International Journal of Finance and Managerial Accounting, Vol.10, No.38, Summer 2025 IJFMA

Designing a biorhythm cycle model in investigating the biorhythm of capital market investors

Morteza Sedaghati Fard
Graduated from the doctoral course in accounting, Zanjan Branch, Islamic Azad University, Zanjan, Iran
msedaghatyfard@yahoo.com

Vahab Rostami
Assistant Professor of Accounting Department, Zanjan Branch, Islamic Azad University, Zanjan, Iran
(Corresponding Author)
Vahab.rostami@pnu.ac.ir

Mohammad Imani
Associate Professor of Accounting Department, Zanjan Branch, Islamic Azad University, Zanjan, Iran
Imani_barandagh@znu.ac.ir

Submit: 08/09/2022 **Accept:** 10/04/2023

ABSTRACT

The current research was conducted with the aim of drawing and testing an analytical model to explain the impact of the biorhythm cycle on capital market investment in Tehran. The main question has been whether the state of the human biorhythm is related to their decision making in the stock market and whether it follows a certain pattern or not. The statistical population of the research included 384 investors of Tehran capital market. For this purpose, the biorhythm status questionnaire was distributed among them. After collecting the questionnaires, Kolmogorov-Smirnov test, ANOVA test and Pearson correlation were used to analyze the data. The results of the research show that there is a significant relationship between the physical, mental and emotional dimensions of biorhythm with the decisions of capital market investors. In sum, a significant relationship was observed between capital market investors' decisions and their biorhythm status, which is in line with the results of previous research. Also, the physical, emotional and mental dimensions of people's biorhythm are related to their decisions in the capital market, and the model drawn using Lisrel software also confirmed that there is a relationship between the state of investors' biorhythm and their decision making. In the obtained model, the components of each of the main factors (biorhythm and performance) were significant, which shows that biorhythm status has an effect on people's social cooperation, discipline, effort, mastery and skill, accuracy and concentration, and communication with others, and all these components They affect the performance of investors.

Keywords:

biorhythm, biorhythm cycle model, investor biorhythm, capital market.

1. Introduction

Biorithm claims that every person's life is affected by physical, emotional, and mental cycles, and the behavior related to each of these periods can be determined through biorithm sciences and affects people's mental decisions. In fact, biorhythm means the change of mental, emotional and physical cycles, which is done with the aim of identifying behaviors. This cycle, the ability of people to absorb and interpret new ideas and their mental abilities, is repeated in a 33-day cycle (Falah Shams, 1387: 182). Each of the three biorhythm cycles moves based on a sine wave. Each frequency of this wave has three regions. The first area is the positive or energetic area that is above the zero point, the second area is the negative area, the low value area that is below the zero point, and the third area is the critical point, which is exactly the border of the zero point and the transition stage from the positive area to the negative area. And vice versa. These points are very sensitive and in these days nothing can be guessed and the nature, mood and physical, emotional and mental behaviors of humans change dramatically (Saken-Azeri et al., 2013: 8). Usually, the critical moments of people's lives are the days when each of the curves goes from a positive state to a negative state, since each of the cycles has different frequencies, the human biorhythm chart can have different conditions every day and require its own interpretation. Now, if all individual biorhythm curves are in the most negative possible state, it means that the vital energy of the body is in the worst and most vulnerable condition, and a person should not rely on his physical, mental and physical reactions according to habit. Biorhythm is the science of knowing the rhythm of the human body. Biorhythm theory says: The human body has four main rhythms and cycles, which are: emotional, rational, physical and intuitive period. Each period lasts a certain period of time and continues periodically throughout a person's life. If we plot each period as a function of time, the functions will be sinusoidal. In biorhythm, one of the most recent issues is in the field of identifying the ergonomics of people's minds, which by examining and understanding the mental, physical, and spiritual aspects of managers can be very effective in reducing natural accidents caused by daily work and reducing mistakes apparently for no reason (Nikofer, 2019: 86).

Based on the principles of biorhythm, the life of every human from the moment of birth to the moment of death passes regularly in three specific cycles that have positive and negative phases like sinusoidal curves. Each human has three cycles of 23 periods of physical activities, 28 emotional periods, and 33 periods of thought, and it seems that half of the time period of each of these cycles is "positive" and the other half is "negative". In other words, on the first 11/5 days, physical activity is accompanied by mobility, energy, high physical strength, useful work without mistakes and accompanied by endurance and stability; In the next 11.5 days, weakness, fatigue, lower reserve energy and decreased ability are observed. In the first 14 days of the emotional period, cheerfulness, optimism, interest in work and life, interest in active participation in the affairs of the positive period of the cycle and the second 14 days, which are accompanied by bad manners, quick temper, pessimism and irritability. In the same way, intellectually, after 11/5 on the first day, intelligence and comprehension, high analytical spirit and creativity give way to 11/5 on the second day, which is characterized by forgetfulness, intellectual laziness, difficulty concentrating. And it is decision-making (Rabiei, 1390: 30). The physical cycle has an effect on the physical strength, strength, and human effort. It has a period of 23 days, of which 11.5 days are in the positive and energetic zone and the other 11.5 days are in the state of low energy level, resulting in strength and endurance. is also low (Su, 2020: 299). The reason for the presence of biorhythm in the body is the change of states that a person experiences during his life. In fact, people's physical energy, mental states, state of emotions, intellectual power, learning power and even the sixth sense increase and decrease periodically, and these periodic changes are called biorhythms. The biorhythm cycle in the human body is in the form of a sinusoidal diagram and it goes up and down alternately and works based on the internal and biological clock of the body. The starting point of these sinus movements is from the day of birth (same source).

Each of these cycles moves on sinusoidal curves and has different areas where being in them causes different spiritual, physical and mental states in humans. The negative area is below the line and indicates a sharp decrease in energy of the person during those days. On the contrary, being in the positive zone means increased energy on the respective days. The point of change from positive to negative or vice versa is called critical point. This

point indicates that there is a possibility of an unpleasant incident happening at this point. In the biorhythm, three types of cycles are observed, which are mental, sensory and physical. The physical cycle in this person's biorhythm cycle is done every 23 days. The sensory cycle repeats every 28 days and the mental cycle repeats every 33 days.

Knowing the features of the biorhythmic cycle or in Persian the life-song of investors can be associated with delaying or thinking more about one's decision making and prevent the occurrence of uncontrollable emotions. Today, some successful managers continuously draw biorhythm charts for each of their employees to refer them to daily activities according to their physical, sensory and mental conditions. According to this theory, employees can make decisions and analyze and plan on the days when their mental chart is in positive points, knowing when their sensory cycle is in positive points and taking into account that the level of initiative and creativity of a person In these days, it is at its maximum, to perform tasks that require creativity and initiative (Wang, 2016: 116).

This cycle is very important in people's work. Companies and factories in many countries use biorhythm as an important factor to increase productivity and reduce possible risks for employees and even managers. By knowing the mental, physical and emotional aspects of each person in the workplace, accidents caused by mistakes and errors can be reduced. For example, a person who does a specific job in a factory every day, on critical days when he is careless and careless, an unfortunate accident happens to him in the factory, which causes him a physical problem. If he knew his biorhythm diagram, he might be able to prevent the accident (Goldost, 2013: 26). Due to the fact that the subject of this research is to examine the relationship between the biorhythm of capital market investors and their cognitive functions, this example is also true for the situation of investors in the market. It seems that people who are aware of their biorhythm cycle can make more appropriate decisions. Research shows that biorhythmic factors are not the only factor in people's intention to invest in the stock market, but other factors also play a role in this issue, such as: inherent analytical power, gaining prestige (image), being a shareholder, matching the buyer's mental image and the real image of the company. , the degree of risk-taking, the degree of self-confidence (Maskani, 2017: 37).

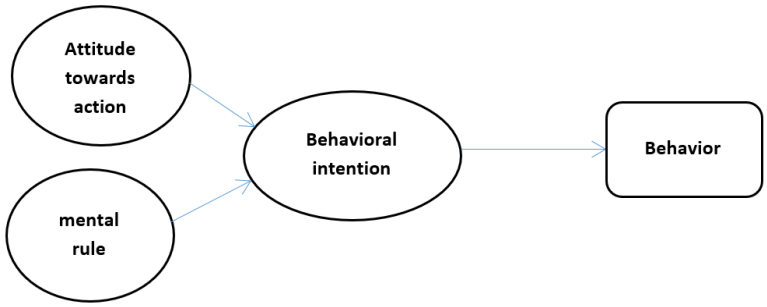
The physical dimension of the biorhythm cycle is related to physical strength, body coordination, speed of work and other activities. This cycle is 23 days (Battery, 2001: 54). The emotional dimension of the biorhythm cycle is 28 days, which is divided into two halves of 14 days, negative and positive, that is, it is positive on 14 days and negative on 14 days. The first 14 days are in the positive area and this is a period of time when a person is optimistic and happy, has a greater desire to communicate with others, is more inclined to accept cooperation, is more inclined to creative and artistic works, and is optimistic, pleasant and It is good to drink. On the second 14th day, the person shows less interest in group activities and his cheerfulness decreases, and from the 15th to the 28th day, he may become impatient and even negative (Javaherdasti, 2019: 29). The mental (intellectual) dimension of the biorhythm relates the changes of intellectual powers, which has a 33-day cycle, to the intellectual dynamics of people in speaking, mathematical calculations, transfer speed, learning power, processing power and problem analysis. When a cycle from the side of the negative zone crosses the zero level, the person is said to be on their zero day, and every time a cycle from the side of the positive zone crosses the zero level, the person is said to be on their critical day. contract. During these days, one should be very careful and avoid doing important and sensitive work related to the cycle under crisis, because the conditions are ready for accidents and unfortunate events caused by the person herself (Brook, 2016: 195).

Knowing about the biorhythm helps people to avoid making serious decisions when they are in the negative part of the rational period, or to take care of their backlogs when they are in the positive physical period. The purpose of drawing biorhythm cycles or determining and calculating the rhythmic cycles of people is to determine the effect of rhythms on the "bio-music" of individual states, to calculate optimal and critical days, to perform optimal activities, not to perform certain activities at critical times, and to predict times of weakness and strength. (Mandin, 2017: 97).

Many large companies and factories in the West hire employees and assign tasks to them according to the biorhythm and thought cycle of people. Changes in

daily performance such as exercising and going to parties, feeling healthy or sick, solving problems or even mental discipline or critical moments in life when a person finds himself in the worst or best situation can be summarized in three periodic parts named physical, emotional and mental. Due to the biorhythm, human life is influenced by three phases that repeat alternately at different times. Deciding to invest is one of the most important management factors in the stock market and successful people are those who increase their investment or purchase power in the stock market with effective optimal decisions. Decision-making has been studied by researchers and is not limited to an individual or an organization at all. Management and success are achieved by making decisions. It is important that people make decisions in different situations and situations, and this difference in people's situations can be manifested in different fields, including intellectual, emotional, physical, etc. The configuration of biorhythm science (biological rhythm) is a set of mental, emotional and physical curves that define different human states in a sinusoidal form from the time of birth to the end of life.

The theory of rational behavior by Ajzen and Fishbein (1980) was presented to predict the behavioral tendencies of humans. This theory is composed of a set of sciences, including physiological, psychological and behavioral sciences. The rational behavior model states that humans often organize their behavior based on their desires (primary intention created in the mind) and guide this intention to perform a specific action. When a person receives information related to his desires, this information causes his intention to change and the result of this change is reflected in his actions (Ajzen and Fishbein, 1980: 18). Therefore, the proposed logical model of Ajzen and Fishbein's (1980) logical behavior model is as follows:



This model was extended by Donaldson and Davis in 1994. They extended the rational behavior model for application in the business environment and stated that the performance of the firm will be reflected in the behavior of the top management team. The positive behavior of the top management team in a company will lead to positive and effective corporate governance. The result of this positive behavior (inclination) is the high quality of the company's performance (behavior). The behavior and activities of investors are often dependent on the way companies operate, including financial performance, operational performance and social accountability of company leaders (Donaldson and Davis, 1994: 152).

In 2002, Odin and Gillette applied the theory of rational behavior to an organization. They stated that the theory of rational action has two dimensions: investors' behavior planning and investors' attitudes towards their behavior. Laws and regulations, corporate governance, company performance, and salary and reward structure directly affect investors' desires and activities. The attitudes of the company and the investors' inclinations have a positive and strong relationship. The positive attitudes of a company directly lead to the motivation of investors and thus affect their behavior and activity in the capital market. The negative attitudes of the company also make investors reconsider the inclusion of a company's shares in their portfolio or stop investing in the stock market (Hisu, 2006: 21).

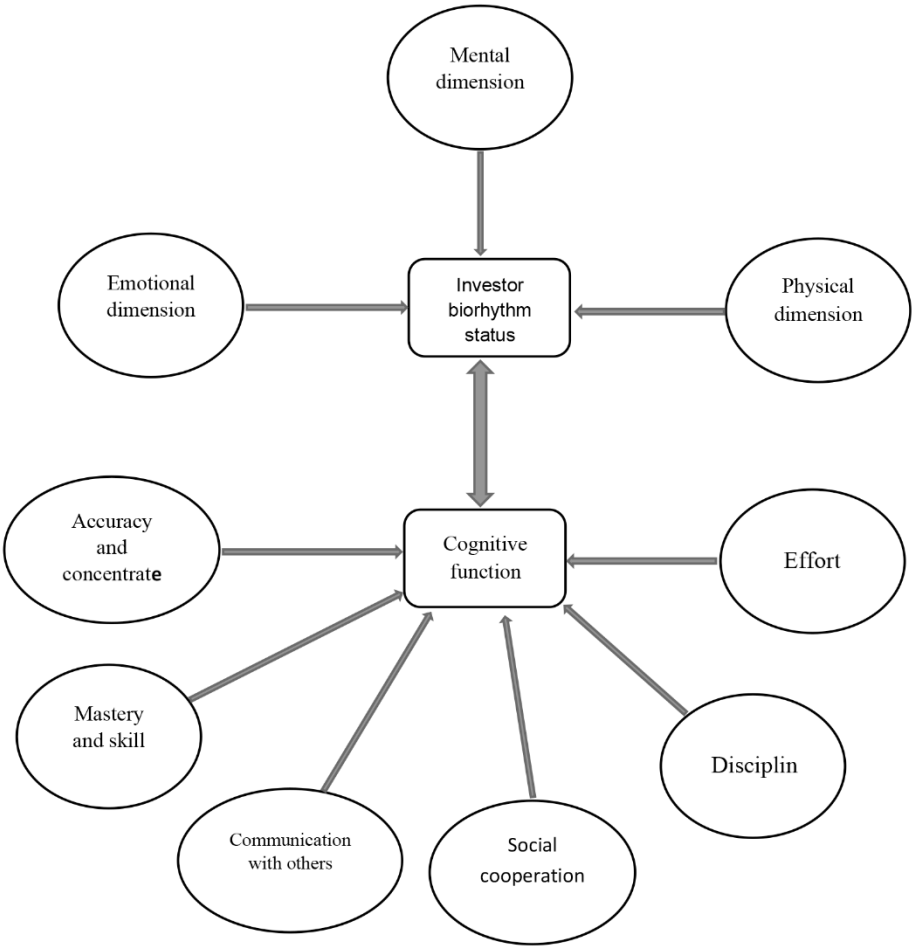
Behavioral biases can also affect the stock market. Toresh means deviating from correct and optimal decisions. Since the time and cognitive resources are limited, the data obtained from the environment cannot be analyzed optimally. Therefore, the human mind naturally uses the rules of thumb. If such innovative

methods are used properly, they can be effective, otherwise there will be inevitable distortions. In general, people may make mistakes in the process of thinking and making decisions (Goldust, 2013: 28).

Investment includes a wide range of economic activities. For example, investing in certificates of deposit, bonds, common stocks or mutual investment funds are examples of investment (Khoshkar, 2019: 128). Any person who entrusts his money somewhere or to someone and expects to get a financial return is called an investor. Investors usually perform fundamental and technical analysis to determine optimal investment opportunities and prefer to minimize their investment risk and maximize their profit (Abzari, 1387: 141). The difference between "investor" and "dealer" is that investors usually keep their position in the market for years and decades and may keep a stock for several years and not sell it (Taghdir, 2010: 291). The word investment can include a wide range of activities. This term can include investment in certificates of deposit, bonds, common stocks or mutual funds. The goal of investors is to grow and develop their capital and benefit from its benefits in the future (Khoshkar and Panahi, 2019: 29). Stock investors use more internal powers and mental analyzes in contrast to consumers of goods and services, and this is why behavioral finance is of great importance in the context of investors' decisions (Dehghan, 2016: 23).

The emergence of behavioral science in financial issues is a new approach to the study of financial markets (Thaler, 2017). Financial psychology has been proposed against the paradigm of rational behavior of investors. Sometimes, in order to find an answer to empirical financial puzzles, it is necessary to accept the possibility that some agents in the economy sometimes do not behave completely rationally, which is the issue of behavioral finance (Raee and Falahpour, 2016: 78). Lintner believes that behavioral finance studies how to interpret and act on the basis of information in order to make structured investment decisions by individuals (Nabavian et al., 2019: 218). In his study, Olsen states that behavioral finance does not try to show that rational behavior is wrong, but instead tries to show the application of psychological decision-making processes in recognizing and predicting financial markets (Olsen, 2017: 11).

Considering that decision-making originates from different human states, researchers believe that it can have effective applications in relation to the mental decisions of investors and the recognition of their behavioral tendencies in the capital market (Shirazian, 2015: 53), This research seeks to explain the role or relationship of the biorhythm cycle in capital market investment to check whether the biorhythm cycle of investors has a meaningful relationship with investors' decisions or not. The main motivation of the researcher to conduct this research is to achieve the effective amount and degree of biorhythmic cycles on the quality of investors' decision-making, in which decision-making plays the most important role. Therefore, the objectives of the research were designed so that by achieving them, a step will be taken to answer the questions related to this research topic. The scientific and main goal of this study is to identify the relationship between the biorhythm cycle and the cognitive characteristics of capital market investors, to examine the financial-economic concept of investing in the capital market from a psychological perspective (the biorhythm cycle and cognitive characteristics), and to investigate and explain the relationship between the biorhythm cycle and The cognitive characteristics of capital market investors were determined and questions and hypotheses were formulated in this regard. Therefore, the conceptual model of the research was designed based on the fundamentals and theoretical framework as follows:



Research background

Sangani (2019) in a research entitled "Designing a biorhythm cycle model for auditors based on cognitive characteristics" showed that auditors who are in the positive zone in the mental, emotional and intuitive cycles, compared to the auditors who are in the negative and critical zone in the said cycles. have a higher quality of professional audit judgment. Naghizadeh (2018) in another research entitled "Effect of investors' emotions on stock liquidity" showed that investors' emotions have a positive and significant effect on stock liquidity. Hasani (2017) in his research on the subject of "investigating the relationship between the emotional, physical and intellectual biorhythm of teachers with their teaching quality in the elementary school of Zanjan city, academic year 2016-2017" showed that there is no relationship between the emotional cycle and the quality of teaching, while between the cycle There is a relationship between intellectual and physical cycle with the quality of teaching. The relationship of three cycles with teaching quality shows that the intellectual cycle has a high explanatory power, the physical cycle has an average explanatory power, and the emotional cycle has a very weak explanatory power, so it can be said that there is no relationship between the emotional biorhythm and the teaching quality of primary school teachers. Also, there was no correlation between demographic variables and teaching quality components. Goldust (2013) in his research on the subject of "examining the relationship between behavioral factors, the type of information and its

clarification with investor behavior in the Ahvaz Stock Exchange" showed that the type of information and behavioral factors significantly affect people's behavior to invest in the stock exchange. . But the results did not confirm the significant impact of information disclosure on investor behavior. Kiani (2013) in his research with the subject of "investigating the effect of biorhythm on the occurrence of administrative violations by the employees of the Ministry of Agriculture" has only shown the impact of [general] biorhythm and mental cycle on the occurrence of violations and the effect of the physical cycle on the occurrence of violations. It has achieved an intermediate state, but it has not revealed any significant effect of the emotional cycle in the occurrence of violations. Therefore, due to the fact that administrative violations in the organization is a dynamic process, it requires the design and development of programs related to biorhythm. Soleiman et al. (2019) in their research on the topic of "Weather Effects on Investors' Behavior: A Study on Turkish Stock Exchange Investors" showed that cloudiness and temperature have an effect on investors' behavior and the socio-economic and demographic characteristics of investors. It creates certain differences in these effects. Jewit (2018) in a research with the topic of "biorhythm approach in the market" investigated the relationship between sentiments and leading prices of European energy, oil, gas, coal and electricity in normal times and periods of extreme price movements, relying on the biorhythm approach. Netabj showed that seasonal patterns have a significant effect only during periods of extreme volatility. Further investigation revealed that SAD (Seasonal A§ective Disorder) is significant during periods of falling prices, but negligible during periods of rising prices. The properties of the out-of-sample forecasting ability are also investigated and show that the "SAD model" significantly outperforms pure macroeconomics. Yusuf et al. (2018) in a research on "Effect of Ramazan on the social behavior of the stock market in Pakistan", investigated the social reaction in the Pakistani stock market by focusing on the effect of Ramadan and the crisis period and the biorhythm cycle. The results of the daily analysis showed that there is no behavioral reaction during the rise and fall of the market and also during high and low fluctuations in the market. While social behavior changes during low trading days. The annual analysis showed that there was a social response in 2005, 2006 and 2007, while it was not clear in the rest of the period. However, reactions are not observed during Ramadan. In addition, during the financial crisis of 2007-2008, the Pakistani stock market showed a certain change in behavior due to higher uncertainty and information asymmetry. In a study, Vinhou and Fan (2017) discussed the collective behavior of investors in the Vietnamese market. The results of their research showed mass-like behavior throughout the entire studied period. Furthermore, stronger results were obtained when the data were divided into three periods: pre-crisis, during-crisis, and post-crisis. Fringes et al. (2017) investigated whether investor confidence can explain factors such as stock returns and concluded that stock return gains are mainly due to the emotional orientation of investors. Foresti (2017) reported in his research on "The effect of air pollution on the stock market" that environmental stimuli also affect people's mood and risk-taking. Findings from multiple experimental tests show that unhealthy levels of air quality in Helsinki have a negative impact on next-day stock returns, especially for the oil and gas sector. The results show that air pollution is a behavioral factor with some correlation with stock returns in Finland. Giuliani (2017) in his research on "Risk Perception and Psychological Behavior of Investors in Emerging Markets: The Indonesian Stock Exchange" reported that the capital market acts as an intermediary between investors and those who need distributed financial resources. The findings of the research showed that the perception of risk and psychology significantly affect self-confidence. In addition, confidence has a significantly positive effect on performance. In their research in China, Zhou and Niu (2016) concluded that investors' emotional behavior changes the expected earnings growth and the expected rate of return, although this effect is different in the period of pessimism and optimism of investors. Also, the results of their research showed that the emotional behavior of investors along with accounting information has a significant impact on stock prices. Other researchers such as Cornell et al. (2014) and Haribar and McInnis (2012) believe that stock analysts, when sentiment is high, are optimistic about the future profitability of companies, hence they tend to issue more buy signals. For shares that are optimistic about their future. Murgea (2016) in his research on "Seasonal Affective Disorder and the Romanian Stock Market" reported that a large number of studies in economic psychology, cognitive science, and behavioral economics support the idea that economic actions are

the result of a rational maximization function. are not, But it seems to be driven by other factors such as personality traits, psychological factors, gender, age and genetic inheritance. The results support the existence of a correlation between the number of daylight hours and market returns before and after the last financial crisis, even though the effect seems to change after the crisis. Khodayari (2016) in his research on the topic of "Relationship between shareholder bio-system and financial decision mistakes in Hamedan Stock Exchange" reported that the decision-making process is one of the important factors in the organization and managers who optimize can lead the organization successfully. In this research, the relationship between biorhythm cycles that influence the decision making of investment managers in investment funds in Iran's capital market has been examined. Biorithm components include physical cycle, emotional cycle, intellectual cycle and sixth sense and financial decision making components of error such as comparison, commitment, information bias, cognitive bias, confidence bias and rarity effect. The results showed that there is a significant relationship between "mental cycle", "physical cycle", "six conclusions" and financial decision making. Finally, suggestions for researchers, organizations, investment funds and investment fund managers have been provided. Safarzadeh et al. (2015) investigated the effects of biorhythm cycles on the job performance of employees. The results showed the relationship between performance and biorhythmic cycles. Amin Vaziri and Irandoost (2015) in their research on the topic of "Investigation of the relationship between biorhythm and error in buying stocks in Tehran Stock Exchange" investigated the relationship between biorhythm, 3 dimensions of biorhythm (emotional, physical and intellectual) and making mistakes in buying stocks in Tehran Stock Exchange paid. The results showed that there is a significant relationship between the vital behaviors in the biorhythm (emotional, physical and intellectual) and the error in buying stocks (things that should not be bought) in the Tehran Stock Exchange. Daling and Lucy (2014) in their research on "Weather, Biorhythms, Beliefs and Stock Returns - Some Preliminary Irish Evidence" showed that some of the variables presented in the literature (rainfall and time variation in savings) had small but significant effects. are important We also provided preliminary evidence regarding the relationship between mood proxies and return on equity during positive recent market performance. This finding is consistent with psychological research showing that people in a good mood (in this case, due to potential gains in their investment portfolio) are more likely to allow irrelevant mood factors to influence their decision-making. In their research on the subject of "Investigation of biorhythm cycles on the decision-making quality of investment managers in Iran's capital market investment fund" in their research, Vazifeh doost et al. (2013) showed that biorhythm cycles are effective on manager's decisions. Also, each biorhythmic curve is effective to a different extent in the manager's decision making. According to the conducted tests and the obtained statistical average, the intellectual cycle has the greatest effect and the physical cycle has the least effect. Rahmani et al. (2012) in a research with the topic "Effect of biorhythmic status of traders on their perceptual decision-making" showed that biorhythm factors have an effect on the quality of traders' decision-making and the intellectual, emotional and physical cycle. Also, with the increase in age and experience of traders, visual decision-making also increases. Traders with a higher level of education use the most intellectual analysis in their decision making. From the results of this study, it can be concluded that if stock market traders have good knowledge about their perceptual decisions and behavioral biases, as well as about their various biorhythmic states, they can make optimal decisions and this leads to better stock markets and It becomes efficient.

Based on this, five research questions were designed as follows : Do the physical dimensions of the biorhythm have a meaningful relationship with the decisions of market investors? Do the emotional aspects of the biorhythm have a meaningful relationship in the decisions of market investors? Are the subjective dimensions of biorhythm meaningful in the decisions of capital market investors? Does the biorhythm of capital market investors have a meaningful relationship with their decisions? Does the biorhythm of capital market investors have a meaningful relationship with their cognitive performance?

Operational definition of variables

The three main variables of this study were operationally defined, based on which, biorhythm is the score that subjects get from the biorhythm software, which is able to chart the triple mental,

emotional, and physical cycles of people based on the exact date of birth. Different days draw slowly. The information obtained from the biorhythm status questionnaire was evaluated in physical, emotional, and mental dimensions as discussed in the research literature. Cognitive performance is also based on the score obtained by the subjects from the cognitive ability test, which is a valid tool for measuring people's talent and their professional success. Cognitive abilities are the link between behavior and brain structure and include a wide range of abilities such as planning, attention, problem solving, simultaneous tasks and cognitive flexibility. The dimensions of this questionnaire included accuracy and concentration, mastery and skill, communication with others, effort, discipline, and social cooperation. Capital market investors also mean all the people who, based on the definition mentioned in the second chapter, have invested in at least one of the investment activities in the capital market, such as buying certificates of deposit, bonds, common stocks or mutual funds, and in this sense, capital are considered transition.

Method

The present study is devoted to the study of the relationship between the biorhythm of capital market investors and their cognitive performance in order to design a biorhythm cycle model. This research, from the point of view of the implementation result, is an applied research and from the point of view of the implementation process, it is quantitative, from the point of view of the goal, it is descriptive (survey), from the point of view of the logic of the implementation, it is hybrid (analogical-inductive) and from the point of view of the temporal dimension. The subject area of the research is the investigation of the biorhythm relationship of capital market investors and their cognitive functions, the spatial area of Tehran capital market investors and the time area of 2010-2019.

The statistical population of the present research includes all investors of Tehran capital market. Naturally, this community does not include people under the age of 18, because the investment of these people is usually done by a third party. These people have the following characteristics: They are shareholders. They are among the capital market investors. The statistical population in this research is unlimited and as mentioned, people who are buying and selling shares in the capital market are considered as the statistical population. . In other words, the statistical population of this research are people who are experts in buying and selling shares. In this study, due to the relatively large (unlimited) and unspecified statistical population, sampling has been done from this population.

Due to the fact that the society under investigation was selected from the investors of the capital market and due to the existing limitations, instead of the whole society being investigated, a sample was extracted from them and then The results of the sample investigation are generalized to the entire society using statistical techniques. In this research, Morgan's table was used to determine the sample size, and considering that the number of capital market investors is unlimited, in this research, the largest number of 384 questionnaires were distributed. To analyze the data, Kolmogorov-Smirnov tests, ANOVA test and Pearson correlation were used to measure the relationship between the research components.

Findings

In any research, if the data has a normal distribution, the parametric test is used, otherwise, the non-parametric test should be used. If the result of this test is not significant, it is possible to use parametric tests. The result of the Kolmogorov-Smirnov test is shown in Table 1:

As can be seen in Table 1, the test is significant because the sig number for each of the components of the questionnaires of cognitive function and biorhythm status is greater than 0.05. Therefore, the data have a normal distribution and parametric tests should be used. ANOVA test was used to investigate the relationship between research components:

Answer to the first question of the research) Investigating the relationship between the physical dimensions of the biorhythm in the decisions of capital market investors

The results are shown in Table 2. A significant number (sig) equal to 0.000 was obtained and considering that this number is smaller than 0.05, it shows that the physical dimensions of the biorhythm have a significant relationship with the decisions of capital market investors.

Answer to the second question of the research) Investigating the relationship between the emotional dimensions of the biorhythm in the decisions of capital market investors

The results can be seen in Table 3. Considering that the significant number (sig) equal to 0.000 was obtained and this number is smaller than 0.05, it shows that the emotional dimensions of biorhythm have a significant positive relationship with the decisions of capital market investors.

Answer to the third question of the research) Investigating the relationship between the subjective dimensions of the biorhythm in the decisions of capital market investors

The results can be seen in Table 4. Considering that the significant number (sig) equal to 0.000 was obtained and this number is smaller than 0.05, it shows that the subjective dimensions of biorhythm have a significant positive relationship with the decisions of capital market investors.

Answer to the fourth question of the research) investigating the relationship of the total biorhythm on the decision-making of capital market investors.

The results are shown in Table 5. Considering that the significant number (sig) equal to 0.000 was obtained and this number is smaller than 0.05, it shows that the biorhythm dimensions have a significant positive relationship with the capital market investors' decisions.

Answer to the fifth question of the research) Investigating the relationship between the biorhythm status and the cognitive performance of capital market investors

The results are shown in Table 6. Considering that the significant number (sig) equal to 0.024 was obtained and this number is smaller than 0.05, it shows that biorhythm has a significant positive relationship with the cognitive performance of capital market investors.

In examining the correlation between the research components, the Kolmogorov-Smirnov test showed that parametric tests should be used, so in this section, Pearson's correlation test should be used to determine the correlation between the research variables. The correlation between the biorhythm status components is shown in Table 7.

As can be seen in Table 7, the physical, mental and emotional dimensions have a positive and significant correlation with the overall biorhythm status of people because the sig number is less than 0.05. The percentage and emotional dimensions are equal to 84.5%, which shows that this correlation is very high.

In the next step, the correlation between the components of accuracy and concentration, mastery and skill, communication with others, effort, discipline and social cooperation with social performance, the results of which are shown in Table 8. As can be seen, the correlation between all factors is positive and significant because the sig number for all of them is smaller than 0.05. However, the lowest correlation is for discipline component (42.6) and the highest correlation is for accuracy and concentration (70.5), which of course shows that people in the stock market pay the most attention to accuracy and concentration.

In the next step, the correlation between the state of biorhythm and the decisions of stock market investors is examined, the results of which are shown in Table 9.

The results obtained from Pearson's correlation test show that the status of Tehran stock market investors' biorhythm has a positive and significant correlation with their investment decisions, and this correlation is equal to 73.1%. In the last stage, the correlation between the biorhythm status and the cognitive performance of stock market investors was investigated, the results of which are shown in Table 10.

The results obtained from the Pearson correlation test show that the status of Tehran stock market investors' biorhythm has a positive and significant correlation with the investors' cognitive performance, and the amount of this correlation is 74.8%.

Table 1. Kolmogorov-Smirnov test in data analysis

questionnaire	Dimensions	Kolmogorov-Smirnov test in data analysis sig (2-tailed)
Cognitive function	Accuracy and concentration	0.108
	Mastery and skill	0.12
	Communication with others	0.1
	Effort	0.14
	Discipline	0.17
biorhythm status	Emotional dimensions	0.351
	Mental dimensions	0.395
	Physical dimensions	0.314

Table 2. The relationship between the physical dimensions of the biorhythm in the decisions of capital market investors

Sum of Squares	Degrees of Freedom	Mean Squares	F	sig
15573,156	383	21,881	6,767	0,000

Table 3. The relationship between emotional dimensions of biorhythm in capital market investors' decisions

Sum of Squares	Degrees of Freedom	Mean Squares	F	sig
136828,958	383	26,068	3,453	0,000

Table 4. The relationship between the subjective dimensions of biorhythm and the decisions of capital market investors

Sum of Squares	Degrees of Freedom	Mean Squares	F	sig
17303,622	383	19,487	9,859	0,000

Table 5. The relationship between the total biorhythm and capital market investors' decisions

Sum of Squares	Degrees of Freedom	Mean Squares	F	sig
115740,810	383	146,651	8,127	0,000

Table 6. The relationship between the total biorhythm and the cognitive performance of capital market investors

Sum of Squares	Degrees of Freedom	Mean Squares	F	sig
105640,872	383	262,882	4,580	0,024

Table 7. Investigating the correlation between physical, mental and emotional dimensions with biorhythm status

		Physical dimensions	Mental dimensions	Emotional dimensions
biorhythm status	Pearson's correlation coefficient (percentage)	91.5	93.4	84.5
	sig	0,000	0,000	0,000

Table 8. Investigating the correlation of cognitive performance with accuracy and concentration, mastery and skill, communication with others, effort, discipline and social cooperation

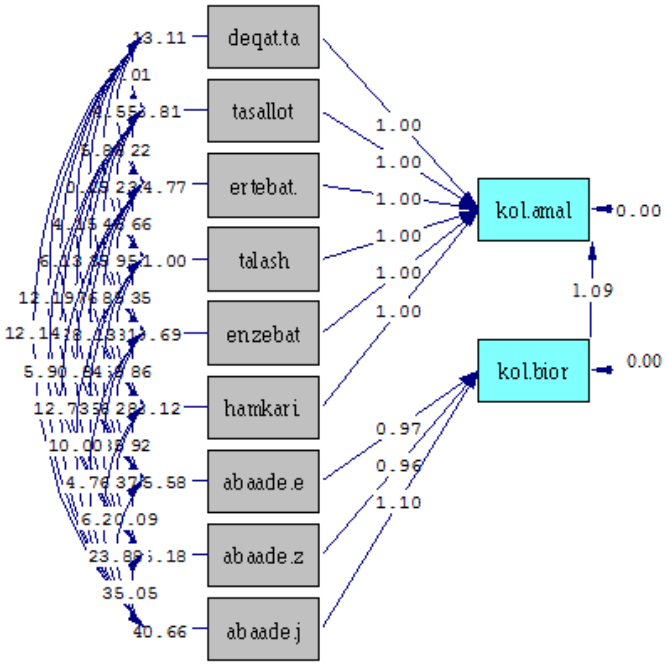
		Cooperation	discipline	effort	Mastery and skill	Accuracy and concentration	Communication with others
Cognitive function	Pearson's correlation coefficient (percentage)	63,3	42,6	64,0	53,3	70,5	68,8
	sig	0,000	0,000	0,000	0,000	0,000	0,000

Table 9. Investigating the correlation between the state of biorhythm and investors' decisions

		investors' decisions
biorhythm status	Pearson's correlation coefficient (percentage)	73,1
	sig	0,000

Table 10. Investigating the correlation between biorhythm status and cognitive performance

		Cognitive function
biorhythm status	Pearson's correlation coefficient (percentage)	74,8
	sig	0,000



Discussion and conclusion

The physical, emotional and mental abilities of humans do not have a linear trend and differ from each other in different time periods. The science of biorhythm is called a set of mental, emotional and physical curves that define different human states in a sinusoidal form from the time of birth to the end of life. An important question that is raised is whether the state of human biorhythm has an effect on his decision-making in the stock market and his cognitive performance and follows a certain pattern or not. The purpose of this research is to draw an analytical model to explain the impact of the biorhythm cycle on investment. The results of the answer to the first question of the research showed that the physical dimensions of the biorhythm have a significant relationship with the decisions of capital market investors. These results are in line with the researches of Hosni (2017), Foresti (2017), Suleiman et al. (2019), Jewitt (2018) and Dalling and Lucy (2014). The results of the answer to the second question of the research also showed that the emotional dimensions of biorhythm have a significant relationship with the decisions of capital market investors. The results obtained from this research question are in line with the researches of Naghizadeh (2018), Rabbani (2014), and Zhou and New (2016), but they are contrary to the findings of Hosni (2017). The third question of the research indicated whether the subjective dimensions of biorhythm have a meaningful relationship with the decisions of capital market investors. The obtained results showed that the answer to this question is positive and it is in line with the research results of Sangani (1399), Hosni (1397) and Ahmadzadeh (1389). The results of the fourth research question showed that there is a significant relationship between capital market investors' decisions and their biorhythm status. These results are in line with the researches of Suleiman et al. (2019), Juliet (2018), Khodayari (2016) and Amin Waziri and Irandoost (2015). The fifth question of the research, whether there is a meaningful relationship between the biorhythm status of capital market investors and their cognitive functions, was also confirmed. These results are in line with the findings of Kiani (2013), Sabbaghi Nadushan (2013), Momenipiri (2014). In general, the examination of research hypotheses shows that the biorhythmic situation of stock market investors can play a role in their decisions. Compared to consumers of goods and services, stock investors use more internal powers and

mental analysis, and this is why behavioral financial knowledge is of great importance in the context of investors' decisions. Biorhythm claims that every person's life is affected by physical, emotional and mental cycles, and the behavior related to each of these periods can be determined through biorhythmic science and affects people's mental decisions. The components of each of the main factors (biorhythm and performance) were significant, which shows that biorhythm status has an effect on people's social cooperation, discipline, effort, mastery and skill, accuracy and concentration, and communication with others, and all these components have an effect on the performance of investors. The results of the research show that there is a significant relationship between the physical, mental and emotional dimensions of the biorhythm with the capital market investors' decisions, and the impact of the investors' biorhythm status on their cognitive performance is positive and significant. In other words, the biorhythmic situation of stock market investors can play a role in their decisions. The results of this research show the close relationship between economics and financial sciences with behavioral sciences and psychology in decision-making analysis. According to the current research, behavioral finance is an attempt to describe the exceptions in the financial literature and states that human decision-making processes are affected by some cognitive limitations. Since management and success are achieved by making decisions, it is important that decisions are made by people in different situations and situations, and this difference in people's situations can be in different fields, including intellectual, emotional, physical to appear. Recent empirical studies have attacked many modern financial theories and the assumption of a rational man. The biorhythm cycle shows that a person does not have the same reactions to the same issues during the month, so it can be said that people are not always rational. Therefore, studying their financial behavior and being aware of this issue plays an important role in financial decisions.

Based on the findings of this research, suggestions are provided:

1) Capital market investors should use Biorhythm software to determine their physical and mental condition and work more carefully when they are not in good condition.
2) The responsible institutions, before people enter the stock market, make it mandatory to hold training classes for people who intend to invest, and emphasize the importance of people's biorhythm status and teach them.
3) In an independent research, the relationship between the biorhythm dimensions and the amount of profit and loss of investors should be investigated. This kind of research will lead to a correct understanding of a person's biorhythmic status and his gains and losses. Also, an independent research should be conducted in which the success in investing in the stock market will be compared between people who are aware of their biorhythm status and people who are not aware of this status.

Thank & Appreciation

- I am very grateful to my dear professors Dr.Ali Mohammadi, Dr.Vahab Rostami, Dr.Mohammad Imani Barandagh, for their useful guidance.
- I would like to thank for the efforts of my dear brother, Dr.Mojtaba Sedaghati Fard, who transferred his knowledge and experience to me in writing this article.
- I am very grateful to Dr.Mansour Feizollahzadeh, Dr.Tayebeh Zanganeh and Dr.Samaneh Shafiee for their full of grace help.

Sources

Abzari Mehdi, Samadi Saeed, Timouri Hadi (2007), Investigating factors affecting investment in stocks in the stock exchange (Case study: Isfahan Regional Stock Exchange), Economic Surveys, Volume 5, Number 10, Pages 137-162.

Ahmadzadeh, Ali (2009), investigating the effects of biorhythm theory cycles on the results of in-service training courses for employees at Shiraz Electric Power Distribution Company, Master's Thesis, Payam Noor University (Ministry of Science, Research, and Technology).

Aminvaziri, Soma, Irandoost, Mansour (2015), Surveying relationship between Biorhythm and making error in buying stock in Tehran stock exchange, International Letters of Social and

Humanistic Sciences, ISSN: 2300-2697, Vol. 64, pp 126-132.

Broeck, Van den, D. L. Ferris, C.-H. Chang, C. C. Rosen (2016), A review of self-determination theory's basic psychological needs at work," J. Manag., v.42, n.5, p.1195

Davoudi Hossein, Ghafari Khalil, Moradi Azam, Abdoli Atena (2018), Comparison of cognitive performance of patients with schizophrenia and obsessive-compulsive disorder based on the Wechsler IQ test for adults, Clinical Psychology, 11th year, number 3 (43 consecutive), pages 77-86 .

Dehghan, A. (2016), psychological factors influencing people's intention to invest in Tehran Stock Exchange, Stock Exchange Monthly, No. 74.

Dowling, Michael, Lucey, Brian (2014), Weather, biorhythms, beliefs and stock returns - Some preliminary Irish evidence, International Review of Financial Analysis 14(3):337-355. economics studies,vol.1.n.4.p 77 To 86.

Fallah Shams, Mirfaiz; Dehghan, Abdul Majeed (2007), psychological factors affecting investment in the stock market, Political-Economic Information, No. 257 and 258, pages 182-191.

Försti, Aleksi (2017), The Stock Market Effect of Air Pollution: Evidence from Finland and Hong Kong, Aalto University School of Business, Bachelor's Thesis, Finance, p 1-29.

Goldost, Marzieh (2013), investigating the relationship between behavioral factors, the type of information and its clarification with investor behavior in the Ahvaz Stock Exchange, Master's Thesis, Shahid Chamran University of Ahvaz, Faculty of Economics and Social Sciences.

Hasani, Soheila (2017), investigating the relationship between teachers' emotional, physical and intellectual biorhythms with their teaching quality in the elementary school of Zanjan city, academic year 2016-2017, master's thesis, Tehran's Nasibah campus.

Hsiu J. F. (2006). Effect of Financial Information Transparency on Investor Behavior in Taiwan Stock Market. ProQuest Database, 16(3), 6-22. Innovations, Volume 14, Issue 2

Joets, Marc (2018), Mood-misattribution e§ect on energy markets: a biorhythm approach, The New Palgrave: A Dictionary of Economics, vol. 4, April 2٤

Khodayar, nohammadazim (2016), Investigate the Relationship between Shareholders Biorhythm and Errorsof Financial Decisions in Hamedan Stock Exchange, International Research Journal of Finance and Economics 149 105-111.

Khoshkar Farzin, Panahi Amin (2019), the influence of credit and remuneration of the board of directors on investment efficiency, perspective of accounting and management", third volume - number 34, pages 28-39.

Khoshkar, Farzin (2019), the effect of competition in the product market on the relationship between managers' ability and financing and investment efficiency, accounting and management perspective, third volume - number 33, pages 128-142.

Kiani, Mina (2013), Studying the effect of biorhythm on the occurrence of administrative violations by the employees of the Ministry of Agricultural Jihad, Master's Thesis, Islamic Azad University, Central Tehran Branch, Faculty of Management.

Kotler, F. (2008), Principles of Marketing, translated by Bahman Faruzandeh, Tehran: Atropat Publishing.

Maskani, Sadegh (2017), Investigating the impact of managers' trust on profit management in companies listed on the Tehran Stock Exchange, Master's Thesis, Shahroud Institute of Higher Education.

Momenipiri, Sajjad (2013), the relationship between biorhythm and sports performance of individual athletes of Hamadan province, Master's thesis, Boali Sina University, Faculty of Humanities.

Mondin, T. C., T. de A. Cardoso, L. D. de M. Souza, K. Jansen, P. V. da Silva Magalhães, F. Kapczinski, R. A. da Silva (2017), Mood disorders and biological rhythms in young adults: A large population-based study," J. Psychiatr. Res., v.84

Murgea, Auror (2016), Seasonal affective disorder and the Romanian stock market, Pages 177-192

Naboyan, Seyyed Morteza, Nabavi Chashmi, Seyed Ali, Dadashi, Iman, Mohseni Maleki, Bahram (2019). The application of the Lintner model in

measuring the speed of profit adjustment using rolling regression in critical conditions, management accounting, volume 13, number 44, pages 217-232.

Naghizadeh, Fatemeh (2018), The impact of investors' emotions on stock liquidity, Master's thesis, Allameh Tabatabai University.

Nikofer, Morteza (2019), The effect of the biorhythm cycle on the physical strength of volleyball girls, development and learning of sports movement", 12th volume - number 1, pages 85-99.

Olsen, R. (2017). Behavioral Finance and Its Implications for Earning Estimation, Risk Assesment and Stock Returns, Financial Analysts Journal, 52(4), 37-44.

Prakash, A. (2012). Green Marketing, Public Policy and Managerial Strategies, Bus. Strat. Env. 11.

Rabbani, Saeed (2014), Comparison of emotional and skill factors of adult handball players in Qom city in different states of emotional cycle of biosong, Master's thesis, Arak University, Faculty of Literature and Humanities.

Rabiei, Ali; Khatami Nou, Farnaz (2018), investigating the relationship between biorhythm and employee job satisfaction (case study: Nargan Company), Management and Human Resources in the Oil Industry, No. 16, pp. 29-52.

Raee, R. and Fallahpour, S. (2013), Behavioral finance, a different approach in the field of finance, Financial Research, No. 18, pages 106-77.

Rahmani, fraydoon, Dehghan, Abdolmajid, Shams, Koorosh(2012), The effect of biorhythmic states of traders international journal of finance, accounting and

Sabbaghi Ndoshan, Ebrahim (2012), Investigating the impact of biorhythm theory cycles on the performance of case study employees (Bank Mellat branches of the six cities of Tehran), Master's thesis, Islamic Azad University, Central Tehran Branch, Faculty of Management and Accounting.

Sagan Azari Rana, Hashemian Kianoosh, Pasha Sharifi Hassan (2013), the effect of creative problem solving skill training on creative thinking, critical thinking, scientific thinking and self-efficacy of humanities students of Islamic Azad University of Tabriz, under different intellectual biorhythm conditions, education and evaluation. No. 27, pages 7-22.

Sangani, Mohammad Hossein (2019), Designing a biorhythm cycle model in auditors based on cognitive characteristics, PhD thesis, Islamic Azad University, Shahrood Branch, Faculty of Humanities.

Shabani Bahar, Gholam Reza; Samadi, Abbas; Momeni Piri, Sajjad (2012), the relationship between cognitive and sensory cycles proposed in biorhythm theory with sports performance, Sports Psychology Studies, No. 3, pages 13-28.

Su, Long (2020), Motion Analysis of Human Biorhythm Based on Cosine Model, Radioelectronics and Communications Systems volume 63, pages299–307.

Süleyman İÇ , M. Burak KAHYAOĞL, Devlet ODABAŞ (2019), The Effects Of Weather On Investor Behavior: A Study On Individual Turkish Stock Market Investors, , Volume 3 , Issue 2, Pages 191 – 206.

Tashid, Mohammad Kazem (2018), definition of capital and investor in the Energy Charter Treaty and its effect on the authority of jurisdiction. Journal of legal research, -(53), pages 289-317.

Thaler, J (2017), Availability: A Heuristic for Judging Frequency and Probability. Cognitive Psychology, 5(2), 1-28.

Vazifedust, Hossein, Alizadeh, Ali, Dehghan, Abdolmajid(2013), Study of Biorhythm Cycles That Influence on Decision Qualities of Investment Managers in Mutual Fund of the Iranian Capital Market, J. Basic. Appl. Sci. Res., 3(9)233-241, 2013.

volume 4, Article number: 16

Wang, J.S. Zhu, H. Wang, Y. Cai, Z. Li (2016), "Second-order statistics of a radially polarized cosine-Gaussian correlated Schell-model beam in anisotropic turbulence," Opt. Express, v.24, n.11

Yousaf, Imran, Ali, Shoaib, Syed Zulfiqar Ali Shah (2018), Herding behavior in Ramadan and financial crises: the case of the Pakistani stock market, Financial Innovation

Yuliani, Isnurhadi (2017), “Risk perception and psychological behavior of investors in

emerging market: Indonesian Stock Exchange,
Investment Management and Financial