Pre and Post Covid-19 Influence of Herding Effect Bias on Investment Decision of Shariah Compliant Stocks in Pakistan Stock Exchange

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Abstract

In this study, the researcher examined the impact of the herding effect bias, specifically pre and post-Covid-19, on Pakistani stock investors' decisions to invest in Shariah-compliant stocks. Financial markets around the world have evolved and had a significant impact on investors' decision-making in many ways with Covid-19. Traditional investment strategies, such as depositing money in banks, owning fixed-term deposits, or buying prize bonds, are now outdated in the present economic climate. Investors now make wiser investments than they did prior to the Covid-19 outbreak. The Shariah Compliant Stocks index is a stock market index on the Pakistan Stock Exchange (PSX) of 256 companies that have been examined for compliance with Islamic Shariah principles. Investor in this market prefer selling stocks that fell during the pandemic and aim to take advantage of the chance to earn higher returns now that these markets are picking up steam. Due to the phenomenon of herding bias, Pakistani stock market investors, and more especially the Shariah Compliant Stocks index, are one of those markets that are gaining their pace. Researcher in this paper attempted to address the influence of herding effect bias on Pakistani stock investors' investment decisions before and after Covid-19, then evaluated the impact of both variables on the performance of the Pakistan stock market pre-covid 19 and post- Covid 19. The researcher employed the systematic sampling technique, specifically Shariah Compliant Stocks, to Pakistani stock investors due to quantitative nature of the study, data was collected through a questionnaire survey technique and then data was analyzed through SPSS21 Software by applying different statistical tests i.e: Descriptive statistics, correlation,

and its analysis were used by the researcher. Logistic Regression Model, Reliability Statistics, ANOVA, and Cronbach's Alpha. Theoretical framework of this study was backed by theories of Behavior in Finance. The findings of this study suggest that the effects of the Herding effect bias on individual investors' decisions concerning Shariah-compliant stocks were positive both pre and post the Covid-19 pandemic.

Keywords: Herding Effect Bias, Covid-19 pandemic, Pakistani Shariah compliant Stocks.

Literature Review

Past research studies available on how to analyze the behavior of investors' decision.. Studies suggest that the passion of researchers in how investors choose their investments; however, many of the researchers have been focusing on finding out only psychological factors regarding on investment decisions of individual investors (Xu & Wan, 2015). If we think and consider people, they irrationally take their decision of investment. It is very important to follow right, natural, and logical patterns, to be an effective investor in the stock market However, investors rarely, if ever, follow a normal pattern of decision-making and judicious action with a decision constantly working in their favor, with only gains and profits (Zahera & Bansal, 2018). It is also referred to as "information cascades" when investors without personal information allow others to use information that is freely accessible. In financial markets, a cascade of information gets started when the investors rely on copying others rather than their own personal data and observations. In developed countries, thorough research studies have been carried out to explain the effect of herd activity on the stock market (Sharma & Kumar, 2019). Most of the current studies are survey-based in Pakistan and recognize behavioral biases that influence individual investors while making the decision. To show how any behavioral bias affects the stock market, however, they are either ineffective or inconclusive. Using this knowledge cause a psychological affection to blindly follow others' while doing investments. There are many explanations that are why without knowing whether it is irrational or reasonable, people are going for behavioral herding. The conduct of herding appears to be not dependent on the individual decision-making process but integral to the atmosphere and environment of business (Lin 2011).

In this research, herding has been particularly selected as a social factor and its impact on investors' investment decisions. Investment decisions contribute towards the growth of the stock market and in turn enhanced the confidence of local investors and foreign investors as well (Sharma & Kumar, 2019). The identification of the cluster of core factors is important for the performance of stock market investors. Investment decision ais treated to be an important activity in individual' s daily life, due to the world financial crisis (2007-2008). There are number of factors, that help investors, make investment decisions that need to be understandable. Researchers do focus on the actions of investors and the agent looking to the investments. However, there is controversy around the psychological components and the way people act while making an investment decision. Yan et al., (2020) reported that there are some limitations and propose that, in future research, the role of psychological and demographic factors need needs to evaluate and their impact on investor' s behavior, such as investment decisions have been conducted with different findings in the established literature on the topic of psychological factors and investment decision making. There is very little work on herding and its impact on the investor' s investment decision making. To focus on the social psychology of investors and the personal values of the investors which change their neutral view of investment. This study, which examines the relationships between many aspects that can affect an investor's overall investment decision, can be very relevant in finance.

Herding effect bias in the stock market occurs when people follow the actions and decisions of others without evaluating for themselves. To predict the price deviation of the assets and provide better opportunities for future investment, those who engage in this practice typically include herding effect bias when acquiring private information. Herding is another topic that receives attention and consideration in academia because to its significance in the explanation of asset pricing theories, risk and return models, and stock price swings. 2008; Tan, Chiang, Mason, & Nelling. According to Hirschleifer and Teoh (2003), while making investment decisions in the financial markets, investors tend to follow most other investors. Individual investors are influenced by recommendations of popular analysts and old investors, and they face " herd behavior" (Scharfstein & Stein, 2000). Welch (2000) discovered, however, that even financial analysts and professionals might engage in herding behavior by making new investment decisions based on the advice of earlier analysts. The most recent market accord was found to have had a significant impact on this revision despite

the lack of recent information (Welch, 2000). In their study, Economou, Kostakis, and Philippas (2010) investigated daily data from the Greek, Italian, Spanish, and Portuguese stock markets from 1998 to 2008 to understand the behavior of herds. During the extreme market condition of financial crises in 2008, it is found that the existence of herding behavior was also present at the time too. The findings of their analyses demonstrated that Herding was not noticed in the Spanish stock market and has been stronger during times of rising stock markets. However, it revealed that herding existed in the Portuguese stock market during certain periods of market downturns. In conclusion, their research revealed that there was evidence of the Herding effect bias during the 2008 financial crisis, Investor behavior during the time was considered to have been rational for the Greek stock market, herding was only observed in the Portuguese stock exchange, and there was evidence of an anti-Herding effect for the Spanish and Italian stock markets. Investment decisions defined that, " Investment decisions are decisions that have to do with money as well as making profit " . Even when decisions are made by investors and analysts in the market, they are still tough to make after more than seven decades of stock market investment in Pakistan. Many global financial institutions, even security firms, seek to choose investments that are less dangerous and more lucrative.

A wide range of debt securities and stocks offered by PSX are Shariah-compliant. More than 50% of the market comprises Shariah-compliant companies. PSX is the right avenue for investors focused on investing according to Islamic finance and Shariah. PSX offers the Meezan Pakistan Exchange Traded Fund (MZNPETF), the Shariah-compliant ETF which is the first Shariah-compliant ETF listed on PSX in Exchange Traded Funds. Pakistan Stock Exchange has indices such as the PSX-KMI. All Shares Index consists of more than 250 companies and the KMI-30 Index is a benchmark to guide investors in the Islamic investment journey. PSX offers Sukuks as Shariah-compliant debt securities, Modarabas, and Islamic Mutual Funds for investors seeking to invest in Shariah-compliant instruments (www.psx.com.pk).

This study examines how investor decision-making in Pakistan is affected by herding behavior and overconfidence biases. The nature of the study is quantitative, and data was collected through questionnaires which has been distributed among the respondents. The relationships were empirically tested using Ordinary Least Square (OLS) method. The

findings indicate that Pakistani investors' decisions were significantly influenced by overconfidence and herding behavior (Qasim, et al., 2019).

Vo, X. V et al. (2016) In this paper, herd behavior has been examined in Vietnam Stock Exchange (VSE). 299 listed companies on the Ho Chi Minh City Stock Exchange are used as the sample for their study, for the period 2005 to 2015. The researchers have found evidence of herding in both rising and falling markets employing the common least squares estimation.

This research was conducted to examine herding in Dhaka Stock Exchange (DSE). In this study, the researchers used daily and monthly returns for all the listed stocks from 2005 to 2011 including the market crash in December 2010. The study did not detect any evidence of herding in DSE throughout the time utilising the two methodologies known as Cross-Sectional Standard Deviation and Cross-Sectional Absolute Deviation. The absence of herding in DSE clearly indicates that the investors are rational, and they do invest on the basis of getting information and looking at the stock market' s condition (Ahsan, A. F. M., et al., 2013).

Elshqirat, M. (2021) the main goal of this research study is to investigate the impact of COVID-19 on herding behavior at the market and industry levels in the Stock Exchange of Amman (SEA). This quantitative analysis spans five years, three months, from January 2015 to March 2020 before the covid-19 pandemic and eight months, from May to December 2020, during the epidemic. In the present research, the presence of herding was evaluated using the cross-sectional absolute deviation (CSAD). This study is generalizable to represent the Jordanian Stock Market (JSM) and other financial markets that have the same characteristics because in this study the researchers listed all companies in all sectors of SEA that were listed during the period. According to this paper's findings, neither the industry nor the market levels of the Jordanian market are affected by the covid-19's effect on herding behavior.

This study aims to investigate the behavioral elements that affect investors' choices at the Colombo Stock Exchange (CSE). Investigations are also made into the connection between these elements and investment performance. Data was gathered for the study, which is quantitative, by distributing questionnaires to the participants. The results of the data analysis using SPSS demonstrate the existence of herding behavior as well as the other three behavioral components (Kengatharan, L., & Kengatharan, N., 2014).

Kapusuzoglu, A. (2011) in this study, two models of rising and falling days in the Istanbul Stock Exchange (ISE) were used to assess the occurrence of herd behavior. Relationships that are asymmetric and nonlinear were proposed. According to the analysis's findings, the ISE National 100 index exhibits herding behavior, and there is a nonlinear link between them.

E. M. Ferrouhi. (2021) The Moroccan Stock Exchange (MSE) was the subject of a study to determine whether herding behavior existed there from 2007 to 2017. The researchers have examined market-wide herding behavior. The results of the study indicate that the market exhibits herd behavior.

In this study, we examine how self-monitoring, the herding effect, and overconfidence affect the choice of investments made during the Covid-19 pandemic. The data was gathered by the researchers from respondents who had investment experience and had made money during the COVID-19 in Indonesia. The purposive sampling methodology, in particular, is used as a non-probability sampling method in the study. The online approach was used to disseminate the questionnaires. According to the study's findings, overconfidence, the herding effect, and self-monitoring have a substantial impact on investment choices made during Covid-19 in Indonesia (Adiputra, I. G., & Rahardjo, T. H., 2021).

Rahman, R. E., and Ermawati. (2020) In order to identify the herding behavior in the markets of Indonesia, Singapore, Malaysia, the Philippines, Thailand, and the US, the researchers have created a new dataset for this study. The closing prices of the liquid stock indices in the ASEAN-5 and the US Stock Market make up their dataset. The US Federal Funds rate is the dominant global factor influencing herding behavior, according to the Newey-West estimator, while the cross-market herding of the Singapore stock market is the dominant regional factor influencing the remaining stock markets in Indonesia, Malaysia, the Philippines, and Thailand. The researchers conclude from this work that the Philippine stock market experiences spikes and that herding behavior is influenced by the stock market index.

The covid-19 has impacted and exacerbated the volatility of the financial markets. Investors who trade on their own are more prone to exhibit herd behavior during periods of increased volatility. The study's goal is to determine whether investor herd behavior in the South African ETF Market has been influenced by the COVID-19. The researchers gathered secondary data and examined the ETFs that were traded on the Johannesburg Stock Exchange

(JSE) between March 4 and August 14, 2020. According to the results, there is no evidence of investor herd behavior in the South African ETF market (Kunjal, D., & Peerbhai, 2021).

For the first time, researchers examined how the COVID-19 affects Oceania's financial markets, focusing on the effect of herding behaviors on the Australian Stock Market (ASM). The researchers attempted to use a sample of all companies that were listed between June 10, 2008, and June 19, 2020 for this analysis. Researchers have discovered and gathered proof that herding behavior existed during the COVID-19 in ASM (Christian Espinoza-Méndez and José Arias, 2020).

Another study, with 100 samples and a population of investors who have invested in the ISE in Jakarta, is carried out to examine the role of herding behaviour and overconfidence in promoting individual investors' investment decision-making on the Indonesia Stock Exchange (ISE), particularly in Jakarta. The data in the study are examined using the Alternative Method of Structural Equation Model (SEM) and Wrap PLS 5.0 data processing tools. The study's findings demonstrate that herding and overconfidence both significantly and favourably affect the choices made by individual investors in the Jakarta region (Hirdinis, M., 2021).

The purpose of the study was to identify the typical investor biases during COVID-19 and the variations in investor characteristics. The study is qualitative in nature. According to this study's findings, the COVID-19 pandemic is substantially correlated with overconfidence and herding biases, indicating that the financial markets are becoming more volatile and unpredictable (Hirvonen, T., 2021).

Following the covid-19 pandemic on the PSX, a study was done to examine the impact of herding effect bias on Pakistani stock investors' investing decisions, specifically KMI-30. By using herding effect bias and its sub-variables as independent variables and the investors' investment decisions as dependent variables, the researchers in this study investigated the impact of herding effect bias on the post-COVID-19 investing decisions of PSX investors. Data for this quantitative investigation was gathered via questionnaires. According to the study's findings, the herding effect bias has a considerable influence on investors' judgements at KMI-30 after COVID-19 (Rahim, A., et al., 2021).

Bogdan et al. (2022) Investors frequently mimic the investment decisions of other investors rather than basing their own behavior on market signals. Their mutual investment practices contribute to the development of herd behavior, which has little effect on the

stability of the financial system. Finding the herd behavior in COVID-19 utilizing static and rolling regression model analysis is one of the goals of this study. The second goal is to examine herd behavior to determine whether it was brought on by COVID-19, and the third goal is to compare the variations in herd behavior among stock markets with various levels of development. The outcome thus emphasizes the need for individual investors to develop guidelines to prevent the rise in herd behavior and to achieve effective risk diversification.

Research Questions

- ➢ **To find,** the influence of Herding effect bias on individual investor decisions of PSX at Shariah-Compliant Stocks pre and post-Covid-19.
- ➢ **To analyze**, the influence of Herding effect bias on individual investor decisions of PSX at Shariah-Compliant Stocks pre and post-Covid-19.
- ➢ **To enable individual investors,** to avoid the Herding effect bias negative impact on individual investor decisions of Shariah-Compliant Stocks pre and post-Covid-19 so that their stock investments is going to produce long-term returns.

Problem Statement

Investors cannot avoid the influence of individual investor biases especially the Herding Effect Bias of the Pakistan Stock Exchange at Shariah-Compliant Stocks pre-covid-19 and post -covid-19 on daily basis at the time of taking investment decisions. Investors take investment decisions in everyday life at different levels. Investors do invest in conventional stocks but there is also a group of people who follow Islamic finance and shariah, and they do invest in Islamic Shariah platforms such as Shariah-Compliant Stocks in PSX. The researcher investigated the impact of this Herding Effect Bias on investors' choices in order to reduce and offset it. Investors in Shariah-compliant stocks before and after COVID-19. The Covid-19 impacts on herding behavior is not studied before using the pre and post-Covid-19. This study is in the PSX Shariah-Compliance Stocks and it' s an emerging area that needs our
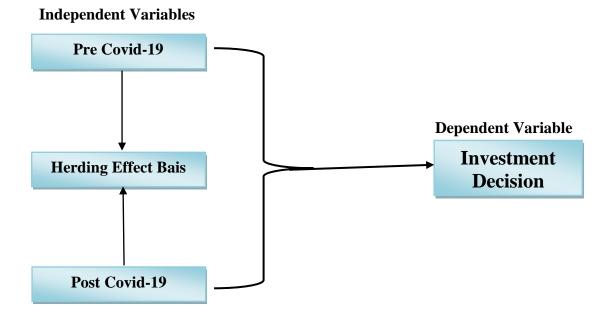
attention. This study tries to address this gap by analyzing the pre and post-covid-19 influence on herding effect bias on PSX Shariah-Compliant Stocks.

Theoretical Framework

This study is backed by the following theories:

i. Prospect Theory, in 1979, The two psychologists Daniel Kahneman and Amos Tversky produced a paper named "Prospect Theory: An Analysis of Decision Under Risk" in which they proposed their hypothesis, People make decisions primarily on the prospective value of profits and losses rather than the ultimate result, claims the study. Kaneman and Tversky (1979).

ii. Theory of Mental Accounting, in 1985, was proposed by the economist Richard Thaler and heavily influenced by Amos Thaler and Daniel Kahneman's research. They have worked together in the past. They created bodies of work that helped to establish the area of behavioral economics. (Thaler, 1985).

The Conceptual Framework

Independent Variables

Research Gap

To the best of my knowledge in Pakistan, there's no study on Pre and Post Covid-19 on this topic so far few studies are acted upon on Covid-19 but not exactly on this particular topic or on variables and areas the researcher is trying to address through this study. In fact, there are some Foreign Research papers on the influence of investor biases on investment decisions under Covid-19 but not exactly on this topic. This Research addresses the gap of finding pre and post-Covid-The Herding effect bias's impact on individual investors' judgments about PSX at Shariah-Compliant Stocks.

Methodology

Research methodology has been discussed including Research Design, the procedure of data collection, the selection of the sample, and techniques of data analysis. The purpose of this research study is to examine the impact of Shariah-compliant on stock performance during the Pre and Post Covid-19. In this study, a quantitative approach was used by applying a questionnaire survey technique. The adapted questionnaire was used and distributed among the sample size based on a systematic sampling technique which was employed for Shariah-Compliance Stocks Companies listed at PSX. The study's quantitative research methodology allows for the collection of numerical data that can then be statistically analyzed to yield results and recommendations. Data collection from the respondents was done using a questionnaire survey method, who are investors in Shariah-compliant stocks at PSX. The data was collected through questionnaires and then analyzed with the help of SPSS. To select the sample, the researcher used systemic sampling technique. In the technique, the researcher selected every nth element from the population list. In this case, the population consists of Shariah-compliant stock companies listed at PSX. The selection of sample companies was done systematically to reduce bias and ensure representativeness. Data for this study was collected using a self-administered questionnaire. The questionnaire has been adapted from existing literature and has been designed to capture relevant information related to the study. The Questionnaire has included questions regarding the respondents' perception and decision of Shariah-compliant and its impact on stock performance.

The questionnaire was tested on a group of respondents to ensure its clarity, validity, and reliability. All necessary modifications were made based on the feedback received from the group. After pre-testing, the final questionnaire was distributed among the selected samples for data collection.

Data Analysis

The collected data was analyzed using the SPSS software Version 21. The following statistical tests were taken to analyze the collected data: Descriptive Statistics, Correlation Analysis, Reliability Statistics, Logistic Regression Model, ANOVA Test An Analysis of Variance and Cronbach's Alpha etc.

Data analysis in particular method of analyzing quantitative data used in the study. In quantitative data analysis, the researcher applied the Questionnaire survey technique to the selected sample size. Around 300 questionnaires were distributed through Google Forms, social media handles, and personally, visited questionnaires in the Karachi Stock Exchange, Lahore Stock Exchange, and Islamabad Stock Exchange out of which 240 questionnaires were responded which became an 80% response rate of the respondents. The Researcher used the SPSS 21 Software Latest Edition for analyzing this quantitative data and applied the following tests to the data set of the study.

Descriptive Statistics

Table No. 1.1

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
HE1	240	4.00	1.00	5.00	3.9583	.08318	.91114	.830	-1.273	.221	2.247	.438
HE2	240	4.00	1.00	5.00	3.9583	.08318	.91114	.830	-1.273	.221	2.247	.438
HE3	240	4.00	1.00	5.00	3.6083	.09780	1.07137	1.148	-.912	.221	.389	.438

HE4	240	4.00	1.00	5.00	3.5333	.09536	1.04466	1.091	-1.169	.221	.763	.438
HE5	240	4.00	1.00	5.00	3.6250	.08940	.97930	.959	-.603	.221	-.032	.438
HE6	240	4.00	1.00	5.00	3.6667	.07968	.87287	.762	-.834	.221	.996	.438
Valid N (listwise)	240											

The table presents descriptive statistics for six variables (HE1, HE2, HE3, HE4, HE5, and HE6) based on a sample size of 240 observations. Each variable's statistics include the range, minimum and maximum values, mean (average), standard deviation, variance, skewness, and kurtosis. Additionally, the table reports the valid number of observations for each variable. The statistics suggest that all variables have the same range and similar mean and standard deviation values while varying in skewness and kurtosis. These values provide insights into the distribution, central tendency, and variability of the data for each variable, which is important for understanding their characteristics in the context of the thesis.

A. Gender of the Respondents

Table No. 1.2

Distribution of sample size gender wise

Gender	Frequency	Percent
Male	140	58%
Female	100	42%
Total	**240**	**100%**

The above Table No. 1.2 above shows the distribution of the total sample size of the 240 respondents' gender-wise in which the number of male respondents was 140 (58%) while the number of female respondents was 100 (42%) respectively.

B. *Educational Level of the Respondents*

Table No. 1.3

<u>*Distribution of sample size Education wise*</u>

Education Level	Frequency	Percent
Intermediate	20	9%
Undergraduate	56	23%
Bachelor	62	26%
Master/M.Phil/MS	84	34%
Ph.D.	18	8%
Total	**240**	**100%**

The above table reveals that, the distribution of the total sample size of the 240 respondents' education wise in which the number of Intermediate respondents was 20 (9%), number of the Undergraduate respondents was 56 (23%), number of the Bachelor respondents was 62 (26%), number of the Master/M.Phil/MS respondents were 84 (35%), and the number of Ph.D. respondents was 18 (8%) respectively.

C. *Experience of the respondents (in years)*

Table No. 1.4

<u>*Distribution of sample size Experience wise*</u>

Experience	Frequency	Percent
Less than 1 year	82	34%
1 to 3 years	70	29%
More than 3 years	88	37%
Total	**240**	**100%**

The above table demonstrate the distribution of the total sample size Experience wise of the 240 respondents in which the number of respondents having Less than 1 year of experience was 82 (34%), 1 to 3 years of experience was 70 (29%), and more than 3 years of experience were 88 (37%).

D. *Marital Status of the Respondents*

Table No. 1.5

<u>*Distribution of sample size Marital Status wise*</u>

Marital Status	Frequency	Percent
Single	118	49%
Married	122	51%
Total	**240**	**100%**

Table No. 1.5 shows that the total number of respondents marital status-wise was 240 of which 118 (49%) were single and 122 (51%) were married.

E. Age of the Respondents

Table No. 1.6

<u>*Distribution of sample size Age wise*</u>

Age Range	Frequency	Percent
18-25	108	45%
26-35	56	23%
36-45	62	26%
46-55	14	6%
Over 55	0	0%
Total	**240**	**100%**

The table explores the total distribution of the sample size of 240 respondents age-wise collected data from the respondents which the respondents aged between 18-25 were 108 (45%) of the total population, respondents aged between 26-35 were 56 (23%), respondents aged between 36-45 were 62 (26%), and the respondents aged between 46 to 55 were 14 (6%) of the total population. There was no response from a respondent whose age is over 55.

Correlations

Table No. 2.1

Correlations

		HE 1	HE 2	HE 3	HE 4	HE 5	HE 6
HE 1	Pearson Correlation	1	1.000^{**}	$.508^{**}$	$.341^{**}$	$.397^{**}$	$.468^{**}$
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	240	240	240	240	240	240
HE 2	Pearson Correlation	1.000^{**}	1	$.508^{**}$	$.341^{**}$	$.397^{**}$	$.468^{**}$
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	240	240	240	240	240	240
HE 3	Pearson Correlation	$.508^{**}$	$.508^{**}$	1	$.443^{**}$	$.476^{**}$	$.470^{**}$
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	240	240	240	240	240	240
HE 4	Pearson Correlation	$.341^{**}$	$.341^{**}$	$.443^{**}$	1	$.370^{**}$	$.436^{**}$
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	240	240	240	240	240	240
HE 5	Pearson Correlation	$.397^{**}$	$.397^{**}$	$.476^{**}$	$.370^{**}$	1	$.374^{**}$
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	240	240	240	240	240	240
HE 6	Pearson Correlation	$.468^{**}$	$.468^{**}$	$.470^{**}$	$.436^{**}$	$.374^{**}$	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	240	240	240	240	240	240
**. Correlation is significant at the 0.01 level (2-tailed).							

The above table presents Pearson correlation coefficients between six variables (HE 1 to HE 6) in a dataset of 240 observations. The correlations indicate the strength and direction of linear relationships between pairs of variables. Each cell in the table displays the Pearson correlation coefficient between the variables specified in the row and column headings. The associated p-values for the relationships are also included in the table to show their statistical significance. The significance level for each correlation is 0.01 (2-tailed), suggesting strong relationships among the variables. Notably, variables HE 1 and HE 2 have a perfect positive correlation (r = 1.000), while other pairs exhibit moderate to strong positive correlations,

such as HE 3 and HE 5 (r = 0.476). These findings provide valuable insights into the interconnections and associations among the variables in the dataset, contributing to a comprehensive understanding of the underlying relationships for the thesis.

Reliability

    a. Reliability Statistics

    Table No. 3.1

<u>*Reliability Statistics*</u>

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.821	.823	9

       The provided table presents reliability statistics, specifically Cronbach's Alpha coefficients, for a measurement scale consisting of nine items. The calculated Cronbach's Alpha values are 0.821 and 0.823 based on raw and standardized items, respectively. These coefficients assess the internal consistency or reliability of the scale's items in measuring a particular construct. The values suggest a satisfactory level of reliability, indicating that the items in the scale are consistently measuring the same underlying concept, both in their original form and when standardized.

    b. Case Processing Summary

    Table No. 3.2

<u>*Case Processing Summary*</u>

		N	%
Cases	Valid	240	100.0
	Excluded[a]	0	.0
	Total	240	100.0

a. Listwise deletion based on all variables in the procedure.

An overview of case processing for a particular procedure is included in the table, along with the number and percentage of cases that have been taken into account. Out of a total of 240 cases, all cases are deemed valid and included in the analysis, with none excluded based on the specified criteria. This case processing was conducted using listwise deletion, which means that cases with missing data in any of the variables involved in the procedure were removed. Therefore, the table reflects the complete dataset of 240 valid cases, demonstrating the comprehensive inclusion of data for the analysis in the study.

c. Inter-item Correlation Matrix

Table No. 3.3

Inter-Item Correlation Matrix

	Experience	Age Range	Marital Status	HE 1	HE 2	HE 3	HE 4	HE 5	HE 6
Experience	1.000	.739	.465	.329	.329	.150	.128	-.019	.011
Age Range	.739	1.000	.647	.357	.357	.214	.180	.165	.159
Marital Status	.465	.647	1.000	.194	.194	.217	.136	.203	.121
HE 1	.329	.357	.194	1.000	1.000	.508	.341	.397	.468
HE 2	.329	.357	.194	1.000	1.000	.508	.341	.397	.468
HE 3	.150	.214	.217	.508	.508	1.000	.443	.476	.470
HE 4	.128	.180	.136	.341	.341	.443	1.000	.370	.436
HE 5	-.019	.165	.203	.397	.397	.476	.370	1.000	.374
HE 6	.011	.159	.121	.468	.468	.470	.436	.374	1.000

The presented table displays an inter-item correlation matrix, indicating the existence, direction, and strength of interactions between different elements or variables. The variables include "Experience," "Age Range," "Marital Status," and different aspects of HE 1-6. The Pearson correlation coefficients, which have values ranging from -1 to 1, are represented by the values in the matrix. A positive correlation suggests a direct relationship between variables, whereas a negative correlation suggests an opposite relationship. Higher absolute

values indicate stronger correlations. In this specific context, the matrix reveals that variables such as "Experience" and "Age Range" are positively correlated, with a coefficient of 0.739. Similarly, some aspects of HE 1-3 are positively correlated with each other, while others have weaker or even negative correlations. This information provides insights into the patterns of association among the variables, which could be relevant for your thesis analysis and conclusions.

d. Inter-item Covariance Matrix

Table No. 3.4

Inter-Item Covariance Matrix

	Experience	Age Range	Marital status	HE 1	HE 2	HE 3	HE 4	HE 5	HE 6
Experience	.714	.607	.197	.253	.253	.136	.113	-.016	.008
Age Range	.607	.944	.316	.316	.316	.222	.183	.157	.134
Marital Status	.197	.316	.252	.089	.089	.117	.071	.100	.053
HE 1	.253	.316	.089	.830	.830	.496	.325	.354	.373
HE 2	.253	.316	.089	.830	.830	.496	.325	.354	.373
HE 3	.136	.222	.117	.496	.496	1.148	.496	.499	.440
HE 4	.113	.183	.071	.325	.325	.496	1.091	.378	.398
HE 5	-.016	.157	.100	.354	.354	.499	.378	.959	.319
HE 6	.008	.134	.053	.373	.373	.440	.398	.319	.762

The provided table presents an inter-item covariance matrix, which demonstrates the relationships between different variables in a dataset. Each cell of the matrix contains the covariance value between the corresponding pairs of variables, indicating the degree and direction of their linear association. The variables included in the matrix are "Experience," "Age Range," "Marital Status," and various factors labeled as "HE 1" through "HE 6." Positive values in the matrix cells imply a positive covariance, suggesting that the variables tend to increase or decrease together, while negative values indicate an inverse relationship. The matrix can be useful for understanding the patterns of association between these variables and can provide insights into potential dependencies or shared variance among them.

Logistic Regression Model

The fitted logistic regression model's results, especially the herding effect bias and how it affects investors' decisions to invest in Shariah-compliant businesses, can be seen in the following table. Results include the coefficients of regression (B) of the chosen variables' standard errors, the Wald statistic, the degree of freedom (df), the level of significance (Sig.), and the odds ratio (Exp (B)). Investment decisions are positively impacted by the fitted model variable "Herding effect" (B = 1.399, std. err. = 0.357, p-value = 0.000), which has a favorable impact on investment decisions. According to the odds ratio (Exp (B) = 0.247), the investor's investment choice increases to 24.7 percent when the "Herding effect" is present as opposed to 100 percent when it is absent. This indicates that the herding effect influences investor investment decisions to the tune of around 75%.

Table No. 4.1 Logistic Regression Model						
Variables	B	S.E.	Wald	df	Sig.	Exp(B)
Herding effect bias	-1.399	0.357	15.370	1	0.000	0.247
Constant	2.545	1.761	2.088	1	0.148	12.739
a. Independent Variable: Herding effect bias						

a. Goodness of Fit for the Fitted Logistic Regression Model

The Hosmer and Lemeshow test (Hosmer et al., 1997) compares the observed and projected number of cases to determine the fitted model's goodness of fit. The table presents the findings. By default, the test splits the number of observed and expected cases into ten ordered groups. The best fit can be determined by a greater Chi-square and sig. value (more than 0.005), whereas the appositive is a poor fit. With large values for both Chi-square and sig. = 0.830 (more than 0.005), which is non-significant, the findings in the table shows that the fitted model fits the data well.

Table No. 4.2 Hosmer and Lemeshow Test for Goodness of Fit			
Step	Chi-square	df	Sig.
1	4.294	8	0.830

b. Best Model Logistic Regression

The outcomes of the optimal logistic regression model are displayed in Table No. 4.3. In the beginning, the model includes independent variables. At stage two, the best-fitting logistic regression model was chosen, and the outcomes are shown in Table 4.1. Results include the regression coefficients (B) of the chosen variables' standard errors, the Wald statistic, the degree of freedom (df), the level of significance (Sig.), and the odds ratio (Exp (B)). In accordance with the fitted model, the variable "Herding effect" has a favorable influence on investment choice (B = 1.399) with a standard error of 0.357 and is highly significant (p-value = 0.000) in relation to the decision to invest. According to the odds ratio (Exp (B) = 0.247), the investor investment choice reduces to 24.7 percent when the "Herding effect" is present as opposed to 100 percent when it is absent. This indicates that the herding effect influences investor choices regarding investments to the tune of around 75%.

Table No. 4.3 Best Model Logistic Regression						
Variables	B	S.E.	Wald	df	Sig.	Exp(B)
Herding effect bias	1.399	.357	15.374	1	0.000	.247
Constant	2.548	1.552	2.694	1	0.101	12.784
a. Herding effect bias is an independent variable.						

c. *Goodness of Fit for the Fitted Best Model Logistic Regression*

Based on a comparison of the observed and anticipated number of instances, the Hosmer and Lemeshow test (Hosmer et al., 1997) evaluates the goodness of fit for the selected best-fitted model. The results are shown in Table No. 4.3. The test, by default, divides the observed and expected number of cases into ten ordered groups. The best fit is indicated by a higher Chi-square and sig. value (more than 0.005), whereas the appositive is a poor fit. A large value for both Chi-square = 4.294 and sig. = 0.830 (greater than 0.005), which is non-significant, indicates that the fitted model is a good fit. The results are presented in the table for the step. A value for Chi-square = 3.679 and sig. = 0.885 (more than 0.005), which is non-significant, is shown in Step 2 when the results for the best fitted model are shown. This implies that the model that fits the best is likewise a good fit.

Table 4.4 Hosmer and Lemeshow Test for Goodness of Fit			
Step	Chi-square	Df	Sig.
1	4.294	8	.830
2	3.679	8	.885

ANOVA

Table No. 5.1

<u>ANOVA</u>

		Sum of Squares	df	Mean Square	F	Sig
Between People		368.510	119	3.097		
Within People	Between Items	910.213	8	113.777	205.312	.000
	Residual	527.565	952	.554		
	Total	1437.778	960	1.498		
Total		1806.288	1079	1.674		

Grand Mean = 3.0898

The findings of a statistical study involving a dataset with a total of 1079 observations are shown in the analysis of variance (ANOVA) table that is being given. Different sources of variance have been identified in the data. There are two components that make up the individual variability (Between People): One was credited to the residual variance (527.565) and the other to the variance between items (910.213). The F-statistic is conspicuously large (205.312), illustrating an important variation in averages between the groups. It assesses the ratio of item variation to residual variation. With a p-value (Sig) of 0.000, this result is statistically noteworthy, demonstrating that it is unlikely that chance happened to cause the diversity between the items. The F-statistic for the variability among individuals (among People), on the other hand, is decomposed into the variance between items and the residual variance, resulting in an F-statistic of 113.777, once again indicating to a significant difference in averages. The average of all observations in the dataset, or the "grand mean," is determined as 3.0898. Overall, the ANOVA highlights notable variances in the examined groups, revealing significant variations in the dataset's properties.

Cronbach's Alpha

<div align="center">

Cronbach's Alpha

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.821	.823	9

</div>

The outcome of calculating Cronbach's Alpha, a metric of internal consistency and reliability for a collection of items in a questionnaire or scale, can be viewed in the table above. The measured Cronbach's Alpha value, which measures how closely the measure's items are related to one another and how well they reflect an agreed-upon underlying concept, is shown in the first column. In this instance, Cronbach's Alpha is 0.821, indicating a respectably good level of internal consistency. The Cronbach's Alpha value in the second column, which is based on standardized items, is exactly the same at 0.823. The measurements on the scale's final column show that there are a total of 9 items. Overall, outcomes imply that the scale's questions show a fair amount of internal consistency, with most of the variation in participants' answers resulting from the underlying construct that the items were designed to evaluate.

Findings and Recommendation

Following were the findings and recommendations of the study such as:

After investigation, it became clear that individual investor decisions in PSX, particularly those involving Shariah-compliant companies, have been significantly affected by the Herding effect bias. The significant evidence from the logistic regression model suggests that the Herding effect bias has a positive impact on investing decisions. The presence of the Herding effect bias and investor decisions are strongly associated, according to the coefficient (B) of 1.399 with a p-value of 0.000. As a result, when the Herding effect bias is present, investors are more likely to follow the herd and make decisions about their investments that are consistent with current financial trends.

The study also looked at the respondents' demographic traits and how these might affect the choices made by investors. According to the gender distribution, respondents who identified as male made up 58% of the sample, while respondents who identified as female made up 42%. The respondents' educational backgrounds also varied, with 34% of respondents holding a Master's, M.Phil., or MS degree having the largest representation. The distribution of investors by experience showed that the group with the most experience, at 37%, was the largest. Surprisingly, the age-wise distribution of responders revealed that 45% of them were between the ages of 18 and 25. The context provided by these demographic information helps to explain investment behavior.

Significant correlations between the Herding effect bias's various elements (HE1– HE6) were found by correlation analysis. As an example, HE1 and HE2 showed a 100% positive correlation, demonstrating the strong relationship between these two variables. Furthermore, a number of pairs, notably HE3 and HE5, exhibited moderate to high positive correlations, demonstrating that specific manifestations of the Herding effect bias frequently co-occur in investor selection. These results imply that the Herding effect bias is not a single entity but rather a collection of interconnected elements that together affect investor behavior.

The validity of the measurement scale used to calculate the Herding effect bias was assessed in the study. Based on raw and standardized items, respectively, Cronbach's Alpha scores of 0.821 and 0.823 proposed a satisfactory level of internal consistency. It indicates that the measurement scale reflects the Herding effect bias construct adequately and provides reliable findings.

Recommendations

A few recommendations are made in light of the findings:

Investor Education

Financial firms and regulatory bodies should prioritize investor education activities, with a focus on educating novice and younger investors. These initiatives need to emphasize the increasing recognition of the Herding effect bias, supporting independent decision-making, and enhancing financial literacy.

Diversified Investment Strategies

Encourage portfolio diversification among investors to lessen the effects of the herding effect bias. Promoting a varied strategy can reduce the dangers of going along with the crowd.

Behavioral Finance Research

For a deeper understanding of the Herding effect bias and its particular elements, more studies in the behavioral finance sector should be conducted. This is going to encourage the creation of interventions and policies that are more effective.

Regulatory Measures

Regulators should think about putting in place policies that prevent herd behavior, such as circuit breakers or trade halts during significant market modifications. These measures can assist in breaking the Herding effect bias cycle.

Long-Term Investment

Promote long-term investment horizons among investors as opposed to letting them be swayed by momentary market changes. This strategy can lessen the effects of herd behavior and assist investors in achieving higher-quality returns.

Monitoring and Alerts

Create programs and platforms that enable investors to track their investments in real-time and receive alerts when they show signs of crowd-following behavior. Investors may be able to make better selections with the help of these tools.

Future Avenue

This paper was particularly in Pakistani stock market Shariah compliant stock companies only so future avenue is that it can be extended to other SAARC Stock markets or to Asian or Central Asian stock market dynamics as well.

Conclusion

Several important findings may be taken from the considerable investigation done for this research study, including: The Herding effect bias has a significant and positive impact on individual investor decisions in the PSX, especially when it comes to Sharia-compliant stocks. Investors tend to follow the crowd and make decisions influenced by prevailing market trends.

Investor behavior is influenced by demographic parameters i.e. age, gender, education as well as experience. Financial organizations and regulators can benefit tremendously from understanding the demographic profiles of investors. The Herding effect bias is a complicated idea with many interconnected parts. For effective methods to minimize its influence and encourage trained and autonomous investing decisions, it is critical to be informed of these complexities. The measurement scale utilized in this work showed high dependability, suggesting that it might serve as a beneficial instrument for future research and real-world financial applications. The ANOVA results highlight the necessity for customized approaches that take into account the differences in decision-making processes in order to overcome the Herding effect bias among different investor groups.

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