# AN EXAMINATION OF BEHAVIORAL FACTORS AFFECTING THE RETAIL INVESTOR'S INVESTMENT DECISIONS: THE MODERATING ROLE OF COVID-19

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## ABSTRACT

**Purpose:**
Traditional Finance theories assume that the investor uses all available information and make rational decisions while investing, but the scenario is not the same. As the literature presents the increasing importance of behavioral Finance, the present study investigates the impact of different behavioral factors on the retail investors' investment decisions directly and through the mediation of investor's perceptions. Besides, insufficient knowledge exists regarding the behavior of retail investors during COVID-19. The current study addresses this gap and examines the impact of COVID-19 between the association of these behavioral factors disposition effect, herd behaviors, optimism, and overconfidence and retail investors' investment intentions.

**Design/Methodology/Approach:**
The current study collected data from retail investors and gathered 499 responses as a final sample size through convenience sampling technique. The current research employed structural equation modeling technique for the empirical findings.

**Findings:**
The results of current study show the positive and significant association between the Behavioral factors and retail investors' decision making while investment. The results further demonstrate that the retail investor's perception partially mediate the relationship that behavioral factors has with retail investors' decision making. In addition, the findings direct that the COVID-19 moderate the relationship and change the behaviors of Retail investors regarding the inventors' perception.

**Research Limitations:**
As far as the limitations are concern, firstly, the present research considers only a few behavioral factors that influence investment behaviors; other factors are not part of the current study but may be associated with the investment decisions. Secondly, the research is limited to retail investors and does not consider the factors influencing institutional investors' intention while making investment decisions. Lastly, the current study is cross-sectional in nature that may not capture the impact of time lags.

**Practical Implementation:**

The current study identifies various aspects and factors that significantly impact retail investors in investing decisions. The Brokerage firms may use the results of this study to analyze their clients' intentions (retail investors) and then decide about the appropriate investment opportunity for them.

**Originality/Value:**

This is the first study that identifies retail investors' behavior while making investment decisions under the current economic crises of COVID-19. Also, no other study so far conducted to identify the association of behavioral factors and retail investors' intentions for investment through the indirect path of investor's perception; this is the first attempt of this kind.

## KEYWORDS

Behavioral Finance, Investment decision-making, COVID-19, Structural Equation Modeling, Psychological Factors, Retail investor.

## 1. INTRODUCTION

From the last few decades, various devotees of traditional finance made a considerable contribution to the existing knowledge. Many scholars put forward different theories and assumptions to understand multiple financial models. Four of these theories are considered the basics of traditional finance; capital asset pricing model proposed by Sharp, arbitrage pricing theory given by Modigliani and Miller, Markowitz principles of portfolio management, and option pricing theory that was proposed by Black Scholes (Kumar & Goyal, 2015). All these theories concluded that the market is efficient, and the market agents make their investment decisions rationally. The efficient market hypothesis suggests that the market is efficient, and the asset price represents the adjustment of all available information. EMH believes that the asset is trading on its fair value in the stock market (Kelikume, Olaniyi, & Iyohab, 2020) .

The expected utility theory (EUT) directs that investors make rational decisions regarding their investment by judging various alternatives based on the associated risks and utility of these assets (Małecka, 2020). The energy crises of 1970 revealed that these theories the efficient market hypothesis and expected utility theory were not consistent. The efficiency of the market is questionable because various market anomalies are still not answered. These anomalies are the followings,

- What are the bubbles existing in the market?
- If the market is efficient, then why it gets crashed?
- When these bubbles hit the market?
- What are the factors that cause these uncertainties?

These questions can be understandable after a thorough study of investors' psychology. In the 1980s, the solution to this problem was found by converting traditional finance towards a new paradigm of behavioral finance. Behavioral Finance considers various cognitive, emotional, and psychological errors that influence investor behavior towards investment. These behavioral factors became the cause of inconsistency

with the efficient market hypothesis. Kahneman and Tversky (1979) made a tremendous contribution to behavioral finance by introducing the Prospect theory. This theory explains how the investors make decisions based on the probabilistic alternatives involving risk when the investment decision's probable outcome is known.

Additionally, the role of these behavioral biases varies between the developed markets and dynamic markets. The stock market of Pakistan considers a vibrant market in which the behavior of investors varies continuously. It raises the need for a study to identify various behavioral factors that influence investors' behavior towards investing.

The current black swan of Pandemic COVID-19 creates a very uncertain market situation (Zhang, Hu, & Ji, 2020). Investors' intentions may differ during the period of this pandemic because, to date, not even a single documented pandemic hits the financial market with this strike. The current study's primary objective is to analyze the impact of various behavioral biases optimism, overconfidence, risk aversion, and herd behavior on the investor's investment decisions during COVID-19. This core objective is divided into various sub-questions written below,

- To explore the impact of these behavioral biases optimism, overconfidence, disposition effect, and herd behavior upon the investor behavior towards making an investment

- To investigate the mediating role of investor intention between the behavioral biases and investor behaviors

- To identify the relationship of investor intentions and investor behavior during the tenure of recent Pandemic (Covid-19)

Specifically, the research addresses the two primary research questions in this study: *RQ1:* Do different behavioral biases influence the investor behaviors directly and indirectly (through the mediation of investor intentions)? *RQ2:* Does Covid-19 moderate the relationship between investor intentions and investor behavior toward investing? To analyze these relationships, researchers collected data from retail investors and used Smart Pls to run analysis.

The current paper contributes to the existing knowledge through the following: *(a)* The current study is first in its kind that investigates the impact of Covid-19 upon retail investors' investment behavior. The current pandemic spread all over the world and hits the efficiency of markets so, the findings of our research will help to understand the psychology of retail investors under dynamic and uncertain circumstances. *(b)* This paper investigates the relationship of behavioral biases and investor behaviors through investor perceptions' intervening role; this is the first attempt of this kind.

## 2. LITERATURE REVIEW

One of the most significant works is done by (Kahneman & Tversky, 1979) in behavioral finance by putting the foundation of prospect theory. Efficient market hypotheses, rational expectation theory, and expected utility theory direct that the investors are always behaving rationally in the market, but prospect theory is considered as the alternative of these theories. Thaler and organization (1980) executed the prospect

theory in the market and argued that investors are not always behaving rationally, but they make various mistakes while making their investment decisions. Based on the academic contribution of these researchers, they are considered the father of behavioral finance.

### 2.1 Behavioral Biases that are Influencing Investment Decisions

The efficient market hypothesis and expected utility explained by traditional finance cannot picturize investors' behavior while investing (Niroomand, Metghalchi, Hajilee, & Finance, 2020). These theories fail to identify the pattern of investors during investment. Thus, it opens the gate for researchers to analyze various factors that affect investor behaviors during different circumstances.

### 2.2 Impact of Overconfidence on Investment Decisions

Overconfidence is a state of mind in which investors overreact against the market information (Qasim, Hussain, Mehboob, & Arshad, 2019). Ainia, Lutfi, and Ventura (2019) argued that the investor who has some private information seems to have overconfidence about investment decision-making. Overconfidence increases the trading activities of the investor and sometimes it may cause irrational behavior that ultimately leads to the loss in investment (Hidayat, Setiyono, Putranti, Dwimawanti, & Kaukab, 2020). According to De Bondt and Thaler (1995) most researchers with some asymmetric information behave overconfidently. Commonly, the overconfidence in investors' behaviors exists due to the overestimation and over placement (Costa, de Melo Carvalho, de Melo Moreira, & do Prado, 2017).

Kumar and Goyal (2016) argued that when the investors heavily rely upon their skills, then it leads the investor towards overconfidence. Kansal and Singh (2018) illustrated that the investors behave irrationally and overconfidently when they overestimate their abilities and more commonly ignores the factor of risk in their decision makings. Sometimes investors have an over self-belief in their capabilities that direct them towards overconfidence (Abbas et al., 2017). So, this self-belief of investors increases their confidence while investing, and they expect to have a higher return for investing.

According to Qadri and Shabbir (2014), the behavioral bias of overconfidence came from the experience. Investors who have considerable experience of investment in the stock exchange may have the exposure to analyze the market's upcoming trends. This experience in the field boosts investors to be overconfident over the experience of their work. Qasim et al. (2019) concluded that investors typically overreact against the private information that only belongs to them.

On the other hand, they underreact to the public information because they know that this information will soon be represented in the stock price. The psychological condition of overconfidence sometimes came from experience (Chira, Adams, & Thornton, 2008). The investors are very confident about the positive outcomes of experiences and are sure about the future results. To rely upon the past results, this state of mind leads the investor towards the behavior of overconfidence. Goldfarb et al. (2012) and H. Javed, Bagh, and Razzaq (2017) suggested in their findings that overconfidence positively associated with the investors' decision making, while on the other hand, (Kengatharan & Kengatharan, 2014) explored that the biasness of overconfidence negatively related with the investment

decision making. Based on the literature mentioned above, the researchers of the current study proposed the following hypothesis,

**H1:** Overconfidence bias will have a significant impact on investment decisions.

### 2.3 Impact of Disposition Effect on Investment Decisions

The disposition effect is a psychological behavior of investors that they consider to be more efficient if they sell the winning stock and hold the losing stock (Haryanto, Subroto, & Ulpah, 2020). It is another essential behavioral bias that influences the investment behaviors of investors. Shefrin and Statman (1985) developed a theoretical framework for this bias, this model shows that investors are interested in selling the stock that is in a winning situation, while on the other hand, investors are interested in holding the stock that does not perform well. Shefrin and Statman (1985) provided empirical findings against the theoretical behavior of the disposition effect.

An, Engelberg, Henriksson, Wang, and Williams (2019) argued that the disposition effect is a crucial bias that influences rational investors and directs them to behave irrationally. Investors usually believe that they will get more return from the losing stock in future, and they also want to mitigate the regret of loss against the stock, so this state of mind leads the investor behavior towards the dispositioning effect (Kumar & Goyal, 2016; Sudirman & Irwanto, 2017; Usman & Pam, 2019). Subrahmanyam (2008) argued that the investors are interested in selling their losing stock while keeping the winning stock. Thus, against the conflicting results of literature, the researchers of the current study proposed the following hypothesis,

**H2:** Disposition effect will have a significant impact on investment decisions.

### 2.4 Impact of Herding Behavior on Investment Decisions

Herding bias is the tendency of investors to behave like most investors are doing in the market rather than to think independently (Huang, Wang, & Trade, 2017). This Bias increases the irrational behavior as the investors are not relying upon their own experience but to follow major investors' pattern. Caparrelli, D'Arcangelis, and Cassuto (2004) suggested that during the time of financial crises or in the market's dynamic structure, the investors typically adopt the herding behavior. Metawa et al. (2019) found that the individual investors are more attracted to the herding behavior than the institutional investors. They found that as the retail investors have less information about the market trends, they adopted the herd behavior to follow major investors' footsteps.

The herding behavior of institutional investors affects the market's stock prices with more pace than the retail investors (Dewan, Dharni, & Trade, 2019). Contrary to the literature mentioned above, (Kengatharan & Kengatharan, 2014) argued that herd behavior does not affect the retail investors' investment behaviors. Goldfarb et al. (2012) also inconsistent with the literature, and he argued that herding behavior does not affect the decision-making of the investors. Due to this research gap in the literature, the researchers of the paper proposed the following hypothesis,

**H3:** Herding behavior will have a significant impact on investment decisions.

**2.5 Impact of Optimism on Investment Decision**

Optimism is a state of mind in which a person mitigates or minimizes negative thoughts and aligns with the positive outcomes (Abbas et al., 2017). Usually, the investors are optimistic if they have a strong association with the situation or have a vast knowledge about the circumstances of the market (Bracha & Brown, 2012). Nithya, Ragupathy, Sakthi, Arun, and Kannadasan (2020) argued that optimistic investors consider that they have an edge of critically evaluating the market condition. He further explored that optimistic investors think that they perform well in the market compared to their peers because of their analytical abilities. Ullah, Ullah, and Rehman (2017) contributed a hug in this regard and found that the investors are optimistic if the expected return rate is equal to the actual rate of return. He discovered that investors show optimistic behavior if the market behaves according to their expectations. It leads the investor towards an irrational behavior of optimism in which they do not consider the role of risk in the market.

Lee, O'Brien, and Sivaramakrishnan (2008) argued that if the investors have tremendous experience working in the market, it is easy to predict future trends. If the investors' predictions become true, they will also be optimistic for their future predictions on this behavior which increases the market anomalies. Thus, investors are motivated to invest. While investing, they think about the positive outcomes in the form of return; this behavior of thinking about the positivistic approach by ignoring risk raises the optimism bias (Felton, Gibson, & Sanbonmatsu, 2003). Gervais, Heaton, and Odean (2003) suggested that the investors should have to be realistic and consider risk and return while investing. Investors always think about the positive outcomes of the investment to satisfy their curiosity. This state of mind raises optimism because the investors always look for the same actual results as they expected (Bailey, Eng, Frisch, & Snyder, 2007). Raheja and Dhiman (2019) explored that investors are optimistic about the desired results because of their emotional attachments. Hmieleski and Baron (2009) found that optimism has nothing to do with investment decision-making behaviors. They further explored that the investors are rational in their decision making and optimism does not affect the retail investors' investment decisions. Based on this empirical literature, the researchers of this study proposed the following hypothesis,

**H4:** Optimism will have a significant impact on investment decisions.

**2.6 The Mediating Role of Investor's Perceptions**

The present study will not only investigate the direct impact of behavioral biases— overconfidence, disposition effect, herd behavior, and optimism— on the investor decision makings and tries to analyze the mediating role of investors' perceptions. The mediating part of investors perception is a missing link in the literature, so the current study proposed the following hypotheses to its mediating role,

**H5:** Overconfidence will have a significant indirect impact on decision making through the mediation of investor's perception.

**H6:** Disposition effect will have a significant indirect impact on decision making through the mediation of investor's perception.

**H7:** Herd behavior will have a significant indirect impact on decision making through the mediation of investor's perception.

**H8:** Optimism will have a significant indirect impact on decision making through the mediation of investor's perception.

## 2.7 The moderating role of COVID-19

The current study is also going to investigate the impact of investors' perception on the investment decision under the current crisis of Covid-19. The literature did not analyze this relationship, so recent study will fill this literature gap through the moderating role of the current concerns of Covid-19. The present study proposed the following hypothesis based on the arguments mentioned above,

**H9:** Covid-19 moderate the relationship between the investor's perceptions and investment decisions.
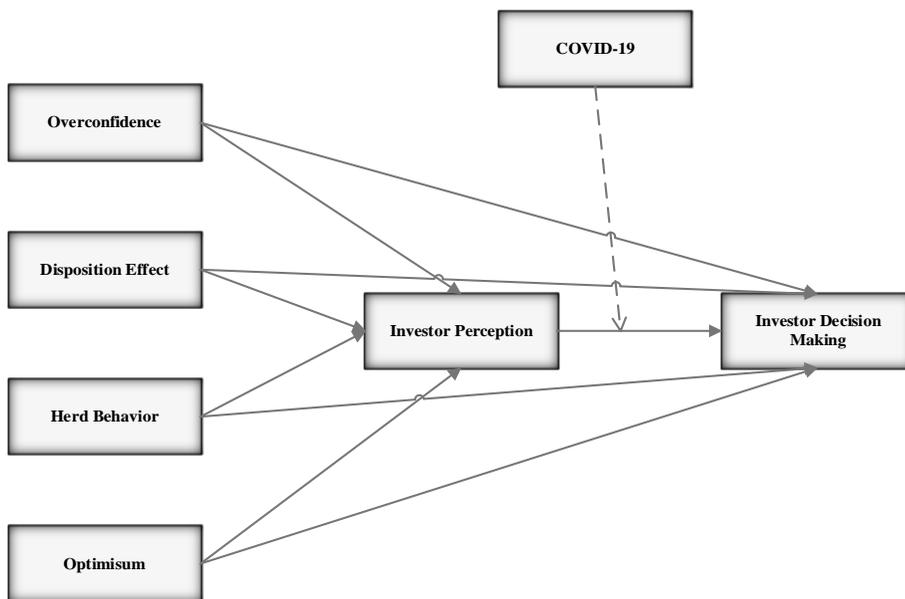


## 3. METHODS

The population of the study consists of retail investors who wants to make their investment in the Pakistan Stock Exchange. Convenience sampling technique used by the researchers for the purpose of collecting data from the retail investors. As the total number of investors are unknown so the researchers calculated the sample size through the free calculator suggested by the (Hulley et al., 2001) with 95% confidence level and 5% margin of error. According to the formula, a total of 510 sample is good enough for the data collection purposes. The researchers collected data through 750 questionnaires in which only 530 questionnaires were received and 499 were complete in all aspects and ready for analysis. The response rate for the data collection is 67% that is good enough.

### 3.1 Measures

The current study adopted questionnaire from previous literature for the purpose of collecting data from the retail investors, which consists of 36 questions. The overall Cronbach alpha of the research is 0.75. The current study adopted the model of Fornell and Larcker, (1981) for the purpose of checking convergent and discriminant validity of the instrument. The researcher used Smart Pls software for investigating the convergent validity of instrument. Factor loading, average variance extracted (AVE), and composite reliability were also checked through this software. Table 1 shows the results of the outer loading, Composite reliability, and AVE.

**Table 1**
**Outer Loading, CR, and AVE**

| Construct | Outer Loading | CR | AVE |
|---|---|---|---|
| COVID-19 | | 0.929 | 0.813 |
| Covid1 | 0.895 | | |
| Covid2 | 0.917 | | |
| Covid3 | 0.893 | | |
| Herd Behavior | | 0.902 | 0.573 |
| HB1 | 0.834 | | |
| HB2 | 0.864 | | |
| HB3 | 0.820 | | |
| HB4 | 0.814 | | |
| HB5 | 0.730 | | |
| HB6 | 0.662 | | |
| HB7 | 0.515 | | |
| Decision Making | | 0.892 | 0.629 |
| DM1 | 0.531 | | |
| DM2 | 0.837 | | |
| DM3 | 0.887 | | |
| DM4 | 0.886 | | |
| DM5 | 0.770 | | |
| Investor Perception | | 0.882 | 0.557 |
| IP1 | 0.668 | | |
| IP2 | 0.832 | | |
| IP3 | 0.844 | | |
| IP4 | 0.768 | | |
| IP5 | 0.746 | | |
| IP6 | 0.588 | | |
| Optimism | | 0.883 | 0.605 |
| OM1 | 0.596 | | |
| OM2 | 0.791 | | |
| OM3 | 0.863 | | |
| OM4 | 0.819 | | |
| OM5 | 0.795 | | |

| Construct | Outer Loading | CR | AVE |
|---|---|---|---|
| *Overconfidence* | | 0.870 | 0.576 |
| OC1 | 0.728 | | |
| OC2 | 0.780 | | |
| OC3 | 0.769 | | |
| OC4 | 0.867 | | |
| OC5 | 0.631 | | |
| *Disposition Effect* | | 0.877 | 0.589 |
| DE1 | 0.753 | | |
| DE2 | 0.768 | | |
| DE3 | 0.771 | | |
| DE4 | 0.765 | | |
| DE5 | 0.778 | | |

These results were extracted from the Smart-PLS. The minimum requirements for AVE, CR, and Outer Loading are 0.50, 0.70 and 0.60 respectively. The results in the table shows that the instrument fulfills the minimum requirements. There were some items that had the outer loadings less than 0.30 so, all those items were dropped for the better results.

Besides, Table 2 shows the descriptive statistics of the study. This table shows the sample mean and the standard deviation of HB, OM, OC, DE, IP and DM.

**Table 2**
**Stander Deviation and Mean of Variables**

| | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) |
|---|---|---|---|
| COVID-19 -> Decision Making | -0.120 | -0.122 | 0.071 |
| Disposition Effect -> Decision Making | 0.429 | 0.430 | 0.046 |
| Disposition Effect -> Intention | -0.102 | -0.103 | 0.047 |
| Herd Behavior -> Decision Making | -0.143 | -0.142 | 0.045 |
| Herd Behavior -> Intention | 0.094 | 0.097 | 0.050 |
| Intention -> Decision Making | 0.402 | 0.400 | 0.071 |
| Moderating Effect -> Decision Making | 0.056 | 0.058 | 0.024 |
| Optimism -> Decision Making | 0.441 | 0.440 | 0.031 |
| Optimism -> Intention | 0.254 | 0.251 | 0.029 |
| Overconfidence -> Decision Making | 0.032 | 0.034 | 0.066 |
| Overconfidence -> Intention | 0.745 | 0.747 | 0.031 |

Discriminant Validity shows that variables of the model do not reflect other variables. Correlation analysis was used to measure validity. Researchers followed the suggestions of (Fornell & Larcker, 1981) and used HTMT to investigate Discriminant validity. Table 3 shows the results extracted from Smart-PLS.

**Table 3**
**Discriminant Validity through HTMT**

|  | COVID-19 | Decision Making | Disposition Effect | Herd Behavior | Intention | Optimism |
|---|---|---|---|---|---|---|
| COVID-19 |  |  |  |  |  |  |
| Decision Making | 0.546 |  |  |  |  |  |
| Disposition Effect | 0.533 | 0.692 |  |  |  |  |
| Herd Behavior | 0.601 | 0.540 | 0.810 |  |  |  |
| Intention | 0.700 | 0.735 | 0.553 | 0.611 |  |  |
| Moderating Effect | 0.545 | 0.138 | 0.239 | 0.246 | 0.454 |  |
| Optimism | 0.302 | 0.846 | 0.377 | 0.296 | 0.475 |  |
| Overconfidence | 0.880 | 0.622 | 0.715 | 0.739 | 0.760 | 0.304 |

## 4. FINDINGS

### 4.1 Assessment of Structural Model

In the previous section, researchers measured validity and reliability. The next step is to examine the relationship of exogenous variables with the endogenous variables. In the PLS-SEM, path coefficients direct the Significance of relationships and their relevance. The study also calculated the indirect effects to determine the mediating role of investors' perception. Moreover, SRMR (Standardized Root Mean Square) was calculated through the PLS-Bootstrapping to check the goodness of model fit. The value of SRMR is 0.032 for the model showing that model is a good fit because, according to Hooper et al. (2008), if the value of SRMR is less than 0.08, then the model is a good fit.

**Table 4**
**Results of $R^2$**

|  | R Square | R Square Adjusted |
|---|---|---|
| **Decision Making** | 0.749 | 0.743 |
| **Perception** | 0.717 | 0.714 |

The assessment of the model includes the calculation for the coefficient of determinant $R^2$ for evaluating the predictive accuracy of the model. The value of $R^2$ shows the combined effect of exogenous variables on the endogenous variables. It shows how much of change in the Endogenous variable is explained by the Endogenous Variables (Hair, Ringle, & Sarstedt, 2013). Table 3 shows the results of the bootstrapping procedure for the calculation of $R^2$. The results show that 75% change in the Decision making of retail investors is explained by the exogenous variables of the current study. While on the other hand, almost 72% portion of the change in the investor's perception was captured through exogenous variables of the study.

**Table 5**
**Path Coefficients**

|  | Path Coefficients | T Statistics (O/STDEV) | P Values |
|---|---|---|---|
| Disposition Effect -> Decision Making | 0.429 | 9.400 | **0.000** |
| Disposition Effect -> Intention | 0.102 | 2.170 | **0.030** |
| Herd Behavior -> Decision Making | 0.143 | 3.202 | **0.001** |
| Herd Behavior -> Intention | 0.094 | 1.901 | **0.058** |
| Intention -> Decision Making | 0.402 | 5.621 | **0.000** |
| Moderating Effect -> Decision Making | -0.120 | 2.342 | **0.020** |
| Optimism -> Decision Making | 0.441 | 14.235 | **0.000** |
| Optimism -> Intention | 0.254 | 8.617 | **0.000** |
| Overconfidence -> Decision Making | 0.032 | 0.477 | **0.063** |
| Overconfidence -> Intention | 0.745 | 24.292 | **0.000** |

Table 5 shows the results of PLS-SEM by evaluating the relationship of each path. The result shows that all exogenous variables have a significant positive relationship with the endogenous variables. The results confirm that the behavioral factors of retail investors—herd behavior, disposition effect, optimism, and overconfidence— have significant impact on the endogenous variable that is decision making. These results direct to accept the hypotheses H1, H2, H3 and H4. These results are consistent with the study of (Barberis & Thaler, 2003). Besides, the results also show that all behavioral factors have a significant and positive relationship with the mediating variable that is investor's perception. These results are in line with the study of (Vijaya, 2014). In contrast, the inventor's perception has a positive and significant relationship with the retail investors' decision making which is in accordance with the study of (M. A. Javed & Marghoob, 2017). The impact of Covid-19 is significant but negative between the relationship of investor's perception and decision making of retail investors.

**Table 6**
**Mediation Analysis, Investor Perception as Mediator**

|  | Indirect Impact | Direct Impact | Mediation |
|---|---|---|---|
| **Disposition Effect** | 0.04*** | 0.429*** | Partial |
| **Herd Behavior** | 0.03782** | 0.143*** | Partial |
| **Optimism** | 0.102* | 0.441*** | Partial |
| **Overconfidence** | 0.299** | 0.031* | Partial |

\*\*\* Highly Significance at the 0.01 level of Significance
\*\* Moderately Significance at the 0.05 level of Significance
\*Significance at the 0.10 level of Significance

Table 6 above shows the direct and indirect coefficients. The results reveal that investors' perception of investing partially mediates between all exogenous variables—herd behavior, disposition effect, optimism, and overconfidence— and endogenous variables. Based on these results, the researchers accept the hypotheses of $H^5$, $H^6$, $H^7$ and $H^8$. The findings also show that the Covid-19 changes the results and moderate the relationship between the investor's perceptions and decision-making behaviors of retail investors.

## 5. LIMITATIONS AND FUTURE DIRECTIONS

The current study contributes a lot in the existing literature of behavioral finance but it also has some limitations. Firstly, the current study captured only four behavioral factors that influences the decision making while there are many other behavioral factors that may be considered by retail investors while making an investment. So, the current study directs the future researchers to investigate various other behavioral factors that may influence the decision makings of retail investors. Secondly, the current study suggests investigating the role of perceived risk and perceived return during the decision-making process, as these variables may mediate the relationship between the behavioral factors and decision-making process.

Thirdly, the researchers of the current study investigated the impact of behavioral factors upon the retail investors' decision-making process. The future researchers may also look forward the other factors like financial and psychological for enhancing the existing body of knowledge. The qualitative techniques for data collection give the in-depth knowledge about the intentions of investors towards making the investment, so the further study may follow the mixed approach method for collecting the data to overcome the loopholes of quantitative methods.

The current study investigates the decision-making process of retail investors only. So, the future study may conduct their research on the decision-making process of institutional investors to get better insight. Lastly, the current study is cross-sectional in nature. For the purpose to mitigate the limitations of current study, the future researchers may explore the impact of these factors in different time lags.

## 6. CONCLUSION

Behavioral factors that influence the investor's decision-making was a week point in the literature that needs academic researchers' attention. The current study contributes to this loophole in the literature. It investigates the impact of four behavioral factors—disposition effect, herd behavior, optimism, and over confidence— on retail investors' decision-making. The results revealed that all these behavioral factors were significantly related to the endogenous variable: decision-making of retail investors. It also directs that the optimism and disposition effect are the most critical variables influencing retail investors' decision-making. The current study also explored the indirect impact of the exogenous variable on the endogenous variables through the mediation of investor's perceptions. The results showed that the investor's perception partially mediates the relationships. The current scenario of the COVID-19 pandemic changes the economic environment worldwide, so the present study captured the impact of Covid-19 over the

investment behaviors of retail investors. The findings represented that retail investors changed their investment behaviors during the current emergency of Covid-19. We believe that the results of this study will help to explore the existing knowledge of behavioral finance and widen the boundaries in the understanding of market operations and influencing forces for investment decisions.

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