of 1.994 Durban was less than 2 and greater than the critical value extracted from the Durban Watson Critical Value Table of 1.75.

- Variance stability: The researchers judged the consistency of the variability of errors through the graphical method, by examining the shape of the spread of the standard residues with the directional values of the dependent variable, and as shown in Figure No.5, we find that the distribution and distribution of the remaining residues takes a random shape on both sides of the line that represents zero , Which is the line that separates positive and negative ones, which means that there is consistency in the variance of errors.
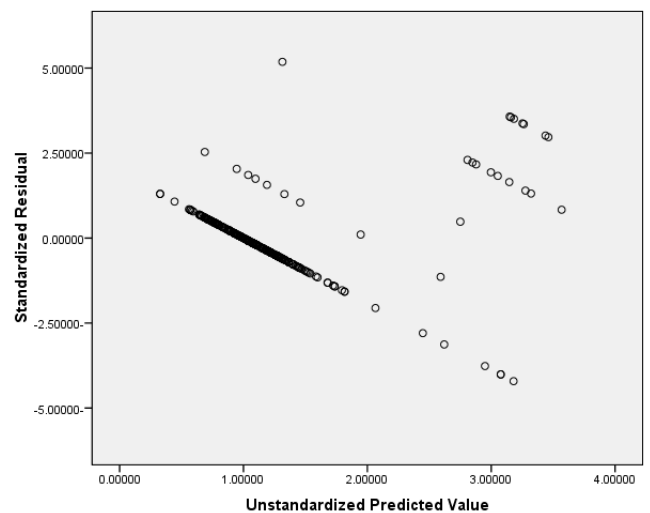
Figure 5. Standard residual spread with the directional values of the dependent variable.

4. RESULTS

The researcher will use multiple linear regression analysis to test the significance of the research hypothesis as follows.

4.1. The results of H1 test.

Table no. 2 presents a summary of the results of the multiple regression analysis related to H1. which shows the significance of the beta regression coefficient for the use of dealers for fundamental analysis tools and technical analysis tools as the value of P is less than the level of significance used. which is 5%, and this indicates the refusal to H1 in other words there is a significant effect of traders using fundamental analysis tools and technical analysis tools on the effectiveness of their investment decisions on the Egyptian Stock Exchange.

Normal P-P Plot of Regression Standardized Residual

Figure 4. The relationship between the observed aggregate probability and the expected aggregate probability of the standard residues.

Table 2. Results of multiple regression analysis related to traders' use of fundamental analysis tools and technical analysis tools.

Source	Degrees of freedom	Total squares	Average squares	F	P. Value
Regression	2	113.493	56.746	211.459	0.000*
Error	324	86.947	0.268		
Total	326	200.440			

- Significant level of 5%.

4.2. The results of H1(a) and H1(b) test.

Table No. 3 presents a summary of the results of multiple regression analysis related to H1(a) and H1(b) test. from which the significance of the beta regression coefficient of the traders 'use of fundamental analysis tools is clear. since the value of P is less than the level of significance used which is 5%. and this indicates the rejection of H1(a) meaning that there is Significant effect of traders' use of fundamental analysis tools on the effectiveness of their investment decisions on the Egyptian Stock Exchange.

The significance of the beta regression coefficient of the traders 'use of technical analysis tools is clear, as the value of P is less than the level of significance used, which is 5%, and this indicates the rejection of H1(b) meaning that there is a significant effect of the traders' use of technical analysis tools on the effectiveness of their investment decisions on the Egyptian Stock Exchange. We find that traders which use technical analysis tools more impact on the effectiveness of their investment decisions than using of fundamental analysis tools.

Table 3. Results of the significance test of the multiple regression coefficients for H1(a) and H1(b).

Independent variables	the value of the regression coefficients	T value	P. Value	Order
Fundamental analysis	0.138	2.524	0.012	2
Technical analysis	0.759	12.297	0.000	1

Table No. 4 also displays a summary of the results of the multiple regression analysis related to the H1(b), which shows the significance of the beta regression coefficient of the analysis using the chart, where the value of P is less than the level of significance used which is 5%. Using indicators where the value of P is less than the level of significance used which is 10%. we also find the significance of the beta regression

coefficient of the trading system where the value of P is less than the level of significance used 5%.

We find that the most influential variables on the effectiveness of the clients 'investment decisions are the analysis using the chart, followed by the trading system. Followed by the analysis using the indicators.

Table 4. Results of the significance test for multiple regression coefficients of H1(b) for the traders' use of technical analysis tools

Independent variables	the value of the regression coefficients	T value	P. Value	Order
Analysis using chart	0.711	12.402	0.000*	1
Analysis using indicators	0.069	1.732	0.084**	3
Trading system	0.095	2.698	0.007*	2

* 5% level of significance.
** 10% level of significance.

5. RECOMMENDATIONS

Based on the results of this research, the researchers present the following recommendations to the Egyptian Stock Exchange traders.

5.1. You must rely on the fundamental analysis in order to determine the shares that can be dealt with. by analyzing the economic changes of the country then analyzing the industry then analyzing the companies that issued these shares as shown in the theoretical framework for the research.

5.2. Technical analysis should be relied upon using the chart in order to determine the expected direction of stock prices, determine entry points, stop loss and take profits in order to increase the effectiveness of their investment decisions.

5.3. Technical analysis must be relied upon using indicators in order to determine the expected direction of stock prices, determine entry points, stop loss and take profits in order to increase the effectiveness of their investment decisions.

5.4. The necessity for traders to design a trading system, preferably this system combining chart analysis and the use of indicators in order for each to confirm the signals that the other gives. thus, increasing the ability of the system to determine the expected direction of stock prices and thus increase the effectiveness of investment decisions for traders.

5.5. Traders should test the trading system that was designed before using it to ensure its ability to increase the effectiveness of their investment decisions.

Appendix A. Exploratory study

The interviews for the survey were conducted from 27 May 2019 to 17 Jun 2019 as following.

Job title	Affiliation	Numbers
Client account managers	Hermes Financial Group in Cairo and Mansoura	2
Client account managers	Arabia Online for Brokerage in Cairo and Mansoura	2
Branch manager	Arabia Online Brokerage Company in Mansoura	1
Individual traders on the Egyptian Stock Exchange		10

ACKNOWLEDGMENT

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