BEHAVIOURAL FACTORS AND INDIVIDUAL INVESTOR'S TRADING PERFORMANCE IN KHYBER PAKHTUNKHWA: THE MEDIATING ROLE OF ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) PERFORMANCE

Samina Rooh

Lecturer, Ph.D. Scholar, Abdul Wali Khan University Mardan, Pakistan

Email: samina.ali.bangash@gmail.com

Dr. Arif Hussain

Assistant Professor, Abdul Wali Khan University Mardan, Pakistan

Email: arifhussain@awkum.edu.pk

ABSTRACT

In the stock market of Pakistan, the investment dictions made by investors are greatly influenced by behavioural biases in Khyber Pakhtunkhwa (KP). The current study was undertaken in Khyber Pakhtunkhwa to regulate the primary behavioural elements and individual investor trading performance: the mediating role of environmental, social, and governance (ESG) performance. with a sample size of 200 individual KP investors of the Pakistan stock market, the data was composed of investors through a 5 point LIKERT scale survey adapted questionnaires. This study has used G* Power Software for an unknown population. The research employed the Structural Equation Model (SEM) using SmartPLS to examine the effect of individual investor's behavioural factors and ESG performance. This research results presented that herding, loss aversion, and mental accounting biases of individual investors insignificantly impact investment decisions on trading performance and ESG performance. While Overconfident positively significantly impacts trading performance on ESG performance. On the other hand, ESG issues mediate insignificant relationships among Herding, loss aversion mental accounting, and trading performance. Whereas, ESG issues mediate a positive relationship between overconfidence and trading performance. The findings can support companies determine the demand for ESG aspects and, in turn, encourage firms to improve their business practices using ESG-friendly approaches. This research paper tries to achieve the gap by analyzing behavioural factors in KP investors and the mediating role of ESG performance. Nevertheless, the present research contributes to the current literature on behavioural finance and ESG in the Pakistan stock market. Additionally, the existing study will be beneficial for regulatory authorities, investment consultants, financial professionals, academia as well as experts. Under research findings, individual investors should carefully consider behavioural factors, investment aspects, and ESG factors employing business skills before making an investment decision. The current paper also recommended to the

government should implement rules and regulations on environmental standards in the Pakistan stock market.

INTRODUCTION

In the previous few decades, the traditional finace supporters have contributed varieties of contributions. Economic utility theory is one of those contributions, in the light of the stated theory, it is believed that the investors' decisions are rational and these decisions are mostly centered on risk-return concerns (Chhapra, Kashif, Rehan, & Bai, 2018).

Standard finance is depends on the Arbitrage Pricing Process (APP), which is assumed by Modigliani and Millar, Linter and Black, Option Pricing Theory, which is staed by Black, Scholes Capital Asset Pricing Model (CAPM) assumed by Sharpe and Merton and Markowitz Principle of Portfolio Management, which is assumed by Merton and Markowitz (Kumar & Goyal, 2016). In Traditional finance, it is stated that the decisions and investemnet by investors are rational and they understand how to get the most out of their money (Singh, Babshetti, & Shivaprasad, 2021). Nevertheless, due to psychological and behavioural biases, investors do not track the standard techniques for the investment decision (Cohn *et al*., 1975). Investors' rational decision-making procedures are influenced by numerous psychological factors, (Ruggeri *et al*., 2020). Traditional finance has ignored human behavior during the decision-making process regarding investment. Hence, the anomalies of the standard have motivated the progress of behavioural finance (Jain *et al*., 2019).

With the development of empirical studies, Bahavioral finance begings in 1970s. It thinks about the role of psychology, cognitive errors, and emotions in decision-making of investment. Behavioural finance undertakings to identify how cognitive and sentiments errors influence the behavior of individual investors. The market inefficiencies are explained by Behavioural finance it depends on psychological issues distressing the decision of investors and aids to comprehend and clarify the behavior forms of the investors and it describes the market functioning in the actual world (Zahera, & Bansal, 2018). However, numerous biases affect investors' decision-making regarding investment but this study has designated assured main biases which are supposed to impact the behavior of investors in the developing markets.

The implementation of environmental, social, and governance (ESG) standards speedily increases international tendency in the procedure of investment. ESG standards encompass a set of criteria about companies' processes that investors can use in choosing possible investments (Umar *et al*., 2020). ESG criteria address (a) environmental aspects, as highlighted by a company's efforts to report effective waste management, creation of renewable enegy resources and contributing to positive climate change. among other things; and (b) social issues such as human rights, safety regulations, labor standards, illegal child labor, and a commitment to workplace health; and (c) governance issues such as rules and regulations, responsibilities, shareholder rights protections, and the perspectives of various stakeholders in the company's governance. Non-financial aspects that influence investment decisions, such as socially responsible investment (SRI) offers that provide reduced risk and higher returns during times of tempestuous, peace of mind, and reputation management (Riedl & Smeets, 2017). The attraction of environmentally, ethically, and socially responsible investments has been compared to behavioural finance's clear investment portfolio, which is believed to be the best possibility for an investor desiring to assign investment money

during the last few decades (Eurosif, 2016). Over the last few years, the value of SRI portfolios has increased dramatically, with increased consideration, appeal, and repute (Alliance, 2018). Investors, on the other hand, have become more concerned about the lack of SRI criteria, the lack of a clear definition of socially responsible standards, and the quality of available data on ESG rankings of enterprises (Friede, 2019).

Khyber Pakhtunkhwa (KP) earlier names as Northwest Frontier Province (NWFP) of Pakistan. In the census of 2017, the total population density of KP is around 35.5 Million. Considering the investor circle, the GDP contribution of the KP is averaged at 10% of the total country's GDP (GDL, 2018). Ahmed, & Bhatnagar, (2020) asserted that, after the creation of Pakistan, the KP province had been under continuous pressure, dealing with the immigrants in the early times due to the Soviet-Afghan war (1979-89) and the war on terror in the post 9/11 world. This had led to tumultuous time for economy by creating problems for the investor and the financial circles. Further, social and governance issues had been also considered differently as the area has high military dispatched for security concerns. This is the reason for the study for the investors' trading performance being affected by the behavioural forces, with a mediating role being played by the ESG factors. In addition, behavioural finance itself is emerging while the studies within the context of Pakistan and specifically KP are limited given the new government is striving to improve the investment prospects within the region. KP-BOIT, (2019) stated that KP has a lucrative investment potential and they intend to identify those locations and projects that are worth investing in.

This study is focused to evaluate the impact and role of Behavioural factor on the trading performance of the investor in Khyber Pakhtunkhwa (KP) by integrating the mediating role of ESG in the study. The previous research studies show that the investor being a rational creation, is guided by profit generation/ maximization in their investment decision, nonetheless, the role of behavioural biases cannot be denied in information of investing decision (Sachdeva, Lehal, Gupta, & Gupta, 2022). The economic and financial situation of KP has improved over the years which indicates that the revised economic policies have been working well in the case of the province (Recorder, 2018). According to Hassan (2018), KP has become the fastest growing economy in Pakistan and hence the investment market is also improving.

Moreover, the review of studies on behavioural finance and behavior of investor also show that they have concentrated on their trading peroformance and investor 's behaviour, however, the role of mediating factors is the least researched area.

The furthermost of the behavioural finance literature is around behavioural factors and trading performance, ordered the behavioural biases influencing the investment decision making of individual investors (Ayaa, et al., 2022; Hsu, 2022; Jain *et al*., 2019; Sachdeva, Lehal, & Gupta, 2022). Nonetheless, very limited work is available on behavioural finance and ESG, and the number of studies on the problem is very restricted in the context of developing markets, and in Pakistan. Therefore, this study will help in analyzing what factors should be the target to improve the probability of investments in KP based on the behavior of investors and the mediating role of ESG, which has not been explored previously. This study will fill the existing gap by exploring the impact of the KP investor behaviors i.e. as overconfidence, loss aversion, mental accounting, herding, and the ESG factors on the trading performance which can improve the investing venture's profitability in the region. The researcher has addressed the problem related to the effect of behavioural factors on trading performance while considering external factors that are environmental, social, and governance.

As a result, the present study aims at : evaluating the impact of behavioural factors on investor trading performance in KP and assessing the role of ESG factors in the relationship between

behavioural factors and individual investors trading performance in KP. The study poses question as : what is the effect of behavioural factors on the trading performance of individual investors in the case of KP? Do ESG factors mediate the relationship between the behavioural factors and an individual's trading performance in KP? The current study provides important insights for policy and practice in developing countries like Pakistan, in addition to resolving the aforementioned research questions and filling the identified vacuum in the literature. This research adds to the body of knowledge and academic literature on behavioural finance, investor trading performance, and the significance of ESG variables in these areas. It has been already mentioned in the previous sections that the research underpinning KP is limited in the context of the topic of the research therefore, the addition would be valuable. A thorough analysis of investor behavior and associated factors will be the primary contributor in this addition that can be considered a practical contribution since it will assist the authorities in KP develop related policies that will encourage investors to invest in KP.

The theoretical framework shall be constructed by deducting different theories of behavioural finance from the related literature. The development of the hypotheses and review of the literature are discussed in the next section, while the research methodology, findings, analyses, conclusions, and suggestions are covered in the section after that.

Reveiew of Literature and hypothesis development

Theoretical Framework

Behavioural finance theories are founded on cognitive psychology, which states that the human decision process is made up of numerous cognitive misconceptions. Prospect theory and heuristics theory are the two basic theories that explain these illusions (Gigerenzer, 2020). Behavioural finance theories are an alternative to classical finance theories that advocate for the presence of numerous biases that eventually influences investment decision-making. Since, in the light of the theoretical framework, this study is built on the following theory.

2.2 *Behavioural Finance*

The behavioural finance theory focuses on the fact that even in times of uncertainty; a person has a probability of the future outcomes which should be considered, and the decisions to be based on that (Costa, Carvalho, & Moreira, 2019). This theory was provided by (Tversky, & Kahneman, 1974). Individual investors should be aware of the various behavioural biases that influence their investment decisions and take steps to increase their efficacy and avoid these biases. Behavioural finance is a new paradigm that offerings an alternative method for the improvement of traditional finance theories (Kahneman, & Tversky, 1979).

2.2.1 *Heuristic Theory*

Kahneman, (2003) describes heuristics as cognitive rules of thumb or shortcuts that help to eradicate a problematic question and swapping it with an easier question during decision making. Individuals make fast decisions and findings by emerging techniques from individual experience. However, heuristics may be useful for decision-making on occasion, but more frequently than not, they are not an accurate method for financial decision-making since they will in general disregard or consider significant components influencing the investment. Heuristic decision procedures are affected by numerous behavioural issues/biases (Budhiraja, 2018).

Behavioural Factors Influencing Investor Decision Making & ESG

This research examines four behavioural biases that may influence individual investor decision-making.

Herding Behavior and ESG

Pompian (2016) highlights the tendency of stock market investors to mimic and carry out the acts of other investors. Their nature, personal bias, feelings, and emotions have a big impact on this behavioural component. Due to herding, investors are not always rational because people are not dependent on their analysis. McCollum, et al. (2018) Proclaim that participating in ESG investment activities can improve one's prestige and recognized trustworthiness among peers. Additionally, Traders and investors who are more experienced or have higher peer positions will be the first financial specialists to manage their investment prices based on ESG criteria (Oldford, Willcott, & Kennie, 2021).

Loss Aversion and ESG

Loss-averse investors favor avoiding loss more than want to make a profit (Hirshleifer, 2015). The individual Investor always tries to alleviate the risk in investment decision making and the loss-averse investors attempt to follow and invest in ESG practicing firms (Rooh, Hussain, & Zahid, 2021). The risk decrease potential attained by Responsible investment or ESG factors might be significant for risk-averse investors. Henceforth, investors who are loss averse will invest money in sustainable and ESG oriented firms.

Mental accounting and ESG

Lungeanu, & Weber (2021) elucidate that mental accounting supports the investors in managing and organizing investment portfolios in separate accounts. Hirshleifer (2015) pronounced that individuals incline to categorize their money separately, as a result of which they wind up making irrational selections for their investment and saving. They want to achieve a certain level of SRI or ESG quality in their portfolios and the class of investors that choice their investments under a mental accounting context (Bilbao-Terol *et al*., 2016).

Over-Confidence and ESG

Based on positive market experience, overconfident investors overestimate their skills, ability, and knowledge. In some cases, the investor underestimates the risk and leads to optimal investment in one account, and ignores diversification during investment. When individuals overemphasize their knowledge and skills, it is a demonstration of overconfidence (Hvide, 2000). Keswani *et al*., (2019) report that return on investment is influenced by the over-confidence investor's investment decision. In accordance of McCarthy *et al*. (2017) proposes that overconfidence is significantly connected not only with corporate policies and risk-taking decisions but comprising with the decision making to invest in CSR and ESG as a risk-reducing instrument.

Effect of ESG Factors on the Trading Performance

Motivation, investment patterns, and decision-making are all examined in studies on ESG/SRI investor behavior. This topic is based on the idea that ESG/SRI investors are not the same as traditional investors. By comparing stock portfolios with high and low ESG scores, some research shows that SRI has a favorable effect on returns. These studies suggest that a positive screening
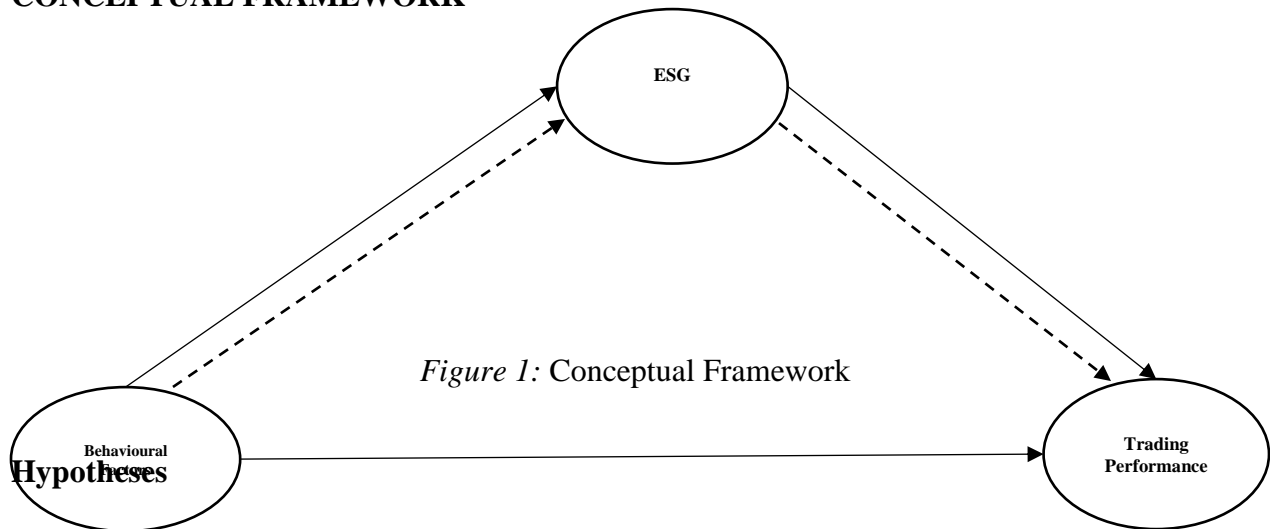
method is generally beneficial for investors (Widyawati, 2019). According to these studies, SRI investors who stay loyal and retain SRI portfolios for a long time are more likely to receive incremental returns. In another amount of knowledge, Li, *et al.* (2018) examine the impact of environmental, social, and governance transparency on corporate value.

Investor Decision and Trading Performance

The research carried out by Worzie (2020) opined that trading performance and decisions related to investment decisions are linked with the level of risk on an investment. On the other hand, the level of satisfaction is another factor that explains the trading performance of the investors. According to Luong & Ha (2011) in this research, the level of satisfaction regarding investment decisions is proposed as a criterion for evaluating investment performance.

CONCEPTUAL FRAMEWORK

Figure 1: Conceptual Framework

Hypotheses

H_1: The effect of herding on the trading performance of KP investors is significant.
H_2: The effect of overconfidence on the trading performance of KP investors is significant.
H_3: The effect of Loss Aversion on the trading performance of KP investors is significant.
H_4: The effect of mental accounting on the trading performance of KP investors is significant.
H_5: The effect of herding on ESG factors of KP investors is significant.
H_6: The effect of overconfidence on ESG factors of KP investors is significant.
H_7: The effect of loss aversion on ESG factors of KP investors is significant.
H_8: The effect of mental accounting on ESG factors of KP investors is significant.
H_9: The effect of ESG factors on the trading performance of KP investors is significant.
H_{10}: The ESG factors that mediate the relationship between herding and the trading performance of KP investors are significant.
H_{11}: The ESG factors mediate the relationship between overconfidence and trading performance of KP investors are significant.
H_{12}: The ESG factors that mediate the relationship between loss aversion and trading performance of KP investors are significant.
H_{13}: The ESG factors that mediate the relationship between mental accounting and the trading performance of KP investors are significant.
Based on these factors, the level of significance of the study will be 5%.

RESEARCH METHODS

Design, Approach, Population, Sample, & Instrument development

The study aims to look at the behavioural factors that influence the decision making of individual investors: the mediating role of environmental, social, and governance performance. The research design which has been used for this study is quantitative & deductive, where quantifiable variables will help in terms of arriving at useful results and conclusions. The population of this research comprises all investors who are residing in KP or belong to KP. However, the researcher can't gather information from all of the investors, therefore an appropriate sample has been drained from the population. The population considered in the present study is not exactly known, therefore, there is a need for the application of a technique to determine an exact population. To compute an exact population for the current research out of an unknown population, G* Power Software has been applied. G*Power became designed as a general stand-alone power analysis program for statistical tests generally used in social and behavioural research (Erdfelder *et al.*, 1996). The software has considered a sample size comprised of 200 Individual investors based in KP who are trading on the Pakistan Stock Exchange. Adapted questionnaires constructed depending on previous literature built up the data after the sample size was calculated. The study used simple random sampling, which is preferable since it provides each unit of the population an equal chance of being selected (Etikan, 2016). The researcher will learn from the rationale for adopting the simple random sampling technique since this increases the probability that the population will be correctly portrayed (Taherdoost, 2016).

Data Collection and Analysis

The primary data was collected through a structured questionnaire from the individual investor who trading in the stock market of Pakistan. Individual investors of different ages, genders, and educational backgrounds collected the information. For a sample size of 200, a total of 200 questionnaires were distributed. Subsequently, 130 valid responses were evaluated. The participants' busy, hectic workdays, stressful jobs, and lack of academic interest may all contribute to a reduced response rate. From former studies, core constructs comprise the behavioural aspects from (Antony & Joseph, 2017; Metawa *et al.*, 2019). while ESG from *(Sultana et al.*, 2018; Wageman *et al.*, 2013). And the trading performance from (Brewer *et al.*, 1996). The data of these variables were measured by 5 points Likert scale ordering from "strongly disagree" to "strongly agree" (Savery, 1998).

The study employed SmartPLS 3.0.0 to perform partial least squares and structural equation modelling (PLS-SEM) after data gathering. With the fewest unbiased implications about sample size predictions, PLS is a more suitable choice.

Measurement Model Assessment

The reliability tests, Cronbach's alpha, and composite reliability, as well as the validity tests, convergent validity, and discriminant validity, were used to evaluate the reflective measurement model (Hair Hult, Ringle, & Sarstedt, 2016); the following Table 2 findings show reliability, discriminant validity, and multicollinearity tests.

Structural Model Assessment

The structural model's objective is to evaluate the hypothesized research model's model fitness (Hair et al. 2016). In addition, they express a correlation between constructs. The associations of the variables demarcated in the conceptual & theoretical model were measured by the coefficient of determination (R^2), path coefficient (β), effect size (f^2), and predictive relevance (Q^2) (Hair Hult, Ringle, & Sarstedt, 2016).

Table 2: Measurement Model

Constructs	First Order	Second-Order	F.L	Cronbach's Alpha	rho_A	CR	AVE	VIF
ESG	-	CE1	0.893	0.904	0.959	0.932	0.775	3.585
	-	CE2	0.932					3.321
	-	CE3	0.797					1.855
	-	CE4	0.895					3.448
ESG	-	EN2	0.937	0.852	0.854	0.931	0.871	2.223
	-	EN3	0.929					2.223
ESG	-	FT1	0.868	0.918	0.972	0.936	0.745	2.404
	-	FT2	0.897					2.839
	-	FT3	0.877					3.081
	-	FT4	0.859					3.773
	-	FT5	0.812					3.162
ESG	-	PH1	0.852	0.901	0.907	0.926	0.714	1.828
	-	PH2	0.866					1.902
	-	PH3	0.856					1.728
	-	PH4	0.812					1.904
	-	PH5	0.839					1.645
Herding	HE1	-	0.660	0.875	0.935	0.89	0.504	1.49
	HE2	-	0.859					1.869
	HE3	-	0.740					1.738
	HE4	-	0.666					1.761
	HE5	-	0.681					2.079
	HE6	-	0.678					1.964
	HE7	-	0.729					2.386
	HE8	-	0.641					1.866
Loss Aversion	LA1	-	0.718	0.901	0.927	0.918	0.585	2.003
	LA2	-	0.777					2.248
	LA3	-	0.775					2.298
	LA4	-	0.801					1.65
	LA5	-	0.694					1.937
	LA6	-	0.718					1.865
	LA7	-	0.803					1.862
	LA8	-	0.821					2.592
Mental Accounting	MA1	-	0.706	0.857	0.959	0.887	0.57	1.547
	MA2	-	0.741					2.107
	MA4	-	0.712					2.033
	MA5	-	0.838					1.921
	MA6	-	0.854					1.78
	MA7	-	0.657					2.177
Over Confidence	OC1	-	0.747	0.879	0.885	0.903	0.539	1.619
	OC2	-	0.767					1.624
	OC3	-	0.725					1.778
	OC4	-	0.748					2.368
	OC5	-	0.776					2.832

OC6	-	0.696					2.602
OC7	-	0.651					2.076
OC8	-	0.757					3.035
TP1	-	0.728	0.779	0.787	0.848	0.528	1.621
TP11	-	0.752					1.435
TP13	-	0.739					1.418
TP7	-	0.662					1.397
TP9	-	0.749					1.496

(Row label "Trading Performance" spans TP rows)

Under literature, the standard for factor loadings is greater than 0.7 for an individual component representing a construct. Similarly, Composite Reliability (CR) and Cronbach's Alpha of all scales of the study must be greater than 0.7 and AVE greater than 0.50 as standards to attain discriminant validity (Hair, *et al.,* 2016). If measures values are exceeding the defined benchmark values, then there is sufficient convergent validity (Hair, *et al.,* 2016). Table 2 states the statistics of the above-mentioned measures display that all the values are above the standard values and hence the measurement model is applicable for all the constructs.

Table 3: Fornell-Larcker Criterion

	1	2	3	4	5	6	7	8	9
ESG	0.881								
ESG	0.144	0.933							
ESG	0.012	0.259	0.863						
Herding	0.137	0.038	0.155	0.71					
Loss Aversion	-0.076	0.187	0.211	0.193	0.765				
Mental Accounting	-0.229	0.095	0.173	0.07	0.19	0.755			
Over Confidence	-0.06	0.406	0.295	0.176	0.41	0.344	0.734		
ESG	0.019	0.266	0.166	0.203	0.132	0.314	0.33	0.845	
Trading Performance	-0.212	0.275	0.315	0.036	0.189	0.269	0.477	0.286	0.727

Note: The square roots of AVE are shown diagonally in bold

The research used discriminant validity to assess the measurement model. The degree to which measures of an assumed construct differ from those of other constructs is demonstrated by discriminant validity (Hair *et al.,* 2014). In the criterion for measuring discriminant validity, the values in the diagonal must be larger than all other values in the given row and column *(Hair et al.,* 2014). Table 3 shows that all of the diagonal values are larger than the others, demonstrating discriminant validity. Furthermore, table 4 represents that all values are below HTMT0.90 hence, discriminant validity has also been verified.

Table 4: Discriminant Validity (HTMT) Criteria

	1	2	3	4	5	6	7	8	9
ESG									
ESG	0.167								
ESG	0.070	0.279							
Herding	0.115	0.058	0.17						
Loss Aversion	0.112	0.2	0.201	0.223					
Mental Accounting	0.269	0.122	0.146	0.226	0.203				

Over Confidence	0.113	0.47	0.287	0.221	0.458	0.401	
ESG	0.04	0.298	0.175	0.255	0.137	0.345	0.349
Trading Performance	0.228	0.334	0.333	0.118	0.221	0.304	0.561	0.33

Note: (HTMT0.90 Criterion)

FINDINGS AND DISCUSSION

Next the evaluation of the measurement model, the study employed the structural model to examine the hypotheses that had already been established. For each study hypothesis, the structural model entails computing R-Square beta and matching t-values. The structural model of the study and the structural model factors of the test findings for the hypotheses reports in table 5.

Table 5: Hypotheses Testing/ Structural Model Assessment

Hypotheses	Std. Beta	Std. Error	t-values	p-values	Decision
H1: ESG -> Trading Performance	0.284	0.108	2.542	0.011	Supported
H2: Herding -> ESG	0.133	0.143	0.757	0.449	Not Supported
H3: Herding -> Trading Performance	-0.045	0.134	0.500	0.617	Not Supported
H4: Loss Aversion -> ESG	0.053	0.089	0.504	0.614	Not Supported
H5: Loss Aversion -> Trading Performance	-0.021	0.094	0.232	0.816	Not Supported
H6: Mental Accounting -> ESG	0.142	0.109	1.199	0.231	Not Supported
H7: Mental Accounting -> Trading Performance	0.083	0.104	0.722	0.471	Not Supported
H8: Over Confidence -> ESG	0.399	0.112	3.623	0.000	Supported
H9: Over Confidence -> Trading Performance	0.330	0.126	2.718	0.007	Supported

The 1st hypothesis **H1** assumes that ESG issues have a substantial positive impact on Trading Performance. The statistical results (β = 0.284, t-value = 2.542, p < 0.05) portray a positive significant impact of ESG issues on trading performance. Consequently, the study supported H25 in the study in hand. Since, the study supported by (Sultana et al., 2018), the argument is made that firms' ESG factors strangly impact investors' decisions, and the evidence shows that investors prefer to invest in ESG-oriented projects.

The second Hypothesis **H2** acknowledged a significant positive influence of herding on ESG. However, the data (β = 0.133, t-value = 0.757, p > 0.05) depicts that insignificant relationship between the herding and ESG issues. Henceforth, the result made-up that herding has an insignificant impact on ESG factors. Because today's investors are more mature and experienced Investors will now rely on collective information, might keep on herding, and do not consider ESG criteria while making decisions in Pakistan's stock market. The findings are not consistent with Przychodzen et al. (2016); Qasim *et al.* (2019) designate that the Pakistan market is well well-organized and recognized to some extent, so information is equally available to everyone.

Similarly, **H3** assumed that herding has a significant positive effect on trade performance. Nevertheless, in the table 5, the measurements (β = -0.045, t-value = 0.500, p > 0.05) show insignificant negative association between the trade formance and herding. Therefore, the findings of the study fail to support the 3rd hypothesis. 3rd hypothesis of the study. Consequently, investors in Pakistan stock market are unable to make good profits using herd bahviour of the investor as tool in comparison to other countries. This finding is inline with (Lim, 2012). He opposed that investment through in the stock market is not appropriate. The unstable economic conditions of the country could be cited as one of the main reasons, so the result is reliable (Amir Rafique *et al.,*

2020) But, on the contrary, previous literature contradicts (Jain *et al.,* 2019) instigate herding bias significantly associated to investment performance.

Constantly, the **H4** hypothesis planned a positive association between loss aversion and ESG factors. The statistical information ($\beta = 0.053$, t-value = 0.504, $p > 0.05$) knowledge in Table 5 for the association which not support the hypothesis H4. The finding is consistent with (Huang, Lin, Lai, & Lin, 2014). Thus, the loss averse don't shadow and invest in ESG committed firms. Due to heavy losses in their invested stocks, the inverse investors get nervous. Therefore, the result is not supported by (Przychodzen et al., 2016).

Likewise, the fifth hypothesis **H5** of the study projected a significant positive impact of loss aversion on trading performance. Nevertheless, the statistics ($\beta = -0.021$, t-value = 0.232, $p > 0.05$) designated negative but, statistically not significant relationship between the Loss Aversion and Trading Performance. Hence, the results do not support the **H5**. The results are identical to those (Bouteska & Regaieg, 2020). The findings suggested that loss aversion has a positive significant influence on investor decisions in the stock market. As the Khyber pakhtunkhwa stock market, mostly the individual investors take high risk, so they fail to see losses in their investment decisions. And contradict the study by (Ahmad & Shah, 2020; Jain *et al.,* 2019).

Similarly, the findings do not support the 6th hypothesis of the study. The statistical data ($\beta = 0.142$, t-value = 1.199, $p > 0.05$) do not show a significant association between mental accounting and ESG issues. Since the result is reliable (Schanzenbach, & Sitkoff, 2020). The investors ignore the ESG issues during investment decision and just pre-occupied with the fact to avoid losses

Likwwise hypothesis H7, related to scholarship planned a significant positive application of mental accounting on trading performance. The statistics ($\beta = 0.083$, t-value = 0.722, $p > 0.05$) designate positive insignificant association as projected. Henceforth, the findings did not support H7. Subsequently, KP investors are risk-taker, because they are aggressive in mind. That's why during the decision-making of investment most are not creating separate portfolios. Therefore, they are not gain a sufficient return from investment. The results are alike to the findings of (Rehan, 2018) which recommend that mental accounting has not a significant effect on investor decisions making regarding investment in the KP. As a result, KP investors in Pakistan's Stock Market do not tend to treat each element of their investment portfolio separately, and as a result, investors overlook the relationship between different investment opportunities. The findings are not constant with the findings of (Jain *et al.,* 2019) which advocate that investors treat their investment portfolios separately and devote time and effort to the merger of different investment portfolios.

The hypothesis **H8** statistics ($\beta = 0.399$, t-value = 3.623, $p < 0.05$) show that over-confidence has a positive significant influence on ESG issue. Thus, hypothesis H8 was supported in this study. Hence, overconfident investors feel more confident in investment opinions over the opinions of their relatives, colleagues, or friends. Therefore, they trust that overconfident investors consider the ESG standards in investment decisions because they look for any change when coming into the market.

The ninth hypothesis **H9** statistical information ($\beta = 0.330$, t-value = 2.718, $p < 0.05$) stated a positive significant impact of overconfidence on Trading Performance. Hence, the findings support H9. Thus, researchers describe that overconfident investors having strong trading behavior might have good outcomes of trading performance (Anderson, Henker, & Owen, 2005). The result also supports the studies of (Ahmad & Shah, 2020; Bouteska & Regaieg, 2020; Jain et al., 2019). This means that generally overconfident investors consider themselves self-more skillful and knowledgeable at the time of decision investing. That's why they gain more based on their competency. This result is not constant with the results (Anum & Ameer, 2017).

Table 6: Mediation Hypotheses Testing

	Std. Beta	Std. Error	t-values	p-values	Decision
H10: Loss Aversion -> ESG -> Trading Performance	0.016	0.029	0.417	0.677	Not Supported
H11: Mental Accounting -> ESG -> Trading Performance	0.040	0.035	1.011	0.313	Not Supported
H12: Herding -> ESG -> Trading Performance	0.034	0.043	0.694	0.488	Not Supported
H13: Over Confidence -> ESG -> Trading Performance	0.114	0.056	2.002	0.046	Supported

The **H10** hypothesis of the study proposes that ESG issues are mediating the relationship between loss aversion and trading performance. The statistical measurements ($\beta = 0.016$, t-value = 0.417, $p > 0.05$) portrays that ESG issues has insignificant relationship between loss aversion and trading performance in Table 6. Therefore, the study was not supporting H10. Because loss-averse investors may not be considered ESG issues during investment. Since investors do not know about ESG implementation in the Pakistan stock market. The finding reversed with (Sultana *et al.,* 2017, 2018).

The findings of **H11** ($\beta = 0.040$, t-value = 1.011, $p > 0.05$) ESG factors designate insignificant relation between mental accounting and trading performance. Henceforth, this study was not supported. Thus, investors would not like to retain in mind the ESG practicing firms during the time investment because still the concept of ESG issues is not implemented properly in the Pakistan stock market. Hence, the findings are also not reliable to the study (Sultana *et al.,* 2017, 2018).

The statistical measured of **H12** ($\beta = 0.034$, t-value = 0.694, $p > 0.05$) reports that insignificant relationship. Hence, H12 was not supported. Hence, investors do not follow ESG oriented firms in the Pakistan stock market.

The **H13** deliberate that ESG displays a positive relationship between overconfidence and trading performance. Therefore, the data ($\beta = 0.114$, t-value = 2.002, $p < 0.05$) reports that ESG issues mediate a positive connotation between overconfidence and trading performance. Thus, the H13 was not supported in this study. Hence, overconfident investors consider the ESG criteria in an investment decision. Henceforth, the results are similar to the research of (Sultana *et al.,* 2017, 2018).

Conclusion and Recommendations

The overall purpose of the present study is to develop an understanding of the impact of behavioural determinants on individual investor trading performance in Khyber Pakhtunkhwa, as well as the mediating role of ESG performance. Several behavioural variables are emphasized in the decision-making of investors, according to this study. Individual investors' decision-making is influenced by behavioural biases, according to the studies, and their trading performance suffers as a result. With the use of a questionnaire was conducted among individual investors of KP, Pakistan Stock Market. The findings indicate that ESG issues are not mediating the relationship between loss aversion, mental accounting, herding, and trading performance. And on the other hand, the results display that ESG issues mediate a positive relationship between overconfidence and trading performance. The outcomes can assist businesses in evaluating the demand for ESG aspects and, in turn, encourage businesses to develop their activities using ESG-friendly techniques. Stock market policymakers will be able to consider investor preferences when developing rules and regulations in this area. ESG standards across the country will surely enhance when ESG rules and regulations are approved and fully implemented. In addition to being held responsible for the environment, society, and economic balance, investors will be ensured a long-

term investment return. This research study also suggested to the government, implement the guidelines and rules about ESG factors. This research study will be valuable for institutional investors, regulators, financial specialists, investment mentors, and fund managers to well comprehend behavioural biases during financial decisions. This study adds behavioural biases and ESG to the literature.

This research study has certain limitations. First, during the collection of data, generally, the investors are uneducated and are incapable to fill out the questionnaire. Because mostly, the participants do not fill the questionnaire with complete attention. The other limitation is that it is limited to the KP investors since data collection is vigorous effort and time-wasting work.

While this study identified specific individual investors' preferences for ESG concerns, the source of their inspiration for making this kind of investment decision was not fully revealed. As a consequence, this could be an interesting issue for additional research into social, functional, sensitive, and social change factors. Hence, future research is encouraged in other provinces, countries, and stock markets with altered components by pursuing comparative research of the behavioural aspects and ESG issues. Upcoming research might use the secondary data accessible on annual reports and diverse websites of the registered businesses on the Pakistan stock exchange (PSX).

REFERENCES

Ahmad, M., & Shah, S. Z. A. (2020). Overconfidence heuristic-driven bias in investment decision-making and performance: mediating effects of risk perception and moderating effects of financial literacy. *Journal of Economic and Administrative Sciences*, *ahead-of-p*(ahead-of-print). https://doi.org/10.1108/jeas-07-2020-0116

Ahmed, D. Z. S., & Bhatnagar, S. (2020). Conflict or Cooperation? The Role of India and Pakistan in Post-2014 Afghanistan. *South Asian Studies*, *30*(1).

Al-Homaidi, E. A., Almaqtari, F. A., Ahmad, A., & Tabash, M. I. (2019). Impact of corporate governance mechanisms on the financial performance of hotel companies: Empirical evidence from India. *African Journal of Hospitality, Tourism and Leisure*, *8*(2).

Alliance, G. S. I. (2018). *Global Sustainable Investment Review*.

Amir Rafique, Muhammad Umer Quddoos, Usama Kalim, & Muhammad Ramzan Sheikh. (2020). Impact of Behavioural Biases on Investment Performance in Pakistan: The Moderating Role of Financial Literacy. *Journal of Accounting and Finance in Emerging Economies*, *6*(4), 1199–1205. https://doi.org/10.26710/jafee.v6i4.1512

Anderson, A., Henker, J. & Owen, S. (2005). Limit order trading behavior and individual investor performance. *The Journal of Behavioural Finance*, *6*(2), 71–89.

Antony, A., & Joseph, A. I. (2017). Influence of Behavioural Factors Affecting Investment Decision—An AHP Analysis. *Metamorphosis: A Journal of Management Research*, *16*(2). https://doi.org/10.1177/0972622517738833

Anum, & Ameer, B. (2017). Behavioural Factors and their Impact on Individual Investors' Decision Making and Investment Performance: Empirical Investigation from Pakistani Stock Market. *Global Journal of Management and Business Research*, *17*(1), 1–12. https://globaljournals.org/GJMBR_Volume17/8-Behavioural-Factors-and-their-Impact.pdf

Areiqat, A. Y., Abu-Rumman, A., Al-Alani, Y. S., & Alhorani, A. (2019). Impact of behavioural finance on stock investment decisions applied study on a sample of investors at Amman Stock Exchange. *Academy of Accounting and Financial Studies Journal*, *23*(2), 1–16.

Ased Azad khan-MS, R., & Pakistan, I. (2017). Impact of Psychological Biases of Investors in Financial Satisfaction. *American Based Research Journal*, *6*(2017–10), 24–30. http://www.abrj.org

Avetisyan, E., & Hockerts, K. (2017). The consolidation of the ESG rating industry is an enactment of institutional retrogression. *Business Strategy and the Environment*, *26*(3), 316–330.

Ayaa, M. M., Peprah, W. K., Mensah, M. O., Owusu-Sekyere, A. B., & Daniel, B. (2022). *Influence of Heuristic Techniques and Biases in Investment Decision-Making: A Conceptual Analysis and Directions for Future Research.*

Bilbao-Terol, A., Arenas-Parra, M., Cañal-Fernández, V., & Bilbao-Terol, C. (2016). Multi-criteria decision making for choosing socially responsible investment within a behavioural portfolio theory framework: a new way of investing in a crisis environment. *Annals of Operations Research*, *247*(2), 549–580. https://doi.org/10.1007/s10479-015-1947-9

Bollen, N. P. B. (2007). Mutual fund attributes and investor behavior. *Journal of Financial and Quantitative Analysis*, *42*(3), 683–708. https://doi.org/10.1017/s0022109000004142

Bouteska, A., & Regaieg, B. (2020). Loss aversion, the overconfidence of investors, and their impact on market performance evidence from the US stock markets. *Journal of Economics, Finance and Administrative Science*, *25*(50), 451–478. https://doi.org/10.1108/JEFAS-07-2017-0081

Brewer, G. A., Selden, S. C., & Ii, R. L. F. (1996). *Individual_Conceptions_of_Public_Service brewer et al 2000.*

Budhiraja, K. (2018). Article ID: IJCIET_09_06_130 Investment Decision Making. *International Journal of Civil Engineering and Technology (IJCIET)*, *9*(6), 1151–1157. http://www.iaeme.com/ijciet/issues.asp?JType=IJCIET&VType=9&IType=6http://www.iaeme.com/IJCIET/issues.asp?JType=IJCIET&VType=9&IType=6

Chhapra, I. U., Kashif, M., Rehan, R., & Bai, A. (2018). An empirical investigation of investors' behavioural biases on financial decision-making. *Asian Journal of Empirical Research*, *8*(3), 99–109.

Cohn, R. A., Lewellen, W. G., Lease, R. C., & Schlarbaum, G. G. (1975). Individual Investor Risk Aversion and Investment Portfolio Composition. *The Journal of Finance*, *30*(2), 605–620. https://doi.org/10.1111/j.1540-6261.1975.tb01834.x

Erdfelder, E., Faul, F., & Buchner, A. (1996). G POWER: A general power analysis program. *Behavior Research Methods, Instruments, and Computers*, *28*(1), 1–11. https://doi.org/10.3758/BF03203630

Etikan, I. (2016). Comparison of Snowball Sampling and Sequential Sampling Technique. *Biometrics & Biostatistics International Journal*, *3*(1), 1–2. https://doi.org/10.15406/bbij.2016.03.00055

Eurosif. (2016). *European SRI study.*

Friede, G. (2019). *Why don't we see more action ? A meta-synthesis of the investor impediments to integrating environmental, social, and governance factors. May*, 1–23. https://doi.org/10.1002/bse.2346

GDL. (2018). "Sub-national HDI - Area Database - Global Data Lab." *Hdi.Globaldatalab.Org*.

Gigerenzer, G. (2020). *What is bounded rationality?*. In Routledge Handbook of Bounded Rationality.

Hair, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, *26*(2), 106–121. https://doi.org/10.1108/EBR-10-2013-0128

Hair Jr, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)*.

Hirshleifer, D. (2015). Behavioural Finance. *Annual Review of Financial Economics*, *7*, 133–159. https://doi.org/10.1146/annurev-financial-092214-043752

Hsu, Y. L. (2022). Financial advice seeking and behavioural bias. *Finance Research Letters, 46*, 102505.

Huang, H. C., Lin, T. H., Lai, M. C., & Lin, T. L. (2014). Environmental consciousness and green customer behavior: An examination of motivation crowding effect. *International Journal of Hospitality Management*, *40*, 139–149.

Hvide, H. K. (2000). *Pragmatic Beliefs and Overcon fi dence ∗. 1981*, 1–21.

Jain, J., Walia, N., & Gupta, S. (2019). Evaluation of behavioural biases affecting the investment decision-making of individual equity investors by fuzzy analytic hierarchy process. *Review of Behavioural Finance*, *12*(3), 297–314. https://doi.org/10.1108/RBF-03-2019-0044

Kahneman, D., & Tversky, A. (1979). Prospect theory: an analysis of decision-making under risk. *Econometrica, 47*(2), 263–291. https://doi.org/10.2307/1914185

Kahneman, D. (2003). Kahneman2003. *The American Economic Review*, *93*(05), 1449–1474.

Keswani, S., Dhingra, V., & Wadhwa, B. (2019). Impact of Behavioural Factors in Making Investment Decisions and Performance: Study on Investors of National Stock Exchange. *International Journal of Economics and Finance*, *11*(8). https://doi.org/10.5539/ijef.v11n8p80

KP-BOIT. (2019). *No Title*. http://kp.gov.pk/uploads/2016/05/Investment_Guide_(KP-BOIT).PDF (Accessed on 6/17/19)

Kumar, S., & Goyal, N. (2016). Evidence on rationality and behavioural biases in investment decision making. *Qualitative Research in Financial Markets*, *8*(4), 270–287. https://doi.org/10.1108/QRFM-05-2016-0016.

Li, Y., Gong, M., Zhang, X. Y., & Koh, L. (2018). The impact of environmental, social, and governance disclosure on firm value: The role of CEO power. *The British Accounting Review,*

50(1), 60–75.

Lim, L. C. (2012). The Relationship between Psychological Biases and the Decision Making of Investor in Malaysian Share Market. *Economics & Finance*.

Lungeanu, R., & Weber, K. (2021). Social responsibility beyond the corporate: Executive mental accounting across sectoral and issue domains. *Organization Science, 32*(6), 1473–1491.

Luong, L. P., & Ha, D. T. T. (2011). *Behavioural Factors Influencing Individual Investors' Decision-Making and Performance: A Survey at the Ho Chi Minh Stock Exchange*.

M.Costa, D. F., Carvalho, F. D. M., & Moreira, B. C. D. (2019). Behavioural economics and behavioural finance: a bibliometric analysis of the scientific fields. *Journal of Economic Surveys, 33*(1), 3–24.

McCarthy, S., Oliver, B., & Song, S. (2017). Corporate social responsibility and CEO confidence. *Journal of Banking and Finance*, *75*, 280–291. https://doi.org/10.1016/j.jbankfin.2016.11.024

McCollum, D. L., Echeverri, L. G., Busch, S., Pachauri, S., Parkinson, S., Rogelj, J., ... & Riahi, K. (2018). Connecting the sustainable development goals by their energy inter-linkages. *Environmental Research Letters, 13*(3), 033006.

Metawa, N., Hassan, M. K., Metawa, S., & Safa, M. F. (2019). Impact of behavioural factors on investors' financial decisions: the case of the Egyptian stock market. *International Journal of Islamic and Middle Eastern Finance and Management*, *12*(1), 30–55. https://doi.org/10.1108/IMEFM-12-2017-0333

Oldford, E., Willcott, N., & Kennie, T. (2021). Can student-managed investment funds (SMIFs) narrow the environmental, social, and governance (ESG) skills gap?. *Managerial Finance*.

Pompian, M. (2016). *Risk profiling through a behavioural finance lens*. CFA Institute Research Foundation.

PRINCIPLES, E. (2004). *The Equator Principles: an industry approach for financial institutions in determining, assessing, and environmental & social risk in project financing*.

Przychodzen, J., Gómez-Bezares, F., Przychodzen, W., & Larreina, M. (2016). ESG issues among fund managers-factors and motives. *Sustainability (Switzerland)*, *8*(10), 1–19. https://doi.org/10.3390/su8101078

Qasim, M., Hussain, R. Y., Mehboob, I., & Arshad, M. (2019). Impact of herding behavior and overconfidence bias on investors' decision-making in Pakistan. *Accounting*, *5*(2), 81–90. https://doi.org/10.5267/j.ac.2018.7.001

Recorder, B. (2018). KP's economy witnessed steady growth. *Economic Review*.

Rehan, R. (2018). *Behavioural Biases and Investor Decisions*. *December 2017*.

Riedl, A., & Smeets, P. (2017). Why Do Investors Hold Socially Responsible Mutual Funds? *Journal of Finance*, *72*(6), 2505–2550. https://doi.org/10.1111/jofi.12547

Rooh, S., Hussain, A., & Zahid, M. (2021). The impact of behavioural factors on environmental

issues regarding individual investor's decision making: Empirical evidence from Pakistan's stock market. *Sarhad Journal of Management Sciences (SJMS), 7*(1), 65–82.

Ruggeri, K., Alí, S., Berge, M. L., Bertoldo, G., Bjørndal, L. D., Cortijos-Bernabeu, A., Davison, C., Demić, E., Esteban-Serna, C., Friedemann, M., Gibson, S. P., Jarke, H., Karakasheva, R., Khorrami, P. R., Kveder, J., Andersen, T. L., Lofthus, I. S., McGill, L., Nieto, A. E., … Folke, T. (2020). Replicating patterns of prospect theory for decision under risk. *Nature Human Behavior*, *4*(6), 622–633. https://doi.org/10.1038/s41562-020-0886-x

Sachdeva, M., Lehal, R., Gupta, S., & Gupta, S. (2022). Influence of contextual factors on investment decision-making: a fuzzy-AHP approach. *Journal of Asia Business Studies.*

Savery, L. K. (1998). Management and productivity increase. *Management and Productivity Increases*, *17*(1), 68–74. https://doi.org/10.1108/02621719810368709

Schanzenbach, M. M., & Sitkoff, R. H. (2020). Reconciling Fiduciary Duty and Social Conscience: The Law and Economics of ESG Investing by a Trustee. *Stan. L. Rev., 72*, 381.

Singh, J. E., Babshetti, V., & Shivaprasad, H. N. (2021). Efficient market hypothesis to behavioural finance: A review of rationality to irrationality. *Materials Today: Proceedings.*

Sultana, S., Zainal, D., & Zulkifli, N. (2017). The influence of environmental, social and governance (ESG) on investment decisions: The Bangladesh perspective. *Pertanika Journal of Social Sciences and Humanities*, *25*(November), 155–173.

Sultana, S., Zulkifli, N., & Zainal, D. (2018). Environmental, social, and governance (ESG) and investment decisions in Bangladesh. *Sustainability (Switzerland)*, *10*(6), 1–19. https://doi.org/10.3390/su10061831

Taherdoost, H. (2016). Sampling Methods in Research Methodology ; How to Choose a Sampling Technique for Research Hamed Taherdoost To cite this version : HAL Id : Hal-02546796 Sampling Methods in Research Methodology ; How to Choose a Sampling Technique for. *International Journal of Academic Research in Management (IJARM)*, *5*(2), 18–27.

Thaler, D. and. (1995). Financial decision-making in markets and firms: A behavioural perspective. *Handbooks in Operations Research and Management Science*, *9*, 385–410.

Tversky, A., & Kahneman, D. (1974). *Judgment under uncertainty: Heuristics and biases. science*. *185*(4157), 1124–1131.

Umar, Z., Kenourgios, D., & Papathanasiou, S. (2020). The static and dynamic connectedness of environmental, social, and governance investments : International evidence. *Economic Modelling*, *93*(July), 112–124. https://doi.org/10.1016/j.econmod.2020.08.007

Umar, Z., & Suleman, T. (2017). Asymmetric Return and Volatility Transmission in Conventional and Islamic Equities. *Risks*, *5*(2), 22. https://doi.org/10.3390/risks5020022

Vinzi, V. E., Trinchera, L., & Amato, S. (2010). Handbook of Partial Least Squares. In *Handbook of Partial Least Squares*. https://doi.org/10.1007/978-3-540-32827-8

Wagemans, F. A. J., Koppen, C. S. A. K. van, & Mol, A. P. J. (2013). The effectiveness of socially responsible investment: a review. *Journal of Integrative Environmental Sciences*, *10*(3–4),

235–252. https://doi.org/10.1080/1943815X.2013.844169

Wali, S. (2019). Behavioural Factors Influencing Individual Investor ' S Trade Performance : a Comparative Study of Peshawar. *City University Research Journal*, *09*(01), 2019.

Widyawati, L. (2019). *RESEARCH ARTICLE A systematic literature review of socially responsible investment and environmental social governance metrics*. *December 2018*, 1–19. https://doi.org/10.1002/bse.2393

Worzie, P. (2020). *factors Affecting Investment Decisions among Listed Firms in the Nairobi Securities Exchange (Doctoral dissertation, KeMU).*

Zahera, S. A., & Bansal, R. (2018). *Do investors exhibit behavioural biases in investment decision-making? A systematic review. Qualitative Research in Financial Markets.*