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# FACTORS INFLUENCING INDIVIDUAL INVESTORS' INVESTMENT DECISIONS AT THE DHAKA STOCK EXCHANGE

## BİREYSEL YATIRIMCILARIN DAKKA BORSASINDAKİ YATIRIM KARARLARINI ETKİLEYEN FAKTÖRLER

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**Abstract**

The goal of the study is to identify the factors affecting individual investors' investment decisions on the Dhaka Stock Exchange (DSE). To do this, the research also looks at how accounting issues, information obtained from independent sources, financial needs, advocate recommendations, and personal reputation/ company reputation compliance may all affect an investor's behavior. Data were collected from Dhaka, Bangladesh. The researcher individually delivered a standardized questionnaire to each respondent in order to collect data. There were 27 items in the survey. SPSS 26 and AMOS 24 are used to analyze the functional data from 300 surveys. The Friedman rank test is used to test the research hypotheses. The study revealed that there does appear to be some association between the factors affecting DSE investors' decisions to invest. The researcher found that expected dividends, the stock's past performance, collecting information about firms, stock index fluctuations, interest in non-stock investment, investment diversification, obtaining borrowed funds easily, broker recommendations, family members' opinions, friend or coworker recommendations, the company's public reputation, well-organized financial markets, and the ethics of a firm are the most crucial factors that affect individual investors' investment decisions. The results of this study will help investors comprehend the various choices they will have to make based on their current

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circumstances and the likely results of each choice. The research will also help the companies identify the factors that will have the biggest impact on investors' behavior in the future, which will affect future strategies and policies.
**Keywords:** Investment decision, individual investors, dhaka stock exchange, behavioral analysis
**JEL Classification:** G4, G11, G41

**Öz**

Çalışmanın amacı, bireysel yatırımcıların DSE ile ilgili yatırım kararlarını etkileyen faktörleri belirlemektir. Bunu yapmak için, araştırma aynı zamanda muhasebe konuların, tarafsız kaynaklardan edinilen konuların, kişisel finansal ihtiyaçların, yandaş tavsiyelerinin ve benlik saygınlığı /firma saygınlığı uyumluluğunun hepsinin bir yatırımcının davranışını nasıl etkileyebileceğine de bakmaktadır. Veriler Bangladeş'teki Dhaka'dan toplanmıştır. Araştırmacı, veri toplamak için her bir katılımcıya bireysel olarak standartlaştırılmış bir anket verdi. Ankette 27 madde vardır. 300 anketten elde edilen fonksiyonel verileri analiz etmek için SPSS 26 ve AMOS 24 kullanılmıştır. Bu çalışmada, DSE bireysel yatırımcılarını etkileyen en önemli faktörleri çıkarmak için açıklayıcı faktör analizi (AFA) ve ayrıca çıkarılanları doğrulamak için uyum iyiliği ölçüm modeli ile doğrulayıcı faktör analizi (DFA) kullanılmıştır. Son olarak, çıkarılan faktörlerle araştırma hipotezini test etmek için Friedman sıralama testi kullanılmıştır. Çalışma, DSE yatırımcılarının yatırım yapma kararlarını etkileyen faktörler arasında bir ilişki olduğunu ortaya koydu. Araştırmacı, bir firmanın etiğinin, iyi organize edilmiş finansal piyasaların, firmanın kamu itibarının, firma hisselerinin geçmiş performansının, beklenen temettülerin, firmalar hakkında bilgi toplamanın, hisse senedi endeksindeki dalgalanmasının ve broker tavsiyesinin bireysel yatırımcıların yatırım kararlarını etkileyen en önemli faktörler olduğunu keşfetti. Bu çalışmanın sonuçları, yatırımcıların mevcut koşullarına ve her bir seçimin olası sonuçlarına dayanarak yapmak zorunda kalacakları çeşitli seçimleri anlamalarına yardımcı olacaktır. Araştırma aynı zamanda şirketin gelecekteki stratejileri ve prosedürleri etkileyecek olan yatırımcıların davranışları üzerinde en büyük etkiye sahip olacak faktörleri tanımlamasına yardımcı olacaktır.
**Anahtar Kelimeler:** Yatırım kararı, bireysel yatırımcılar, dakka menkul kıymetler borsası (DSE), davranış analizi.
**JEL Sınıflandırılması:** G4, G11, G41

## 1. Introduction

Investors and investment advisors usually make investment decisions. Investors often make use of fundamental analysis, technical analysis, and insights when doing investment analysis. It is believed that market conditions and the commission notification system systematically affect individual investor preferences and market results. Decision-making psychology can be used in the analysis of investors' market behavior, including why they buy and sell shares. These components focus on how investors understand and use data when making decisions. Behavioral finance is defined by Shefrin (1999:54) as "a rapidly growing field concerned with the impact of psychology on the behavior of financial professionals". Modest stock purchase decisions on one's own account dominate individual investment behavior (Nofsinger and Richard, 2002:13). Even if a person is knowledgeable and has thoroughly researched and studied the company before investing, he may still act rashly out of concern for possible harm. The inconsistent actions of individual investors are due to a number of factors that undermine the investor's rational thinking. An individual investor is someone who invests a small amount of money in stocks for their own account.

Various factors are believed to have an impact on investment decisions, including market characteristics, individual risk profiles, and accounting data. Despite the fact that investors use a number of criteria when choosing stocks, Nagy and Obenberger's (1994) analysis of factors affecting investor behavior revealed that traditional wealth maximization goals are important to investors. Current issues such as regional or international activities, sustainability practices, and the firm's ethical stance have been briefly examined. Individual investors often ignore the advice of brokerage firms, investment advisors, family members, and colleagues.

According to Hussein (2007:17), investors look at a variety of criteria, including expected business profitability, probability of getting rich quick, liquidity of stocks, past performance of the firm's stocks, government interventions, and the development of organized financial markets. According to Dimitrios (2007), who examines investment decisions in financial markets, professional investors rely more on fundamental and technical analysis and less on portfolio analysis, while individual investors rely heavily on media sources and market image when making investment decisions. Market participants are constantly grappling with many things, including financial data, financial reports, and advice and opinions circulating on social media. Analyzing all this information is difficult. Financial and general press news, the latest stock index results, online information, current economic trends, and investment advisory advice affect this sort of information (Francis and Soffer, 1997). Each of these factors points to a relatively independent external source of information.

According to Cohn'e et al. (1975: 608), as a shareholder's wealth increases, his propensity to take risks seems to decrease. However, it has been observed that not only wealth increases but also risk-taking tendencies decrease as age, salary, and knowledge increase. The main reason people avoid risk is not rational but perceptual (LeBaron, 1992: 203). According to Baker and Haslem (1973:66), dividends, expected returns, and firm stability are important investment considerations for individual investors, whereas Baker et al. (1977:380) suggested that investors should act responsibly by considering equity investment risk and return equality.

The main purpose of the research is to determine the important factors that affect the investment decisions of individual investors in DSE. The research includes not only factors extracted from previous research and the most important behavioral finance theories but also some new factors from individual investor face-to-face interviews. This research also focuses on number variables as a complete scenario of the conceptual framework, where variables are combinations of factors. Variables are selected from the literature review in the context of the study. In order to achieve the main objective, there will be five hypotheses to be tested in the research.

The research also provides guidance to individual investors, firms, policymakers, and investment advisors. The research will provide individual investors with better insight into the multitude of choices they have to make based on current circumstances and the ultimate results of each action. The research will reveal the most influential elements in the behavior of investors that will affect their future policies and plans, as the investment decisions of investors will determine the strategies of the firms. The research will aid in a deeper understanding of the behavioral processes and outcomes that

are so important to financial advisors, as knowing how investors respond to market changes can help them develop appropriate asset allocation policies for their transactions. The research will provide information to governments and administrations in this regard by identifying the most influential factors on the decisions of investors that have an impact on monetary policy, foreign capital policy, tax legislation, and other fundamental legislation in order to support and regulate market efficiency as well as meet the needs of investors.

## 2. Literature Review

*The Development of Research Variables*

Research variables are discussed based on behavioral theories and previous empirical research in developed countries. The aim of the literature review is to develop the research hypotheses and the conceptual framework of the research.

### 2.1. Accounting Issues

According to mental accounting theory, investors tend to categorize information in their minds, and the distinctions between these classes have a more significant impact than most things on how they behave. The most obvious example of mental accounting in investing is refusing to sell an investment that used to make a huge profit but now only makes a small profit. When the economy is booming and the stock market is on the rise, investors are accustomed to some healthy profits. When investors' net assets are dwindling due to the market downturn, they are less willing to sell with a smaller profit margin because their past profits have already sorted their imaginations, and their minds force them to wait for the return of that profitable period. In short, they try to manage the new situation according to their old classification (Thaler, 2001).

Considering the market data, it is said that individual investors are a large group. Various factors are believed to influence the investment decisions of this group, including market characteristics, personal risk profiles, and profit and loss data. Despite the fundamental principles of financial management, it can be seen how sales errors, concerns arising from loss-making transactions, and uncertain risk levels in profit and loss scenarios affect investors. Additionally, the accuracy of the firm's financial records, the results of valuation techniques (for example, P/E and market cap/book value), projected corporate earnings, expected share prices, dividend payments, past stock performance, and other factors affect accounting issues. Investors place great emphasis on projected earnings and the fit of financial records, although some other factors may affect investors. It is observed that the majority of the shareholders participating in the research take the above-mentioned factors into account before investing in the stock market (Lipe, 1998).

According to Baker and Haslem (1973), a study conducted on the New York Stock Exchange in the USA reveals that the past performance and profit forecasts of the stock are extremely important for

investors and that future price expectations attract great attention from investors. However, research by Lee and Tweedie (1977) in the USA shows that the general public has difficulty understanding the form of corporate financial reporting. According to Blume and Friend (1978: 27), while investors use price and earnings volatility as primary risk indicators, Lewellen et al. (1977: 305) compare the results of their performance with the balance sheets of wealth funds. Lease et al. (1974: 419) conducted a study on the New York Stock Exchange that referred to investors as "shareholders" rather than "traders" because investors were focused on long-term investments and were not interested in short-term returns. Moreover, Lewellen et al. (1977: 313) claim that the primary data source for investors is fundamental or technical analysis. The argument by Antonides and Van Der Sar (1990: 235) that the potential threat decreases if the value of an asset has increased recently is consistent with that of Blume and Friends (1978).

Nagy and Obenberger (1994) analyzed 34 factors affecting the behavior of investors in a study conducted on the Fortune 500, the largest companies in the USA. These factors included a combination of financial and non-financial data. From the research, we find that the outcome of the firm's financial accounts and expected corporate profitability are among the most important factors in accounting matters. In another study after the adoption of the International Financial Reporting Standard in 2005, Halonen et al. (2013:57) analyzed the importance of financial reporting in Sweden. They found that while the relevance of profitability decreased over the period, the relevance of book value per share increased. Another study by Fisher and Statnian (1997) suggested that, based on the general belief that the investment decision is complex, investors are not only concerned with risk and return but also consider many other accounting issues when purchasing stocks.

**$H_1$:** Factors related to accounting issues have a significant impact on individual investor behavior.

#### 2.2. Information Obtained from Independent Sources

According to the regret theory, it is the emotional reaction that investors have after realizing their mistakes in their financial decisions. When investors intend to sell a stock, the purchase price influences their sentiment. In the case of losses, investors do not go to sell their shares because of the loss they have made and their fear that this will now be reflected in their accounts. Investors who learn that the value of a stock they are considering buying does not increase likewise live into the theory of regret. Some investors get rid of the feeling of regret by buying stocks only from companies that everyone is known to buy, using the logic that everyone does this (Pareto, 1997).

Stock market investors are constantly interested in data, including quantitative financial data, financial-related media reports, advice circulating on social media, the latest stock indices, gathering information on firms, advice from investment advisors, and up-to-date economic data. Each of these factors refers to information obtained from independent sources. It is quite difficult to track and process all this data. But investors sometimes don't consider their knowledge from independent sources before investing in the stock market. Due to the market's rapid reaction to new data, investors may consider this information outdated and unimportant (Shafi, 2014).

Kadiyala and Rau (2004) conducted research in the USA to examine how investors react to changes in information from institutional events. They concluded that investors tend to underreact to information from the past and overreact to information from corporate events. In addition, the behavioral finance literature has presented two theories regarding irrational investor behavior. In the first theory, when firms declare corporate events, such as new stock issuances, investors tend to overreact to the announcement, which is argued to lead to long-term returns on value changes. Theory 2 argues that investors underreact to news when firms announce corporate events that lead to restructuring long-term returns, such as open-market share buybacks. These behavioral theories show why investors underreact to a share buyback while overreacting to a corporate event such as a fee.

However, according to Fama (1998), behavioral theories failed to explain long-term unusual return data because the tendency of investors to sift through events and overreact to some events and underreact to others affects the date and manner of firms' declarations. This therefore contradicts views that often prove that investors are independent in how they react to new information. Loughran and Ritter (1995: 42) concluded that despite the successful past operations of businesses, investor overreaction is responsible for disappointing long-term anomalous returns. This assessment neglects the investor's response to negative news (Myers and Majluf, 1984: 211).

According to Barber and Odean (2007), individual investors buy shares from firms that declare high profitability. Firms have several implications for the impact of profitability on the tendency of individual investors to buy stocks. The results consist of two opposing theories: positive and negative adverse reaction processes. Investors who take positions contrary to the market direction, that is, outliers, try to buy companies that lose value before their purchases, while bullish investors buy stocks after their values rise. Most researchers have found that individual investors' recent earnings and net earnings have a negative impact on their new purchases. USA (Griffin and Martin, 2003: 2533), Finland (Grinblatt and Keloharju, 2001: 1065), Korea (Choe et al., 1999: 261), and Australia (Jackson, 2003: 132) are among the markets where a negative picture is seen in the short term.

According to Rowley (2000: 33), buying and selling on the internet will continue to assert itself as a competitive alternative to traditional selling, and buying certain stocks will be a new trend in investor behavior (Hoffman and Novak, 1996:63). Investors can benefit from a much wider range of stocks as they are not limited to a small number of stock alternatives as in traditional trading. Investors trading online can find any stock at any time and from anywhere (McQuitty and Peterson, 2000). Investors looking to save money on their purchases can get the best deals by finding out which websites sell a particular stock at what price. This situation is similar to traditional trading, but investors can quickly obtain information that would be impossible to obtain in a short time from traditional buying and selling on a wide variety of websites and access many great resources on the Internet.

**$H_2$:** Factors related to information obtained from independent sources have a significant impact on individual investor behavior.

**2.3. Financial Needs**

According to the theory of overconfidence, research shows that investors often believe that their abilities are above average. In addition, when investors compare the information they obtain with the information of other sources and the information of opposing views, they are unusually confident in the information they obtain. Many investors believe that they can consistently place the market accurately on a temporal trading chart. However, there are many findings that show the opposite. Overconfidence results in overly risky transactions, and the costs and losses associated with each transaction reduce the potential profit (Tapia and Yermo, 2007).

Financial needs primarily include factors related to demands in competition with investments. It covers things like how long it will be until investors' money is needed for other things, how easily they can borrow money, how much money they will lose on other local investments, how much investment diversification is needed, etc. It is also seen that professional investors evaluate investment capital and consumption expenditures as independent assets (Amihud and Mendelson, 1986).

According to prospect theory, value functions for profit and loss are different, and predictable outcomes are exaggerated as opposed to unpredictable outcomes (Shefrin and Statman, 1985:781). The functional form of an investment is asymmetrical when it comes to losses, which triggers risk-taking, that is, the desire to prefer an unpredictable loss over a definite loss. But when it comes to profit, the valuation of the investment is asymmetrical, which leads to risk aversion and a preference for a definite profit rather than an uncertain one. As a result, investors continue to hold the stock (the tendency to take risks), and even if the changes that occur for the stock are positive, in the face of a paper's loss, and even if their prospects for the future are dim, they avoid selling their shares early (risk aversion) only to obtain guaranteed gains (Weber and Camerer, 1998).

In addition, the reasons why shareholders own loss-making capital can be analyzed using the expansion of sunk cost and loyalty theories. According to logical thinking, regardless of whether they are currently making a profit or losing money, investors should sell a stock with poor future prospects. On the other hand, previous research on sunk costs and the proactive approach has shown that investors incur losses that plague them financially by sticking to failed tactics (Staw and Hoang, 1995). Therefore, instead of selling and making a certain loss, investors may prefer to hold on to a losing stock and gamble on the future. Of course, investors who do not sell the stock but hold it may become even more stable if the stock rises.

When choosing which stocks to invest in, investors with different expectations and different holding times should take liquidity and associated transaction costs into account. Theoretically, Amihud and Mendelson (1986: 233) reveal that "the period of holding the stock in higher-stakes investments keeps portfolios in equilibrium." Atkins and Dyl (1997: 315) argue that buy-sell investing is often linked to stock price volatility resulting from investors' trading activities in general, price movements, and diverging movements of some stocks. Research on hypervolatile markets by Shiller (1981) considers that the Miller-Modigliani perspective on stock prices constrains the probability distribution in the price-dividend sample. According to this research, dividend yields over the past century have

not visibly outpaced revenues from total price movements. When these results are combined with Kleidon's (1986) findings that stock price movements are significantly related to income changes in the previous year, a definite overreaction pattern is seen. Despite the known aspects of dividends, investors tend to focus excessively on short-term price changes.

**$H_3$:** Factors related to financial needs have a significant impact on individual investor behavior.

**2.4. Advocate Recommendations**

According to the over/under reaction theory, when there is a bull market, investors become more optimistic because they believe the market will be more stable in the future. On the other hand, when there is a bear market, investors become incredibly pessimistic. The financial market's overreaction or underreaction is the result of a "correlation" that requires overemphasizing new events while ignoring past data. Therefore, prices fluctuate excessively in response to news and rise excessively in response to bad news. When optimism is at its peak, investors are willing to buy the stock at face value (Hong and Stein, 1999).

Advocate recommendations include buying advice from brokerage firms and individual stock brokers. Recommendations from friends or co-workers also have a significant impact on this variable. Each of these sources can be seen as mechanisms that ensure that the investor's final choice is close to his or her own ideas and recommendations. In research, most investors surveyed tend to be wary of these sources of information, even though they have explicit confidence in investment advice. Depending on whether the future prospects are positive, slightly positive, or negative, the investor is presented with a summary of the pro-recommendations along with a general recommendation to buy, hold, or sell. This summary is evaluated by the investor before making a decision to buy, hold, or sell the firm's shares (Malmendier and Shanthikumar, 2003).

When an investment advisor makes a recommendation, an investor who already owns a stock has four options: hold shares on a sell recommendation; sell shares on a hold recommendation; hold shares on a sell recommendation; or hold shares on a hold recommendation (Francis and Soffer, 1997). An earlier study examined how the detailed article and type of researcher influenced investors' behavior. Since investment advisors are urged to make optimistic recommendations, it can be said that when investors read the buy recommendation instead of the sell recommendation, they give more weight to other information in the analytical report. Investors attach great importance to the content of input and recommendation reports from investment firms and professional stock traders. The recommendations of friends or colleagues also have a noticeable influence in this area. The presence of these sources of information can be seen as advice from those who are interested in the future activities of the investor. Although many investors explicitly state that they trust the guidance of investment advisors, in general, the majority of individuals tend to be suspicious of these channels of information (Francis and Soffer, 1997).

To determine whether amateur investors are trustworthy, Malmendier and Shanthikumar (2003) used a number of assumptions. Professional investors, if investment advisors are disconnected, are only involved in an extraordinary amount of buyer-initiated transactions after good advice. Amateur investors show an unusual desire to buy against all the stimulating advice, including the advice of the investment advisors they are affiliated with. Hodge (2003) looks at what investors think about the earnings rate, auditor independence, and the value of verified financial data. Then, when looking at views on the rate of return to make investment decisions, the investor relies more on a firm's analyzed and validated financial reports because these reports have been audited and reviewed. Krishnan and Booker (2002: 143) looked at factors that influence investors' short-term decisions to hold or sell a stock according to the recommendations of investment advisors. The results show that if an investor has more evidence than other investors to support a good analyst report or investment advisor's decision, that investor reduces the error of making profit and loss assessments.

According to Beneish (1991), buy or sell recommendations had a relationship with positive or negative stock market movements on the day of publication. It is vital to determine whether investment advisors' recommendations will help prevent errors such as layout errors. In addition, some features of investment advisor research papers are more effective in preventing errors in orientation, which has an impact on the creation and dissemination of investment advisor reports. An investor's decision to follow the advice of investment advisors may be more influenced by arguments that complement his or her stronger decision or by their advisory reports that contain supporting information. This is because a stronger report contains more information, which allows the trader to validate the findings of the analysis and helps the trader avoid making wrong decisions.

According to Shefrin and Statman (1985), investors sometimes follow the advice of investment advisors and sometimes go against the advice of investment advisors to avoid regret. They believe that the credibility of supporting evidence will mitigate the impact of a loss by persuading investors to follow the advice of investment advisors (i.e., sell losing stocks and hold on to winning stocks). There are several ways for an investor to learn about the financial preferences of other investors. Possible avenues of observation include direct observation, media, limit order books, face-to-face communication, price, and insider trading. According to Shiller and Pound (1989: 55), the advice received face-to-face influences the trading of both institutional and individual investors. According to Hong et al. (2004), this is further evidence that investors' social connections influence stock market investment decisions. If the same fund manager holds a stock, another mutual fund manager is slightly more likely to hold that stock than other stocks. Fama (1998: 292) has suggested that behavior patterns cannot account for long-term and daily unusual returns because the reason why investors tend to overreact to some events and produce false judgments in response to others is, in general, that investors act independently when evaluating new information.

**$H_4$:** Factors related to advocate recommendations have a significant impact on individual investor behavior.

**2.5. Personal Reputation/Company Reputation Compliance**

Prospect theory is the theory of decision-making under risky conditions. Decisions are based on judgments. Judgments are the external facts of the world. They are particularly challenging in conditions of uncertainty, where it is difficult to predict the outcome of proceedings with certainty. Decisions involve an internal conflict over their exchanges. They become difficult when decisions support conflicting values and goals. Expectation theory directly addresses how these decisions are evaluated in the decision-making process. Prospect theory explains why investors hold risky stocks: investors often take too much risk to avoid losses. Therefore, investors willingly remain in a risky stock position, hoping that the price will bounce back. Additionally, gamblers on a risky stock will behave similarly, doubling their bets to make up for any previous losses. Thus, despite our rational desire to obtain a return on the risks we take, we tend to value something of our own at a higher value than the price we would be willing to pay for it (Kahneman and Tversky, 1979).

Loss-aversion theory points to another reason why investors choose to hold risky stocks and sell their winners: they may believe that today's risky stocks may soon outperform today's winners. However, investors often make the mistake of chasing market action by investing in stocks or funds that get the most attention. Research shows that money flows into high-performing mutual funds faster than money flows out of low-performing funds. Most individual investors believe that their abilities are above average. They also prioritize the accuracy and value of their information over other sources. They believe that their investments in the market can help them make trading decisions at the right price and at the right time. However, there is a lot of information that shows the opposite. Overconfidence leads to over-trading costs, and over-trading costs reduce profits (Kahneman and Tversky, 1979).

Personal reputation/company reputation compliance have been greatly influenced by a number of factors, including the firm's position, attitudes about its products and services, its reputation, and its ethical principles. These factors allow each individual to have an idea about the firm. All factors other than business ethics are highly accepted as incentives for investment. Given all these factors, it is logical to argue that many investors choose firms based on qualitative standards. This poses a significant challenge to the investment community, which is accustomed to quantitative analysis and the distribution of relative risk values (Epstein, 1994).

Epstein (1994) conducted research on the desire of individual investors to obtain social knowledge. The results show that annual reports are advantageous for corporate shareholders. The results also show that investors have a keen interest in learning more about the firm's environmental activities and the quality and safety of its products. In addition, the majority of shareholders surveyed want the firm to report on community engagement, personnel management, and commercial responsibility. In another study, Daniel et al. (1998: 1865) and Hong and Stein's (1999: 2163) behavior models predicted long-term returns and short-term return assessments from the perspective of professional investors. Professional investors are overconfident in the personal sensations they receive about the value of a stock (Daniel et al., 1998:1867). When publicly available information coincides with

the personal perceptions they have acquired, it strengthens their confidence in themselves. When publicly available information contradicts their personal perceptions, they are biased and vehemently oppose trading.

**$H_5$:** Factors related to personal reputation/company reputation compliance have a significant impact on individual investor behavior.

#### 2.6. Factors Affecting Individual Investors' Behavior in Bangladesh

This section helps us identify the factors affecting investors' behavior that have already been revealed in a few empirical studies in the context of Bangladesh. It also helps us find the literature gap in the context of the study.

In a study in Bangladesh with 270 participants, it was found that share price, historical data, financial indicators, expected dividends, business rank in the industry, financial statements, portfolio diversification, and loss reduction had a significant impact on DSE investors (Khan et al., 2015: 202). Another study in Bangladesh with 351 participants found that the most significant variables influencing individual investors' behavior are the attributes and reputation of the firm, net asset value, and financial information (Hossain & Nasrin, 2012: 110). With 100 participants, Sarbabidya & Saha (2018: 1) came to the conclusion that risk concerns, shareholders' uncertain attitudes, profits per share, political upheaval, and uncontrollable macroeconomic variables harm and demotivate Bangladeshi stock market investors. According to different research by Hossain & Siddiqua (2022: 1) with 281 DSE individual investors, market volatility and perceived risks are the two behavioral characteristics that have the most impact on investors' behaviors. According to Kayser and Golder (2019: 94), the study's results, which included 534 DSE participants in Bangladesh, show that economic and stock-related variables significantly influence investment decisions. The researchers found that net income, placement, cash dividends, margin loans, and paid-up capital all had a significant influence on consumers' purchasing preferences in the study of Sultana et al. (2017: 1) with 60 respondents in Bangladesh. The study also found no influence of Islamic ideology on stock trading. Khan & Islam (2020: 67) state that the results of a research study involving 104 individual stockholders demonstrate that deposit interest rates, government policy execution, and basic analysis are significant determining factors for stockholders in Bangladesh.

Therefore, the research variables and hypotheses have been developed in the literature review based on the literature related to behavioral theories in developed and developing countries. It helps DSE investors understand what factors are grouped together into different variables. However, a list of the questions in the survey with summary statistics from the responses of the DSE investors to the questions is attached in the appendix to make the DSE investors' responses more understandable. It presents a comparative scenario of factors that affect DSE individual investors' behavior. Through the scenario, DSE investors can easily comprehend the difference between important factors that may affect investors in other developing countries and those that may affect investors in Bangladesh. They can also identify the gaps in their information based on the scenario and the literature review.

### 2.7. Research Model (Conceptual Framework of Research)

This proposed research model has been developed in light of a literature review focusing on the stock investment decisions of individual investors in Dhaka. To determine the expected effect on investors' behavior (dependent variable), the researchers identified accounting issues, information obtained from independent sources, financial needs, advocate recommendations, and personal reputation/ company reputation compliance (independent variables) from the literature review.

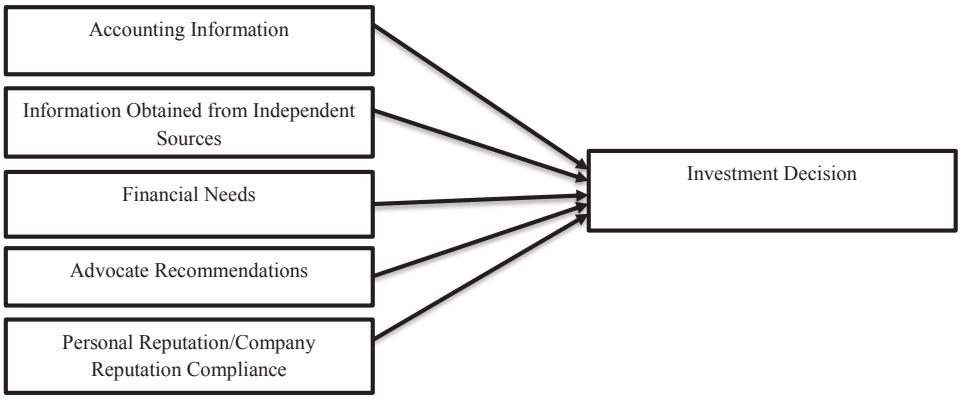


**Figure 1:** Conceptual Framework (Hasnat et al., 2023: 307)

## 3. Methodology

The survey technique is a crucial source of primary data since it enables researchers to gather the necessary data in accordance with participants' ideas, perceptions, and lifestyles, as well as their demographic information (Hair et al., 2003). Respondents may express themselves freely under this approach through a self-administered questionnaire, email questionnaires, and phone interviews (Zikmund & Babin, 2007). In Dhaka, Bangladesh, a researcher administered a self-administered questionnaire to individual stock investors.

The population is often made up of components with comparable features, whereas the sample refers to a subset or portion of the entire population, which refers to a group of a larger population (Malhotra, 2008). The target population of the research is DSE individual investors. The researcher conducted a survey of the stock investors in Dhaka, the capital city of Bangladesh.

### 3.1. Data Collection Techniques

The researcher collected the names and addresses of investors from the brokerage firms in Dhaka. 300 individual investors were randomly chosen (sample size) to answer one questionnaire for a basic, randomly selected sample of six brokerage firms in Bangladesh (Parkway Securities Ltd., Modern

Securities Ltd., UCB Capital Ltd., Anwar Securities Ltd., Mika Securities Ltd., and United Financial Training Company Ltd.). In fact, 400 individual investors were randomly selected from 6 brokerage firms, but 50 had to be excluded due to lack of information and not knowing English (the survey was conducted in English). Therefore, the remaining 350 individual investors were selected to conduct the survey. Those who are selected are more educated. Among the 350 survey forms collected, 50 were not included in the analysis due to missing information. After eliminating investors who had no knowledge about DSE or were not professionals in making investment decisions, a sample of 300 people was obtained. The question in the demographic section of the survey only asks participants about their gender. According to the survey, 69.7% of the participants are men, and 30.3% are women. In the experiment, the researcher utilized simple random sampling techniques. Simple random sampling guarantees that the sample is impartial, representative of the total population, and free from bias. It also helps to reduce the tendency to make decisions based on criteria (Neville and Sidney, 2004).

### 3.2. Research Design

Data were collected from Dhaka, Bangladesh. The researcher individually delivered a standardized questionnaire to each respondent in order to gather data. There were 27 items in the survey. Additionally, the questionnaire has been adopted from Mutswenje's (2009) research. But the question pattern and the number of questions in the questionnaire have been changed due to conducting this in another context. SPSS 26 and AMOS 24 are used to analyze the functional data from 300 surveys. In this study, exploratory factor analysis (EFA) is employed to extract the most significant factors under the research variables influencing the DSE individual investors, and confirmatory factor analysis (CFA) is utilized to validate the extracted factors with a goodness-of-fit measurement model. Lastly, the Friedman rank test is used to test the research hypotheses.

## 4. Findings and Discussion

### 4.1. Exploratory Factor Analysis (EFA)

EFA is used to extract the most important factors. Before performing EFA, the normality test of the data set and KMO and Bartlett's test for data consistency must be done. In order to run data in the SPSS program to analyze EFA, the data set must be approximately normal distributed (Field, 2000: 444), the KMO score must be above 0.50, and Bartlett's Test of Sphericity must be significant (Rietveld & Van Hout, 1993: 255).

#### 4.1.1. Normality Test Using Skewness and Kurtosis

Table 1 depicts the skewness and kurtosis of study variables in order to demonstrate the normal distribution of data. The skewness of accounting issues is – 0.517, and the kurtosis is 1.283. Skewness and kurtosis levels for information obtained from independent sources are 0.010 and 0.875, respectively. The table statistics also indicated that the value of skewness for financial needs is – 0.434, while the value of kurtosis is 0.771. Moreover, the skewness and kurtosis of the advocate recommendation are – 0.337 and 0.056, respectively. Additionally, the values of skewness and kurtosis in the last variable, personal reputation/company reputation compliance, are – 0.919 and 1.201, respectively. Furthermore, the skewness and kurtosis values need to be within +/ – 1.96 to ensure that the data is essentially normally distributed (Cramer, 1998; Cramer & Howitt, 2004; Doane & Seward, 2011:11; Razali & Wah, 2011:28). As a result, this study confirms that the data for each variable is substantially normally distributed

**Table 1:** Normality Test Using Skewness and Kurtosis

| Description | Statistic | Std. Error |
|---|---|---|
| **1. Accounting Issues** | | |
| Skewness | -.517 | .141 |
| Kurtosis | 1.283 | .281 |
| **2. Information Obtained from Independent Sources** | | |
| Skewness | .010 | .141 |
| Kurtosis | .875 | .281 |
| **3. Financial Needs** | | |
| Skewness | -.434 | .141 |
| Kurtosis | .771 | .281 |
| **4. Advocate Recommendation** | | |
| Skewness | -.337 | .141 |
| Kurtosis | .056 | .281 |
| **5. Personal Reputation/Company Reputation Compliance** | | |
| Skewness | -.919 | .141 |
| Kurtosis | 1.201 | .281 |

#### 4.1.2. KMO and Bartlett's Test

The value of Kaiser-Meyer-Olkin (KMO) should be more than 0.70 and is insufficient if it is lower than 0.50 (Field, 2000: 446). The KMO test determines whether each component predicts enough items or not. The value of KMO is 0.68 in Table 2, which is quite acceptable. The Bartlett test should be significant (i.e., less than 0.05), indicating that the variables are sufficiently correlated to provide an acceptable foundation for factor analysis (Rietveld & Van Hout, 1993: 255). Thus, the significant level of the Bartlett test in Table 2 is less than 0.05, which also satisfies the criteria.

**Table 2:** KMO and Bartlett's Test

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .680 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 1604.105 |
| | df | 78 |
| | Sig. | .000 |

#### 4.1.3. Communalities

The EFA begins with the communities, or factor loading, of each research factor. The factor loading refers to the total value of each factor when applying the EFA. According to Field (2000: 43), when communities get smaller, sample size becomes more important to consider. Furthermore, the communality of a factor is the sum of these factors' loadings on all extracted factors because communalities are a continuation of factor loadings (Rietveld & Van Hout, 1993: 264). Once the communalities are low, the sample size must be increased to adjust. It is also critical to double-check the communalities following factor extraction. However, the initial commonalities before rotation are greater than 0.50 in Table 3. It should be noted that all of the initial communalities are greater than 0.50, which is acceptable (Field, 2000: 43). In this research, there are 27 items according to the questionnaire, but only 13 items are extracted through the EFA communality matrix based on their factor loading. Items with lower factor loading have been removed, which means the extracted items in Table 3 have a significant impact on DSE investors' behavior. A list of the questions in the survey is attached in the appendix.

**Table 3:** Communalities (Extraction Method: Principal Component Analysis)

| Description | Initial | Extraction |
|---|---|---|
| Q5. Do you consider the expected dividends? | 1.000 | .735 |
| Q6. Do you observe the past performance of the firm's stock? | 1.000 | .747 |
| Q7. Do you collect information about firms from the internet while planning to invest in stocks? | 1.000 | .833 |
| Q8. Do you follow the fluctuation in the stock index? | 1.000 | .852 |
| Q13. Are you interested in non-stock investment? | 1.000 | .849 |
| Q14. Do you think of investment diversification? | 1.000 | .813 |
| Q15. Do you intend to obtain borrowed funds easily? | 1.000 | .739 |
| Q17. How does broker recommendation affect your investment decision? | 1.000 | .755 |
| Q18. How do family members' opinions influence your investment decision? | 1.000 | .813 |
| Q19. How do friend or coworker recommendations impact your investment decision? | 1.000 | .760 |
| Q22. How important is the company's public reputation to you? | 1.000 | .767 |
| Q23. How important is the creation of well-organized financial markets to you? | 1.000 | .621 |
| Q26. How important are the ethics of a firm to you? | 1.000 | .713 |

### 4.1.4. Total Variance Explained

This matrix is very important to identify the number of variables. All the factors in the survey question are based on these variables. This matrix confirms that the number of variables chosen for this research according to the factors is correct. However, the correlation matrix is then used to describe these anticipated communalities, from which the eigenvalues and variables will be retrieved. Furthermore, positive eigenvalues that are extremely close to zero are also attainable. In order to determine how many variables should be preserved, the following guidelines have been offered (Field, 2000: 436-437; Rietveld & Van Hout, 1993: 273-274):

- Only keep the elements whose eigenvalue is greater than 1 (Guttman-Kaiser rule) (Nunnally, 1978:111);
- Keep the variables that contribute between 70 and 80 percent of the variance overall;
- Create a scree plot and maintain all variables before the elbow or breaking point (Cattell, 1966:260).

Therefore, in Table 4, five variables have been extracted, which satisfies almost all the rules of factor extraction. In addition, a scree plot has been presented in Figure 2.

**Table 4:** Total Variance Explained (Initial Eigenvalues)

| Components | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
|---|---|---|---|---|---|---|
| 1 | 3.569 | 27.457 | 27.457 | 3.569 | 27.457 | 27.457 |
| 2 | 2.297 | 17.672 | 45.129 | 2.297 | 17.672 | 45.129 |
| 3 | 1.710 | 13.151 | 58.280 | 1.710 | 13.151 | 58.280 |
| 4 | 1.440 | 11.074 | 69.355 | 1.440 | 11.074 | 69.355 |
| 5 | .997 | 8.550 | 74.905 | .997 | 8.550 | 74.905 |
| 6 | .601 | 3.622 | 83.527 | | | |
| 7 | .546 | 4.200 | 85.726 | | | |
| 8 | .413 | 3.176 | 88.902 | | | |
| 9 | .383 | 2.942 | 91.844 | | | |
| 10 | .361 | 2.779 | 94.623 | | | |
| 11 | .315 | 2.420 | 97.043 | | | |
| 12 | .213 | 1.640 | 98.683 | | | |
| 13 | .171 | 1.317 | 100.000 | | | |

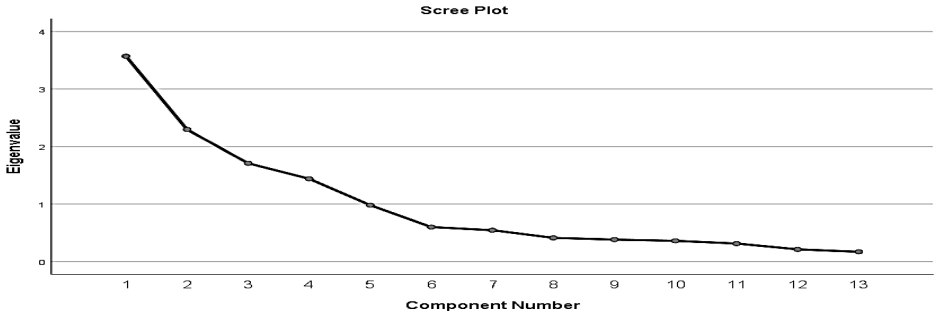


**Figure 2:** Scree Plot of Component Number

#### 4.1.5. Rotated Component Matrix

The rotated component matrix table is very important for understanding the EFA results. Factors are rotated to make it easier for investors to understand. Rotation ensures that various things are described or anticipated by diverse underlying variables as much as is feasible and that each component covers more than one item. This is referred to as a simple structure. Despite the intention of rotation, it is not always accomplished. The degree to which simple structure is accomplished is one item to examine in the rotated matrix of factor loadings (Fabrigar & Wegener, 2011: 63; Suhr, 2006: 2-4).

In Table 5, 13 behavioral factors related to stock investors' decisions are divided into five variable sets. The factors were ordered in ascending order from the highest factor loading (i.e., the 5th factor with 0.839) to the lowest (i.e., the 6th factor with 0.825) for the first variable. It applies to all five variables. Following that, the two factors with the highest loading of variable 2 are displayed, between the maximum loading (factor 7) and the lowest loading (factor 8). The three most heavily loaded factors of variable 3 (factor 13–factor 15) are then presented in order, while variable 4 includes factors 17–factor 19. Finally, the three items (factors 22–26) on which variable 5 has the greatest influence are given in order. Loadings caused by orthogonal rotation are coefficients of correlation between each factor and variable, so they range from – 1.0 to +1.0. A negative loading indicates that the factor should be understood in the opposite direction from how it is expressed for this variable. We remove factor loadings below 0.30 as they are generally considered low. However, loadings of 0.40 or higher are generally considered high (Fabrigar and Wegener, 2011: 65).

In summary, in Table 5, there are 27 factors under 5 research variables according to the survey questions mentioned in the appendix. The rotated component matrix table presents only 13 factors based on factor loading that impact individual investors' behavior significantly. In broad, expected dividends and the past performance of the firm's stock are confirmed as the most significant factors of accounting issues; collecting information about firms from the internet and following the fluctuation

in the stock index are confirmed as the most significant factors of information obtained from independent sources; non-stock investment, investment diversification and obtaining borrowed funds are confirmed the most significant factors of financial needs; broker recommendation, family members' opinions and friend or coworker recommendations are confirmed as the most significant factors of advocate recommendation; and, company's public reputation, well-organized financial markets and the ethics of a firm are confirmed as the most significant factors of personal reputation/company reputation compliance. Therefore, DSE individual investors should consider these significant factors before investing in stocks; thus, this finding also fills the research gap in the literature in the Bangladeshi context as there is not enough empirical research on investors' behavior in Bangladesh related to the independent variables of the research, such as information from independent sources, financial needs, advocate recommendation, and personal reputation/company reputation compliance (Hossain & Siddiqua, 2022: 9) and (Sarbabidya & Saha, 2018: 18)

**Table 5:** Rotated Component Matrix

| Description | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Q5. Do you consider the expected dividends? **(IV1)** | .839 | | | | |
| Q6. Do you observe the past performance of the firm's stock? **(IV1)** | .825 | | | | |
| Q7. Do you collect information about firms from the internet while planning to invest in stocks? **(IV2)** | | .899 | | | |
| Q8. Do you follow the fluctuation in the stock index? **(IV2)** | | .861 | | | |
| Q13. Are you interested in non-stock investment? **(IV3)** | | | .900 | | |
| Q14. Do you think of investment diversification? **(IV3)** | | | .887 | | |
| Q15. Do you intend to obtain borrowed funds easily? **(IV3)** | | | .814 | | |
| Q17. How does broker recommendation affect your investment decision? **(IV4)** | | | | .861 | |
| Q18. How do family members' opinions influence your investment decision? **(IV4)** | | | | .857 | |
| Q19. How do friend or coworker recommendations impact your investment decision? **(IV4)** | | | | .854 | |
| Q22. How important is the company's public reputation to you? **(IV5)** | | | | | .851 |
| Q23. How important is the creation of well-organized financial markets to you? **(IV5)** | | | | | .838 |
| Q26. How important are the ethics of a firm to you? **(IV5)** | | | | | .752 |

***Note: IV1:*** *1 no. Independent Variable (Accounting Issues); IV2: 2 no. Independent Variable (Information Obtained from Independent Sources); IV3: 3 no. Independent Variable (Financial Needs); IV4: 4 no. Independent Variable (Advocate Recommendation); IV5: 5 no. Independent Variable (Personal Reputation/Company Reputation Compliance); Ext: Extracted.*

#### 4.2. Confirmatory Factor Analysis (CFA)

The measuring scale was purified by using confirmatory factor analysis (CFA). A measurement model's goal is to describe how well revealed variables function as latent variable measurement instruments (Amin, 2016: 289). The measurement model in Figure 3 was evaluated using a two-stage analytical method, including reliability and validity tests.

#### 4.2.1. Model Reliability and Validity Measures

Cronbach's alpha (CA) and composite reliability (CR), the two methods that are most frequently used to assess reliability for confirmatory factor analysis, were looked at in terms of the reliability test in the first stage. The research's reliability analysis was done to determine that the dataset of accounting issues, information obtained from independent sources, financial needs, advocate recommendations, and personal reputation/company reputation compliance was consistent. Furthermore, Cronbach's alpha (CA) values between 0.05 and 0.70 are regarded as having moderate reliability and should be above 0.70 to give value consistency in datasets (Collier, 2020: 25–29; Perry et al., 2004: 364). Additionally, the composite reliability (CR) value should be greater than 0.60. (Henseler et al., 2009: 300).

However, in terms of validity tests, this study assessed convergent validity and discriminant validity at the second stage. Additionally, the convergent validity uses two criteria: a factor loading of at least 0.7 (Fornell and Larcker, 1981) and an average variance extracted (AVE) of 0.45 for each construct (Chang et al., 2013:324), which is higher than 0.50 for each construct (Henseler et al., 2009: 300). The outcomes, which are all constructions and their linked items exceeding the set cutoff criteria, are acceptable, as shown in Table 6.

**Table 6:** Reliability and Validity Test

| Description | | | Reliability Test | | Convergent Validity Test | |
|---|---|---|---|---|---|---|
| Items | | Variables | Cronbach's Alpha (CA) | Composite Reliability (CR) | Factor Loading | AVE |
| Q5 | <— | IV1_Ext | .81 | | .73 | |
| Q6 | <— | IV1_Ext | .80 | 0.642 | .65 | 0.474 |
| Q7 | <— | IV2_Ext | .79 | | .90 | |
| Q8 | <— | IV2_Ext | .80 | 0.804 | .73 | 0.674 |
| Q13 | <— | IV3_Ext | .78 | | .94 | |
| Q14 | <— | IV3_Ext | .79 | | .80 | |
| Q15 | <— | IV3_Ext | .79 | 0.861 | .71 | 0.676 |
| Q17 | <— | IV4_Ext | .79 | | .79 | |
| Q18 | <— | IV4_Ext | .79 | | .90 | |
| Q19 | <— | IV4_Ext | .81 | 0.852 | .74 | 0.659 |
| Q22 | <— | IV5_Ext | .79 | | .84 | |
| Q23 | <— | IV5_Ext | .79 | | .64 | |
| Q26 | <— | IV5_Ext | .80 | 0.780 | .72 | 0.545 |

***Note: IV1:*** *1 no. Independent Variable (Accounting Issues); IV2: 2 no. Independent Variable (Information Obtained from Independent Sources); IV3: 3 no. Independent Variable (Financial Needs); IV4: 4 no. Independent Variable (Advocate Recommendation); IV5: 5 no. Independent Variable (Personal Reputation/Company Reputation Compliance); Ext: Extracted.*

However, the square root of the average variance extracted (AVE) should be greater than other components in the same column in order to check the discriminant validity (Cheng et al., 2018:195). All square roots of AVE exceeded the association between any other two components, according to the statistical output in Table 7, proving the discriminant validity of the model. Additionally, according to Table 7, there are significant correlations: accounting issues and information obtained

from independent sources; accounting issues and advocate recommendation; information obtained from independent sources and advocate recommendation; information obtained from independent sources and personal reputation/company reputation compliance; financial needs and advocate recommendation; financial needs and personal reputation/company reputation compliance; as well as advocate recommendation and personal reputation/company reputation compliance. The square roots of AVEs (Table 7) are 0.69 (accounting issues), 0.82 (information obtained from independent sources), 0.82 (financial needs), 0.81 (advocate recommendations), and 0.74 (personal reputation/company reputation compliance). The inter-structure correlation values between each of these variables are also higher than the individual values. As a result, these numbers are adequate proof that discriminant validity exists. Consequently, confirmatory factor analysis with the maximum likelihood estimate was used to examine the internal uniformity of the measures. This analysis was done in order to analyze both the validity and reliability elements of the measurement.

**Table 7:** Discriminant Validity Test (Square roots of AVE)

| Description | Square roots of AVE & the inter-structure correlation | | | | |
|---|---|---|---|---|---|
| **Variables** | **IV1_Ext** | **IV2_Ext** | **IV3_Ext** | **IV4_Ext** | **IV5_Ext** |
| IV1_Ext | **0.688** | | | | |
| IV2_Ext | 0.415*** | **0.821** | | | |
| IV3_Ext | 0.040 | 0.154* | **0.822** | | |
| IV4_Ext | 0.437*** | 0.335*** | 0.190** | **0.812** | |
| IV5_Ext | 0.031 | 0.338*** | 0.282*** | 0.250*** | **0.738** |

***Note: IV1:*** *1 no. Independent Variable (Accounting Issues); IV2: 2 no. Independent Variable (Information Obtained from Independent Sources); IV3: 3 no. Independent Variable (Financial Needs); IV4: 4 no. Independent Variable (Advocate Recommendation); IV5: 5 no. Independent Variable (Personal Reputation/Company Reputation Compliance); Ext: Extracted.*

#### 4.2.2. Assessment of the CFA Measurement Model Fit

The first-order factorial structure is tested using the AMOS software. A covariance matrix based on the normal distribution (data collected from 300 respondents using a five-point Likert scale) was generated using the maximum likelihood (ML) technique (Kline, 2011; Gürbüz and Şahin, 2018: 355). Furthermore, a technique used to estimate the measurement model is confirmatory factor analysis. Its goal is to see if the number of components and the loads of the observable variables (indicators) on them match what theory predicts (Malhotra, 2010: 693). Additionally, confirmatory factor analysis (CFA) is employed to validate a questionnaire's established structure (Yaşlioğlu, 2017: 78). Confirmatory factor analysis, in other words, is used to evaluate the correctness of a scale or model that was previously created using the data received, employed in prior research, or has a theoretical foundation (Gürbüz, 2021: 54). Therefore, in this research, the researcher has already developed a questionnaire through exploratory factor analysis (EFA). Based on the extracted factors on the developed questionnaire, the researcher also intends to examine those extracted factors through confirmatory factor analysis (CFA) to achieve the most valid outcomes.

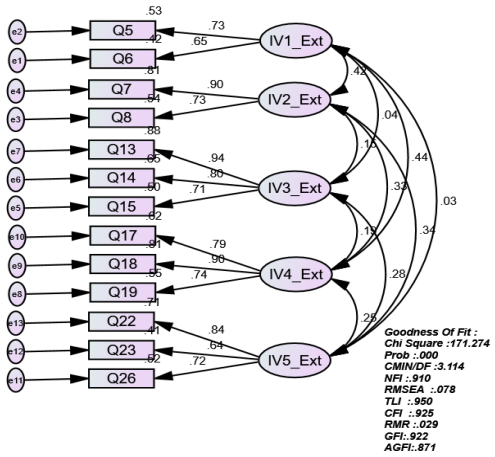


**Figure 3:** CFA Measurement Model

The values of "x2/df, Root Mean Square Error of Approximation (RMSEA), Normed Fit Index (NFI), Tucker Lewis Index (TLI), Comparative Fit Index (CFI), Root Mean Square Residual (RMR), Goodness-of-Fit Index (GFI), and Adjusted Goodness-of-Fit Index (AGFI)" are examined in the research to estimate the goodness-of-fit model (Henry and Stone, 1999: 10; Hu and Bentler, 1999: 17). Moreover, the goodness-of-fit values of the measurement model are achieved in this research as x2/df = 3.114; CFI = 0.925; TLI = 0.950; NFI = 0.910; GFI = 0.922; AGFI = 0.871; RMSEA = 0.078; and RMR = 0.029. Therefore, the accepted goodness-of-fit values have been reached based on Table 8. This result shows that the measurement model is confirmed to produce good goodness of fit values with the factors extracted through exploratory factor analysis (EFA) in this research. The cutoff values of these indices are given in Table 8, and Figure 3 demonstrates the CFA measurement model.

**Table 8:** Estimating the Goodness-of-Fit

| **Metric** | Good Limit | Accepted Limit | Result of CFA |
|---|---|---|---|
| $\chi 2$/df | <3 | 3 <$\chi 2$ /df ≤ 5 | **3.114** |
| RMSEA | <0.05 | < 0.08 | **0.078** |
| CFI | > 0.95 | > 0.90 | **0.925** |
| NNF/TLI | > 0.95 | > 0.90 | **0.905** |
| NFI | > 0.95 | > 0.90 | **0.910** |
| GFI | > 0.90 | > 0.80 | **0.922** |
| AGFI | > 0.90 | > 0.80 | **0.871** |
| SRMR/RMR | < 0.05 | < 0.08 | **0.029** |

***Ref:*** *(Gürbüz, 2021:38); Henry and Stone, 1999:10; Hu and Bentler, 1999:17)*

#### 4.3. Friedman Rank Test for Hypotheses Testing

To find out whether a certain factor has an impact, Friedman's test is the perfect statistical technique to employ in a repeated measures form of experiment (McCrum-Gardner, 2008: 39). To compare

three or more groups, this nonparametric test is employed. In the research, the Kolmogorov-Smirnov test has been done where the significant level is less than 0.05, so the nonparametric test can be applied (Mishra et al., 2019: 63). The Friedman rank test has been used in research to test research hypotheses. Table 9 presents the rank of research variables, and Table 10 presents the rank of factors under the research variables that impact DSE individual investors' investment decisions.

**Table 9:** Friedman Rank Test of Variables

| Description | Mean | Ranks |
|---|---|---|
| 5. Personal Reputation/Company Reputation Compliance **_IV5_Ext** | **4.05** | 1 |
| 2. Information Obtained from Independent Sources **_IV2_Ext** | **3.36** | 2 |
| 1. Accounting Issues**_IV1_Ext** | **3.27** | 3 |
| 4. Advocate Recommendation**_IV4_Ext** | 2.37 | 4 |
| 3. Financial Needs**_IV3_Ext** | 1.96 | 5 |
| **Test Statistics** | | |
| N | 300 | |
| Chi-Square | 388.745 | |
| df | 4 | |
| Asymp. Sig. | **.000** | |

***Note: IV1:*** *No.1 Independent Variable (Accounting Issues); IV2: No.2 Independent Variable (Information Obtained from Independent Sources); IV3: No.3 Independent Variable (Financial Needs); IV4: No.4 Independent Variable (Advocate Recommendation); IV5: No.5 Independent Variable (Personal Reputation/Company Reputation Compliance); Ext: Extracted. (Every variable is a combination of extracted factors)*

**Table 10:** Freidman Rank Test of Extracted Factors

| Description | Mean | Ranks |
|---|---|---|
| (Q26) How important are the ethics of a firm to you? **(IV5)** | **9.36** | 1 |
| (Q23) How important is the creation of well-organized financial markets to you? **(IV5)** | **9.29** | 2 |
| (Q22) How important is the company's public reputation to you? **(IV5)** | **8.99** | 3 |
| (Q6) Do you observe the past performance of the firm's stock? **(IV1)** | **8.51** | 4 |
| (Q5) Do you consider the expected dividends? **(IV1)** | **8.29** | 5 |
| (Q7) Do you collect information about firms from the internet while planning to invest in stocks? **(IV2)** | 7.51 | 6 |
| (Q8) Do you follow the fluctuation in the stock index? **(IV2** | 6.95 | 7 |
| (Q17) How does broker recommendation affect your investment decision? **(IV4)** | 6.55 | 8 |
| (Q19) How do friend or coworker recommendations impact your investment decision? **(IV4)** | 6.02 | 9 |
| (Q18) How do family members' opinions influence your investment decision? **(IV4)** | 5.17 | 10 |
| (Q14) Do you think of investment diversification? **(IV3)** | 5.03 | 11 |
| (Q13) Are you interested in non-stock investment? **(IV3)** | 4.83 | 12 |
| (Q15) Do you intend to obtain borrowed funds easily? **(IV3)** | 4.51 | 13 |
| **Test Statistics** | | |
| N | 300 | |
| Chi-Square | 986.719 | |
| df | 12 | |
| Asymp. Sig. | **.000** | |

***Note:*** *IV1: 1 no. Independent Variable (Accounting Issues); IV2: 2 no. Independent Variable (Information Obtained from Independent Sources); IV3: 3 no. Independent Variable (Financial Needs); IV4: 4 no. Independent Variable (Advocate Recommendation); IV5: 5 no. Independent Variable (Personal Reputation/Company Reputation Compliance); Ext: Extracted.*

**$H_1$:** The factors associated with accounting issues have a significant influence on the behavior of the individual investor.

With a mean of 3.27, which ranks third out of five variables in a Freidman mean rank analysis using the extracted components, the effect of "accounting issues" on the behavior of individual investors is quite significant (Table 9). Additionally, under the variable "accounting issues," the factors "observing the past performance of the firm's stock" and "considering the expected dividends" have high mean scores of 8.51 and 8.29 and are ranked fourth and fifth, respectively, out of thirteen factors. As a result, accounting issues have a significant impact on the behavior of individual investors (Table 10), which is consistent with the findings of İslamoğlu et al. (2015:533) and Al-Tamimi (2006:15).

**$H_2$:** The factors associated with information obtained from independent sources influence the behavior of the individual investor significantly.

According to the Freidman mean rank analysis using the extracted components, the influence of "information obtained from independent sources" on individual investor behavior is quite strong, with a mean of 3.36, ranking second out of five variables (Table 9). Furthermore, the factors "collecting information on firms through the internet" and "following the volatility in the stock index" possess high mean scores of 7.51 and 6.95, respectively, with the sixth and seventh ranks out of thirteen factors. As a result, factors related to information obtained from independent sources have a significant impact on individual investors' behavior (Table 10), which is consistent with the findings of Al-Tamimi (2006:15) and Sultana and Pardhasaradhi (2012:51–56).

**$H_3$:** The factors associated with financial needs have a significant influence on the behavior of the individual investor.

According to a Freidman mean rank analysis using the extracted components, the influence of issues about individual investors' "financial needs" on their behavior is quite low, with a mean of 1.96 and a ranking of fifth out of five variables (Table 9). Additionally, the factors "thinking about investment diversification," "interest in non-stock investment," and "having a desire to receive borrowed funds readily" have low mean scores of 5.03, 4.83, and 4.51 and are ranked eleventh, twelfth, and thirteenth out of thirteen factors, respectively. As a result, factors related to financial needs have relatively little impact on how individual investors behave (Table 10), which is consistent with the findings of Sultana and Pardhasaradhi (2012: 51–56).

**$H_4$:** The factors associated with advocate recommendations influence the behavior of the individual investor significantly.

In terms of Freidman mean rank analysis with the extracted factors, the influence of the "advocate recommendation" on the behavior of individual investors is moderate, with a mean of 2.37, ranking fourth out of five variables (Table 9). Additionally, the factors "broker recommendation," "friend or coworker recommendations," and "family members' opinions" under the variable "advocate recommendation" have low mean scores of 6.55, 6.02, and 5.17, respectively, and are ranked eighth,

ninth, and tenth out of thirteen factors. As a result, factors related to advocate recommendations have a significant impact on individual investor behavior (Table 10), which is similar to the findings of Sultana and Pardhasaradhi (2012: 51–56).

**$H_5$:** The factors associated with personal reputation/company reputation compliance have a significant influence on the behavior of the individual investor.

With a mean of 4.05, which is placed first out of five variables in the Freidman mean rank analysis using the extracted components, the influence of "personal reputation/company reputation compliance" on individual investors' behavior is quite significant (Table 9). The factors "ethics of a firm," "well-organized financial markets," and "company's public reputation" also have high mean scores of 9.36, 9.29, and 8.99, respectively, and are ranked first, second, and third out of thirteen factors. As a result, factors related to personal reputation/company reputation compliance have a significant impact on individual investor behavior (Table 10). This contradicts the findings of İslamoğlu et al. (2015: 533) but agrees with Al-Tamimi (2006: 15).

#### 4.4. Brief Discussion of the Findings

This study offers some insightful information that helps define the fundamental goal of the research, which is to determine the factors affecting investment decisions on the Dhaka Stock Exchange. Results of exploratory factor analysis (EFA) expose that the most significant factors under the five variables (accounting issues, information obtained from independent sources, financial needs, advocate recommendation, and personal reputation/company reputation compliance) are: to consider the expected dividends; to observe the past performance of the firm's stock; to collect information about firms from the internet while planning to invest in stocks; to follow the fluctuation in the stock index; to have interest in non-stock investment; to think of investment diversification; to obtain borrowed funds easily; Broker recommendations influence investment decisions; family members' opinions influence investment decisions; friend or coworker recommendations influence investment decisions; a company's public reputation; the creation of well-organized financial markets; and a firm's ethics, all of which are confirmed by confirmatory factor analysis (CFA) with a good-fit measurement model. This is consistent with the findings of Merilkas and Prasad (2003: 17–19) and Logitama et al. (2021: 278–280). Therefore, it has been proven that the research objective has been fulfilled and all hypotheses have been accepted according to the discussion of the research findings and the results of hypothesis testing.

## 5. Conclusion

In recent years, factors affecting investment decisions have become one of the most important issues in Bangladesh. These factors have a direct impact on investors' investment intentions and play a decisive role in making investment decisions. Therefore, this research aims to identify the important factors affecting individual investor behavior in Dhaka. Behavioral factors are used as a conceptual lens, looking at investment motivations and expression levels among individual investors operating in the

Dhaka stock market. Examining these factors has the potential to make an important contribution to research on stock investing and management. Based on systematic, relevant literature and theories, this research identifies the most important factors influencing individual investment behavior. These factors include mental, psychological, and social factors in the decision-making process of investors. These factors include the investor's risk perception, financial situation, investment purpose, level of financial knowledge, emotional state, and other personal characteristics. This research presents a research framework and objectives for determining the behavioral intentions of individual investors. The results of this research will help us better understand the factors that affect the investment decisions of individual investors in DSE and will make an important contribution to research in this field. Finally, the study found factors that were very important based on the results of higher reliability and validity scores. DSE investors can reap great returns on their investments if they pay attention to the identified factors and proactively adapt to them through intensive stock analysis and well-planned portfolio management.

**Author Contribution**

| CONTRUBUTION RATE | EXPLANATION | CONTRIBUTORS |
|---|---|---|
| Idea or Notion | Form the research idea or hypothesis | Md Abu HASNAT<br>Hüseyin DAĞLI |
| Literature Review | Review the literature required for the study | Ziauddin RAHIMI<br>Mohammed Monzurul ISLAM |
| Research Design | Designing method, scale, and pattern for the study | Md Abu HASNAT<br>Hüseyin DAĞLI |
| Data Collecting and Processing | Collecting, organizing, and reporting data | Md Abu HASNAT<br>Ziauddin RAHIMI |
| Discussion and Interpretation | Taking responsibility in evaluating and finalizing the findings | Mohammed Monzurul ISLAM |

**Conflict of Interest**

No conflict of interest was reported by the authors.

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## Resume

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## APPENDIX-1

**A list of the questions in the survey with summary statistics from the responses to the questions:**

Factors Influencing DSE Individual Investors' Investment Decision

Below are some variables/factors influencing individual investment decisions. In relation to individual investors' behavior, indicate to what extent each of the following factors affects your investment decision on a scale of 1-5.

Kindly tick the option that suits you (From 5 to 1: 5 = to a very large extent; 4 = to a large extent; 3 = to some extent; 2 = to a small extent; 1 = to no extent)

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| **1) Accounting Issues** | | | | | |
| a. Do you analyze the results of income statements and balance sheets of firms before investing in stocks? | 34% | 52.7% | 12.3% | 0.7% | 0.3% |
| b. Do you look at expected corporate earnings from financial statements (EPS)? | 32.3% | 37% | 30.3% | 0.3% | 0.0% |
| c. Do you consider dividends paid before choosing the firm to invest in? | 31% | 43.7% | 24.7% | 0.3% | 0.3% |
| d. Do you also consider the current market price of a share? | 48.7% | 45.3% | 6% | 0.0% | 0.0% |
| e. Do you consider the expected dividends? | 37.3% | 38.7% | 23.3% | 0.7% | 0.0% |
| f. Do you observe the past performance of the firm's stock? | 50.3% | 45% | 4.3% | 0.3% | 0.0% |
| **2) Information Obtained from Independent Sources** | | | | | |
| a. Do you collect information about firms from the internet while planning to invest in stocks? | 42.7% | 55.3% | 2% | 0.0% | 0.0% |
| b. Do you follow the fluctuation in the stock index? | 38.7% | 45.3% | 15.7% | 0.3% | 0.0% |
| c. Do you focus on media coverage of stock performance? | 20.7% | 37.3% | 33% | 9% | 0.0% |
| d. Do you consider the statements of government officials related to the economy? | 12.7% | 40.3% | 32.3% | 14.3% | 0.3% |
| e. Do you pay attention to the current economic indicators (interest rate, inflation rate, unemployment rate, GDP, etc.)? | 24.3% | 46.3% | 25% | 4% | 0.3% |
| f. Do you follow the recent price fluctuation in a firm's stock? | 32% | 45.3% | 19% | 3.7% | 0.0% |
| **3) Financial Needs** | | | | | |
| a. Are you interested in non-stock investment? | 12% | 46.7% | 30.3% | 10% | 1% |
| b. Do you think of investment diversification? | 12.3% | 48.3% | 32.3% | 7% | 0.0% |
| c. Do you intend to obtain borrowed funds easily? | 9% | 43.3% | 38% | 6.7% | 3% |
| d. Do you try to minimize the risk of loss in the market? | 53.3% | 44.3% | 1% | 1.3% | 0.0% |
| **4) Advocate Recommendations** | | | | | |
| a. How does broker recommendation affect your investment decision? | 34.7% | 39% | 17.3% | 8% | 1% |
| b. How do family members' opinions influence your investment decision? | 19.3% | 41.3% | 30% | 7.7% | 1.7% |
| c. How do friend or coworker recommendations impact your investment decision? | 24.7% | 48.7% | 21.7% | 4.7% | 0.3% |
| d. How do people's opinions on the firm's stock affect your investment decision? | 5.3% | 31% | 29% | 34.7% | 0.0% |
| **5) Personal Reputation/Company Reputation Compliance** | | | | | |
| a. How important are feelings about a company's stock to you? | 5.3% | 31% | 29% | 34.7% | 0.0% |
| b. How important is the company's public reputation to you? | 57% | 40.3% | 1.7% | 1% | 0.0% |
| c. How important is the creation of well-organized financial markets to you? | 61.3% | 37% | 1.3% | 0.3% | 0.0% |
| d. Does firm status in the industry matter to your investment decision? | 62% | 37.7% | 0.3% | 0.0% | 0.0% |
| e. How important is it to you to feel the economy? | 59.3% | 37.3% | 3% | 0.3% | 0.0% |
| f. How important are the ethics of a firm to you? | 62.7% | 36.3% | 1% | 0.0% | 0.0% |
| g. Do you consider the company's involvement in solving community problems? | 51% | 37.3% | 7.3% | 4% | 0.3% |