

Individual Investors Financial Risk Tolerance and Personality Traits. A Systematic Review and Future Research Direction

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ABSTRACT

Purpose: Using a systematic literature review the papers investigated the relationship between various personality traits and the volatility of financial risk tolerance levels of investors. Further, the study analyzed and foundational work that has gone into making behavioural finance a well-established and distinct field of study over the years. The behavioural tendencies of individual investors, institutional investors, and financial advisors have also been included in this study.

Design/Methodology/Approach: The research papers were assessed using the Scopus database, published journals, conference proceedings, and working papers, using keywords related to behavioural finance. These papers were gathered from 1967 which laid the groundwork for this subject to 2021. These articles are divided into categories according to personality traits, year, country, and author. All research instruments connected to primary and secondary data that writers have utilized have been shown in this paper

Findings: The findings of this study suggest that research on financial markets has been overtaken by a new era of studying human emotions, behaviour, and attitudes. Moreover, not only are academics paying attention to this field, but so are corporations, financial intermediaries, and entrepreneurs. Individual and institutional investors, as well as financial advisors, are the primary focus of the research, but the behaviour of the financial intermediary through which most of these investors invest should also be examined.

It allows researchers to focus on a smaller subset of the population while also examining emerging economies in search of new theories. The findings of this study have been described in the form of tables, which include the big five personality trait model and their impact on risk tolerance levels among investors.

Research Limitations/Implications: Based on recent research, this study provides an overview of the most significant developments in this field. So far, there have been only a few comprehensive reviews of behavioural finance studies have been published. Now researchers in this field will benefit from this study's findings, as well as those who are looking for areas to focus their efforts. The use of only the Scopus database is the limitation of this study, the use of the web of science could have provided much more details. **Practical implications:** A practical implication of the research is that corporations, policymakers, and securities issuers can keep investors' interests in mind before introducing securities into the market.

Social Implications: Investors can get well acquainted with their personality type and risk tolerance level which will help them in making better investment decisions and thereby reduce risk.

Originality/Value: The focus of this work is the review of existing research on the big five personality trait model about the risk tolerance level of investors. The research is also based on investment decision-making literature. Some new concepts and theories of behavioural finance will be discussed in this paper in addition to the more established ones. Consequently, the study encourages readers to look for solutions that limit the impact of personality traits on risk tolerance and thereby in making decisions.

Keywords- personality traits, Financial markets, Risk tolerance, Behavioural finance, Investment decision making, investment.

I. INTRODUCTION

Financial management, the science and art of managing money, is the backbone of the global economy. Many people, including government officials, academics, business executives, investors, and entrepreneurs, have worked hard to ensure that financial management is properly handled in our economy. The digitalization of financial markets and the availability of innovative financial investments in financial markets have increased rapidly in recent years. For investors' assets to be properly channelled and effectively protected against financial misuse, a proper and full grasp of the investing process is required. As a result of investors' differing behavioural patterns and emotional responses, the investment process in the stock market has become more complicated than ever before. Researchers are intrigued by the shift from traditional to behaviour finance and want to create a distinction between the two.

Investors have always been depicted as rational agents in traditional financial models. The well-known classical finance theory of efficient markets has termed stock markets as efficient markets. It says that the share price is based on all available data. Thus, the fundamental concept of conventional finance is that investors always act logically and rationally when confronted with situations requiring investment decisions. However, in opposition to this paradigm, there is behaviour finance, which challenges traditional finance assumptions. Behavioural finance is predicated on the premise that investors are not entirely rational. They make decisions influenced by their emotions, personality characteristics, and mental blunders.

The incorporation of psychology into behavioural finance has shed substantial insight into the mechanism by which investors make decisions in the face of risk and uncertainty. Due to the inescapable significance of behavioural finance in investment decision-making, much study has been performed to explain why investors behave differently towards the same type of asset at various times. Indeed, there have been a lot of efforts to figure out what factors influence an investor's behaviour when deciding on choices. Numerous underlying psychological elements have been identified that exert a significant influence on an investor's decision-making. However, research has determined that the most significant component influencing decision-making is personality traits. The personality trait component enables us to comprehend how investors' information processing is impacted and how this affects their attitude and perception of risk.

Risk tolerance is viewed as a necessary component of financial decision-making, which mostly involves saving and investing choices. Individual risk behaviour provides a road map for financial managers whose primary objective is to forecast investors' behaviour in financial markets (Grable & Lytton, 2003). As a result, scholars have expended considerable effort to

ascertain the key aspects influencing the behaviour of economic agents. According to Belcher (2010), personality characteristics are important in the study because they disclose a critical issue, namely how each individual absorbs market information and thereby alters their relationship to risk. Thus, after the researchers' in-depth examination of the link between personality and financial decisions, it became necessary for them [Baddeley et al., 2010] to integrate personality traits into their investigations.

Researchers' in-depth investigation indicated that the more outgoing or sympathetic a person is, the more likely he or she is to emulate the conduct of others while making financial decisions. Or we could say that individuals have a greater proclivity to mimic herd behaviour. According to Rezzutek and Czerwonka (2011), the more outgoing, adventurous, and open to new experiences an individual is, the more likely he is regarded to make logical financial decisions. On the other hand, several studies have indicated that personality characteristics have little bearing on financial decision-making (Belcher, 2010). Reading these studies has helped us to understand how these factors can change the risk profile of investors. These studies have been very careful to look at and evaluate how economic agents act in a risk environment.

Behavioural biases, risk profile questionnaires, and cognitive ability have all been shown to play a role in predicting the risk profile of investors in the past. A lot of people have looked at this [Mayfield et al. 2008, Mooreland, 2011, Poshkwale and Mandal, 2014]. Mayfield C, Perdue G, and Wooten K. (2008) looked at personality traits and found that people who were more outgoing and open to experience were more likely to take risks. There is a lot of information out there that can help us understand how investors make decisions. The paper's main goal is to get a better understanding of that information. For example, we've been able to figure out why the stock market isn't efficient, even though many traditional theories say it is.

The utmost objective of this paper is to gain an in-depth understanding of the existing body of knowledge which helps us to understand the various complexities existing in investors' decision-making. With the help of an in-depth systematic literature review and bibliometric analysis, we have been able to address the practical problems of the stock market like why the market gets crushed, and why are bubbles formed in the market despite being framed as an efficient market by various traditional theories.

1.1. Research Motivation.

The study of behavioural finance has provided us with an unprecedented chance to investigate the elements that contribute to investors' divergent behaviour patterns when it comes to the same type of security. The progressive growth in researcher efforts attempts to explain stock market anomalies and has supplied an explanation for why only a small fraction of investors can

discern price deviations from their fundamental values. It is necessary to emphasize here that the fundamental purpose of the study was the investors' diverse personality qualities, specifically how they affect risk perception and risk tolerance among financial decision-makers, given that risk is the underlying base of investing. Risk perception and risk-taking ability are what drive investments, savings, consumption, and other critical investment decisions. This study will help us understand why it is critical to understand one's personality attributes before making investing decisions. This work will contribute not just to behavioural finance theory, but also to the creation of public policies that will aid in a country's economic revival.

1.2. Research problems

The industry and academia are interested in knowing whether the investor is acquainted with his or her numerous personality qualities and the level of risk tolerance with which he or she is ready to accept before making any investment decision. Thus the situation asks for numerous personality factors that impact an investor's risk tolerance and, eventually, his decision-making, for readers to become acquainted with the aforementioned fact. Additionally, the study sought to establish a logical foundation for the development of relationships between the aforementioned entities. This research attempted to compile a list of all articles that examined the effect of personality factors on risk tolerance and decision-making. This article will discuss the numerous particle issues in the stock market, including securities mispricing and market abnormalities such as bubbles and collapses. Further, it will provide detailed future directions.

II. LITERATURE REVIEW

Two psychologists, Kahneman and Tversky (1979), made the most fundamental contribution by laying the groundwork for the well-known prospect theory. It has supplanted classic finance theories such as anticipated utility theory (Bernoulli, Daniel; originally published in 1738; translated by Dr Louise Sommer, 1954) and Markowitz's (1952) efficient market hypothesis. The concept of rationality as espoused by classical finance theories has been questioned by behaviour theorists. Thaler (1980), for example, has developed ideas to explain why we need to apply the prospect theory to financial markets; he argues in his theories that investors do not always act rationally and frequently make errors while making investment decisions. As a result of their substantial contributions to behavioural finance, Kahneman and Tversky (1979) and Thaler (1980) are considered the fathers of behavioural finance (Hammond, 2015).

2.1. Personality trait influence on investor behaviour

Many people in psychology have a strong opinion that personality shapes how we act. People's personalities play a huge role in how they think and act in the stock market. It also helps you understand and figure

out how well investors do in the stock market. It is said that (Borghans et al., 2008). Personality traits are the thoughts, feelings, and behaviours that make one person different from another and show how likely they are to act in certain ways in certain situations (Roberts, 2009). Because of a lot of research on personality traits, it is thought that personality is made up of a lot of different things, like different emotional, cognitive, and motivational traits. These things are thought to affect how people respond to their environment and make decisions (Dole and Schroeder, 2001; Smith, 1999a). According to the work done by Krishnan and Beena (2009), Mayfield et al. (2008), and Smith (1999a), they say that individual personality traits play a big role in how one spends, invests, and takes risks. There are a lot of ways to figure out how traits work together in people, but the Big Five model is the most widely used and important one in management and psychology, according to a study (Costa and McCrae, 1992a; Mayfield et al., 2008; Buccioli and Zarri, 2015).

The key dimensions of the personality trait model that are believed to explain the integrated personality of an investor are neuroticism, extraversion, openness, agreeableness, and conscientiousness. Neuroticism, extraversion, openness, agreeableness, and conscientiousness are the dimensions that are believed to explain the integrated personality of an investor. The degree to which a person's pattern of thoughts and feelings is stable is well determined by the score that an individual receives on these aspects of cognition and emotion (Rustichini et al., 2012). The work of McAdams (1992) has pointed out that this model is non-theoretical and that it has the potential to introduce measurement bias in addition to the good aspects of the big five personalities characteristic model. According to the findings of Mayfield et al. (2008), conscientiousness and openness to experience have no association with short-term investment intentions; however, openness to experience has a positive link with long-term investment intentions among a sample of US retail investors. (2018) Gupta and colleagues a result of their research, discovered that the extroversion and openness personality traits are significantly associated with hindsight and overconfidence cognitive biases. They have also concluded that there is a clear association between the neurotic personality trait and randomness bias and that there is a direct correlation with the escalation of commitment personality characteristics and availability bias, among other things. Additionally, there is a negative association between the conscientiousness personality trait and the randomization bias, as well as a negative correlation between the openness personality trait and the availability cognitive bias.

According to Elisa Gambetti (2019), nervous people are more likely to save money and avoid investments because they see high risks and little control and reward, whereas people with high extroversion, independence, and self-control are more likely to invest.

Daiane De Bortoli et al. (2019) have gone a step further to see which paradigms better represent an investor's risk profile. Prospect theory, investor profile analysis (IPA), the Big Five Personality Test, and the Cognitive Reflection Test were all used to explain an investor's risk profile (CRT). The findings revealed that people with higher risk tolerance, those who violate prospect theory, and those with a high degree of openness to experience are more likely to take higher amounts of risk in their investing selections. According to Ahmad and March (2019), only conscientiousness, neuroticism, and openness to experience as investors have high financial risk-taking capability. When it comes to investing, the other two personality traits, agreeableness and extraversion, have little bearing on financial risk tolerance. In their study, Mehregan et al. (2018) discovered that a rise in extroverted traits was adversely and substantially linked with risk aversion; they also discovered that openness to experience was negatively and significantly connected with risk aversion.

According to Ksendzova et al. (2017), conscientiousness and money management are favourably related, but they are negatively associated with neuroticism. In their study on the association between personality characteristics and stock investment, Rizvi and Fatima (2015) discovered that agreeableness, conscientiousness, neuroticism, and openness had a substantial influence on stock market investing. According to a study conducted by Gokhan Ozer et al. (2019), personality traits are important factors that financial institutions should focus on when offering products and services related to individual investor portfolios. They concluded that personality traits are important factors that financial institutions should concentrate on when offering products and services related to individual investor portfolios. Further, H. Kent Baker et al. (2017) found a link between neuroticism, extroversion, and conscientiousness, as well as individual investors' behavioural biases, in their study on personality characteristics and investing attitudes. Only mental accounting shows a link to openness, while the agreeableness attribute has no link to the behavioural biases analysed. Furthermore, Durand et al. (2008) discovered a link between extraversion and vulnerability to the disposition effect as well as overconfidence among Australian investors.

Nga and Yien (2013) studied the possible influence of generation Y personality characteristics and demography on financial decision-making by surveying undergraduate students in Malaysia. Their findings show that the conscientiousness trait has a substantial influence on risk aversion, the openness trait has a big impact on cognitive biases, and the agreeableness trait has a significant impact on socially responsible investing. In their paper "Investor-advisor Big Five personality similarity and stock trading performance," Tuani et al. (2019) found that investor-advisor personality similarity in terms of openness, extraversion, conscientiousness, and

agreeableness is positively connected to investor stock trading success. On the other hand, the investor-advisor neuroticism similarity has a detrimental impact on investor trading performance. The descriptions of the different dimensions of the big five personality characteristic model may be found in the table below.

Personality trait	Description
Neuroticism (N)	Anxiety, impulsiveness, tenseness and shy
Extraversion (E)	Active, assertiveness, energetic, optimism, sociability, talkative and outgoing
Openness (O)	Curious, imaginative, original, wide interests and insightful
Agreeableness (A)	Skeptical, kind, generous, sympathetic and trustful
Conscientiousness (C)	Organized, reliable, responsible, efficient and determined

Note: This table describes the Big Five personality traits Source: Revised NEO Personality Inventory (NEO-PI-R) and NEO five-factor inventory (NEO-FFI) by Costa and McCrae (1992a) and McCrae and John (1992)

2.2. Dimensions of personality traits

2.2.1. Extraversion

Extraversion is the primary and essential dimension of personality characteristics that impacts an individual's sociability. It reveals a person's level of socialisation. It also seems to show how much a person plans to or enjoys maintaining contact with others. According to (Sadi et al., 2011). Extrovert people prefer to be surrounded by other people and converse with them, whereas introverted people prefer to be alone Extrovert individuals like social activities. They have strong personalities. According to McCrae and Costa Jr. (1997) and Leary, Reilly, and Brown (1998), an extrovert is energetic, and positive, craves excitement, and socialises in big groups (2009). In addition, Oehler and Wedlich (2018) investigated the association between extraversion and risk attitude, as well as risk perception and return expectations. Based on their findings, they discovered that extroverts are more risk-tolerant than introverts.

Sadi et al. (2011) found that introverts are low-risk takers. Their findings were backed up by research by Raheja & Dhiman (2017), who discovered that some qualities have a positive link with risk tolerance while others have a negative correlation. Mayfield, Perdue, and Wooten (2008) found that people with strong extroversion qualities invest more in the stock market than introverts. further Durand et al. (2008) found that those with a stronger inclination toward the extroversion characteristic are more likely to take high risks and obtain high returns.

Brown and Taylor (2014) conducted an empirical investigation into the association between household personality characteristics and financial decision-making and discovered that "extraversion is associated with financial assets and unsecured loans."

2.2.2. Openness to Experience

According to (Costa and McCrae, 1992), persons who are open to new experiences and are creative, sensitive, imaginative, and unorthodox are said to have the attribute of openness to experience. Individuals with features of openness to experience, according to Martins (2002), are those who exhibit the attributes of wide-mindedness, creativity, and resourcefulness. Because of their capacity to have confidence in external events, these people are thought to take large risks. Individuals with high openness to experience scores are more likely to participate in long-term financial possibilities and are willing to wait for the benefits of those investments (Mayfield, Perdue & Wooten, 2008). According to a study done by Nandan and Saurabh (2016), investors who have this feature are more inclined to take bigger risks than investors who do not have this tendency. Those who desire to go out would prefer to put their money into risky ventures. Investors that have this feature have a favourable relationship with risk tolerance and prefer to invest in stocks (Nga & Ken Yien, 2013). These types of investors are supposed to be drawn to fresh ideas, aesthetics, and innovation (Gunkel et al., 2010). Mayfield et al. (2008) did research with undergraduates from business schools and discovered that those who are open to new experiences trade more frequently in the stock market than their peers. Investors with high "Openness to experience" ratings are more likely to use unorthodox financial decision-making rules of thumb. Individuals are more ready to follow unusual financial decision-making rules of thumb when they are younger."

2.2.3. Agreeableness

The concept of agreeableness has been wonderfully defined by Mayfield et al., 2008. They describe agreeableness as a person's tendency to be very cooperative, helpful, altruistic, and symbiotic toward others. (Halder and colleagues, 2010). In this study, it was also revealed that pleasant people like caring for other people, and that they check for their genuine character and closely assess items to hunt for their details. Costa and McCrae (2002; Costa & McCrae, 2002; Costa & McCrae, 2002; Costa & McCrae, 2002; Costa & McCrae, 2002). The pleasant role has been described as generous, hopeful, helpful, trustworthy, and empathic.

Individuals that score high on the disagreeableness part of the personality, on the other hand, exhibit sarcastic conduct. They just care about themselves, don't want to become involved in other people's problems, and are dubious by nature. They are labelled as uncooperative, unhelpful people who strive to conceal information for their gain. In a nutshell, they are self-centred individuals that want to maximise their gains while ignoring the needs of others. Pak & Mahmood

(2015) conducted an intriguing study that found a substantial negative link between agreeableness and risk tolerance. According to Costa Jr. and McCrae (1992), pleasant people find it challenging to make personal financial judgments and are more likely to rely on financial analysts' opinions. Individuals with high levels of agreeable qualities are thought to avoid confrontation with others and to positively assimilate information offered by others without critical evaluation (McCrae & Costa Jr, 1997).

2.2.4. Conscientiousness.

Conscientiousness is another important aspect of personality traits since it depicts a person as trustworthy, punctual, self-disciplined, and competent. Mayfield et al. (2008) state that conscientious people are punctual, persistent, driven, trustworthy, and well-organized, and that they do not take major risks. In their study, Gunkel et al. (2010) found that people with high levels of conscientiousness actively participate in decision-making. These individuals are regarded as having great self-control and outstanding self-management abilities. They are said to have experienced rough lanes before beginning their job. They aren't all prone to acting rashly. They are thought to be well-organized people who carry out their tasks in a certain sequence or according to a set plan. People are said to make decisions only after a thorough examination of the situation. (Anic, 2007). In his research, discovered that people with a high level of conscientiousness prefer to avoid risky actions. Conscientious investors act responsibly and avoid misunderstandings when making financial decisions. Because of the aforementioned trait, they are careful about the sort of investment they want to make and the degree of risk they are willing to take. Durand et al. (2013) discovered that people with conscientious personalities had a good link with their trading behaviour.

2.2.5. Neuroticism.

Neuroticism is a personality trait that refers to an individual's inability to control their emotions. Strong people are those that have a consistent pattern of emotions (Costa and McCrae, 1992). There are several types of humans, or a vast variety of people on our planet, whose emotional stability varies. Some people have a consistent pattern of emotions, they are self-assured, have a clear mind, and do not experience stress, but others are continually unhappy, depressed, apprehensive, or worried, and are referred to be neurotic (John et al., 2008). Eysenck did his study in the late 1960s and concluded that neurotic people are often apprehensive and acquire negative sentiments over time. Neurotic people struggle to control their emotions, which has an impact on their personal lives, decision-making abilities, and capacity to make decisions. Neurotic people are more likely to become irritated easily, making them more vulnerable to stress and frustration. In their study, (Pak & Mahmood, 2015, and Eysenck's, 1967) discovered that neurotic people had a negative relationship with risk tolerance. Because of neurotic people's limitations, such as their

nervous and fearful disposition, they take precautions while making dangerous investing selections. Neurotic persons are thought to invest in low-risk portfolios because they lack conceptual knowledge, critical thinking, cognitive capacities, and analytical skills (McCrae & Costa Jr, 1997; Young et al., 2012). They are thought to have a lower risk appetite (Gambetti & Giusberti, 2012). Furthermore, Niszczota (2014) discovered that neurotic people tend to overlook risky investments and investments in foreign assets.

2.3. Role of risk tolerance in investment decision making

Risk is the fundamental principle of any investment, or more precisely, it is the prerequisite for making any investment decision. Due to its broad application in a range of contexts, it becomes an interesting topic to study. Risk tolerance refers to an investor's capacity to invest in a variety of different quantities over an extended period. It reflects an individual's capacity for market volatility concerning investment. Individuals who invest regularly are more likely to have higher risk tolerance. Male investors, similarly, have a higher risk tolerance than female investors (Falahati and Paim, 2012). Due to the domain-specific nature of risk, it has a variety of meanings, definitions, and explanations across individuals and organisations. In the domains of behavioural finance, financial psychology, and behavioural accounting, extensive study has been conducted on risk (Ricciardi, 2004).

According to Wanyana (2011), investors' risk tolerance attitudes may be classified into three subcategories: "low-risk," "medium-risk," and "high-risk." The literature has indicated to a significant extent that academics from various disciplines have varying perspectives on risk. Traditionally, finance has placed a premium on the objective dimensions of risk (Ricciardi 2008), i.e. the quantitative aspects of risk. Traditional finance's fundamental premise is rationality, which implies that because individuals are risk cautious, they choose the optimal choice over an investment with an equivalent expected value. Numerous study groups have examined the association between investors' personal qualities and their risk tolerance). Some researchers examined the association between personality features and investment decisions made based on risk tolerance and discovered that personality factors have a major impact on investment decisions made based on financial risk tolerance behaviour. Pak and Mahmood (2015) verified the mediating impact of risk tolerance in their investigation, concluding that investment decisions are significantly influenced by personality factors related to risk tolerance.

Sadiq and Amna (2019) observed that risk tolerance plays a role in the link between personality traits and investment decisions. According to the researchers, risk tolerance varies by gender and investor age (Falahati and Paim, 2012). For instance, young investors with limited awareness of investment opportunities but a desire

to invest are more inclined to take risks than those with sufficient expertise (Kanadhasan, 2015). Male investors exhibit greater tolerance for risk than female ones (Chen and Volpe, 2002). Additionally, there are additional variables that affect investment decisions, such as attitudes and personality traits (Zaleskiewicz, 2001; Bye & Lamvik, 2007). Similarly, Laing (2010) claimed that psychological biases affect decision-making and financial risks. Anchoring, Overconfidence, Availability, Excessive Optimism, Herd Behavior, and the Big Five qualities were investigated in risk tolerance and financial decision-making (Oehler & Wedlich, 2018).

A different study showed similar findings, implying that personality qualities influence risk tolerance behaviour and that when recommending investing options, both the investor's personality and risk tolerance should be considered. Risk tolerance is a psychological feature that can be defined as an attitude (Davies, 2014). Ali Bayrakdaroglu (2016) concluded in his article that investors' personality characteristics influenced their financial risk tolerance. It was determined that the investors in his study possessed a higher level of agreeableness, and those who block psychological biases were predominantly pleasant individuals. In their article titled *Do Investors' Personality Traits and Emotional Intelligence Determine Their Risk Tolerance?*

Babli Dhiman et al. (2016) found that investors' risk tolerance is determined by their personality traits and emotional intelligence. Risk tolerance was found to be statistically significant when correlated with personality traits and EI. Among the numerous aspects of personality traits, agreeableness, extroversion, and openness to experience be associated with risk tolerance. Additionally, the study discovered that EI and personality are not mutually exclusive. EI has a greater influence on risk tolerance than investors' personality qualities. et al., Kavita (2016) found that respondents' investment habits and decision-making are influenced by their gender. Additionally, they discovered that a respondent's age and career affect his or her risk tolerance and perceived risk. Additionally, they discovered that investors with substantial knowledge and expertise in investing are willing to take risks because they view risk as an adventure.

Nauman Sadiq et al. (2019) aim to elucidate the mediating function of risk behaviour in their research. The findings indicated that risk behaviour contributes to the mediation of the connection between personality factors and short-term investment intention. In the long run, though, Risk behaviour somewhat mediates the association between extraversion, agreeableness, openness to experience, and conscientiousness and long-term investment intention and completely mediates the relationship between neuroticism and LTII. Financial managers rely heavily on risk behaviour measurement (Grable & Lytton, 2003). Their research indicated that risk tolerance is a critical element in financial decision-making, saving, and investment decisions. As a result,

financial managers frequently rely on individual investor risk behaviour estimation to forecast their financial market behaviour. Additionally, they discovered that investors with a high tolerance for risk favour risky assets such as stocks and derivatives, whilst those with a low tolerance for risk prefer to save their money

III. RESEARCH GAPS IN THE EXISTING LITERATURE

Gerhard Van de Venter et al. (2009) revealed that, as a result of experience and peer pressure, a person's risk tolerance may alter over time. The experiment might be extended over a longer length of time to detect significant changes in risk attitudes. Individual risk shifts can be analysed in the context of broader economic shifts. Changes in risk tolerance and risk perception according to Michael J. Roszkowski's book, *Attributable to the 2010 Economic Crisis*, there are two extreme views on risk. One school of thought holds that risk is a permanent personality attribute, whereas the other holds that risk changes with time, similar to mood swings. However, danger, according to Michael, is dependent on the circumstances and rests somewhere between the two viewpoints. The pre-crisis risk perception measurement approach was the only one employed in the study. However, no approach for evaluating post-crisis risk perception in the stock market has been developed. Other psychological traits might be investigated to understand how they influence risk perception and risk tolerance. Higher risk-tolerance ratings, according to Gilliam (2010), were positively associated with risky asset ownership and negatively associated with risk-free asset ownership. The sample size, however, may be extended to apply the findings to a wider and more diversified population.

According to Olga Pak (2015), the personality characteristic "openness to experience" has a large positive influence on risk tolerance, whereas "agreeableness" has a considerable negative effect. According to the survey, people who want to try new things and have strong personal beliefs are more likely to invest in stocks. The study only took into account one country. It only used a sample of university students, which does not reflect all of a country's potential investors. There is also the possibility of including cultural and social aspects to assess their influence on risk tolerance and investment decision-making. In their study, Sadiq et al. (2019) discovered that risk tolerance partially mediates the association between personality characteristics and investing decisions. The study only included 330 people, but there is room for more research with bigger sample size and from different nations. The study offers the potential to examine culture and other psychological aspects.

Sarwar et al. 2020 investigated the link between the big five personality traits of openness to experience, extraversion, awareness, agreeableness, neuroticism, and

risk aversion and the investment intentions of Balochistan, Pakistani individuals. The study's findings suggest that all factors are statistically significant in predicting investors' investment intentions, with risk aversion being the strongest predictor. The study solely focuses on a specific region of Pakistan, but the study has the potential to cover a broad sample size from around the country. The study might also involve young people to see whether it affects their decision to invest in the long or short term. Tauni et al. 2020 explored how investor-advisor personality similarities (differences) in the Big Five are connected to stock trading success. The cross-sectional design was adopted in this investigation. There is a risk in using a longitudinal design since participants' responses may alter over time as the market conditions change.

Trang et al. (2016) discovered that conscientiousness, openness to new experiences, and agreeableness all had a direct influence on investment performance. Individual investors, according to the survey, should be in a good mood while investing in equities. Furthermore, investors who are predisposed to neuroticism rather than other features avoid investing in stocks; nonetheless, this study may be utilised to analyse other elements that have a direct or indirect influence on good and negative moods. Perveen et al. 2020 investigated investing decisions and personal traits via risk tolerance. The study found that investment experience had no conditional significance in the relationship between introversion and risk tolerance. The sample size is tiny, and the study might produce better findings if done on larger sample size. Further research can be conducted on a varied group of investors, i.e. institutional investors. The research may also be used to assess the impact of other personality factors on risk tolerance. Mathur 2019 studied personality attributes and risk tolerance among young investors. The results showed that agreeableness, neuroticism, and openness were substantially connected with risk tolerance, whereas extraversion and conscientiousness had no significant connection with risk tolerance. The study has the potential to incorporate retired persons as a study sample. It can also include the effect of financial literacy on risk tolerance. In their study, Kourtidis (2017) attempted to determine whether or not personality factors are associated with stock trading behaviour. The findings indicated that personality factors influence investors' trading behaviour and stock performance. The study's scope may be broadened further by evaluating this model in other nations in Europe and the United States to compare or validate these results.

IV. RESEARCH METHODOLOGY

4.1 Research objectives:

Based on the gaps and limitations in the existing literature we formulated several research objectives.

1. To understand the basic comparison between behavioural finance and traditional finance.
2. To identify the personality traits that affect the investor's risk tolerance and investment decision-making.
3. To study the impact of risk tolerance in association with the big five personality trait model on investment decision-making.
4. To explore the authors who have given significant contributions to the field of behavioural finance.
5. To provide awareness about the applicability of behavioural finance and to find the appropriate area that could focus on some future research to be conducted in the field of behavioural finance.

4.2. Methodology

The research was built on the foundation of a review of the literature. A substantial amount of material was evaluated, even though a full literature study was not possible due to a variety of constraints. Because the goal was to link the influence of personality traits on financial risk tolerance and investment decision-making, the keywords utilized to search the articles were personality traits, financial risk tolerance, and investment decisions.

The search results included studies with several personality traits and those publications were further subdivided based on the investor's investment intentions. Individual investors, institutional investors, and mutual funds were all included as a consequence. The study's

period begins in 1979 (first proposed by Kahneman and Tversky, 1979) and extends until 2021, as this was the year of the outstanding work in behavioural finance. The data was then summarised and evaluated in Excel. The researchers employ a variety of approaches to analyse the existing literature, gather some original data for the study, or perform empirical and limited surveys to get the required results. The research is usually done for a specific study, a certain country, or a specific period. Typically, sampling comprises selecting from convenience, simple random sampling, cluster sampling, quota sampling, and so forth.

Primary data was gathered via the use of questionnaires and interviews. Secondary data are given by company databases, brokerage house data, and company data obtained from stock exchanges. The Likert (1932) scale, which categorises questions into a scale ranging from the least favourable to the most positive, is the most commonly utilised instrument. This is intended to assist respondents in selecting their replies on a certain range about a series of assertions. It also describes the respondents' psychological emotions and reactions with a single questionnaire. A questionnaire is the most commonly used technique for gathering primary information from investors. This is a versatile tool for modifying questions to uncover hidden emotions in human behaviour. Furthermore, it serves as a simple tool for reaching out to a wide range of potential investors at the same time.

RESEARCH ARTICLE	AUTHOR	DATA TYPE	SAMPLE SIZE	METHODOLOGY	Antecedents IV	Outcomes DV
1. Portfolio investor personality traits and portfolio investment decisions: An empirical analysis.	Dr Chabi Gupta, Dr Kshama Agarwal	primary	behavioural experts' ideas have been used.45 questions questionnaire was used with a relevant sample size	For investigating the research hypothesis, exploratory factor analysis and spearman's correlation analysis has been applied	<ul style="list-style-type: none"> • Cognitive Biases • Investors Personality Traits 	Portfolio Investment Decisions
2. Personality, decision-making styles and investments	Dr Elisa Gambetti	primary	Three hundred and sixty-two participants completed the Sixteen Personality Factor Questionnaire	performed a multivariate ANOVA considering hierarchical multiple regression analyses	Personality Traits	Personality Decision-Making Styles
3. Personality traits and investor profile analysis: A behavioural finance study	Daiane De Bortoli, Newton da Costa Jr., Marco Goulart, Je´sica Campara	primary	A total of 140 students took part. Thirty-four participants were women and 106 were men.	ordered logistic regression. experimental method. a software package for simulating investments	Prospect Theory Investor Profile Analysis Big Five Personality Traits	Risk Profile of Investors

					Cognitive refraction Test	
4. Personality Traits and Investor Decisions.	Muneeb Ahmad1 and Zhou Maochun1	primary	circulated 150 questionnaires among the investors trading in the Pakistan stock exchange. 90 % belong to the male investor, and 10 % belong to female investor respondent	data was analyzed on SPSS software. The researcher uses the factor analysis, chi-square analysis and logistic regression analysis were used.	Big Five Personality Traits Psychological Biases	Financial Risk Tolerance
5. The Mediating Role of effect in the Relationship between the Big Five Factor Personality and Risk Aversion: A Structural Model	Mohammad Reza Mehregan, Mahnaz Hosseinzad eh, Mohammad Mehdi Emadi	primary	265 undergraduate and postgraduate students. the modelling	Ten-Item Personality Inventory and the Positive and Negative Affect Schedule (PANAS). Data were analyzed using structural equation modelling. 131 (49.4%) were male and 134 (50.6%) were female. Data were analyzed using structural equations	Big Five Personality Traits Mediating variable: Affect	Risk aversion
6. An Empirical Research on Investor Biases in Financial Decision-Making, Financial Risk Tolerance and Financial Personality.	Bilgehan Kübilay1 & Ali Bayrakdaroglu2.	primary	. The survey forms were distributed to 1.800 people and 536 of them have responded.	The hypotheses made within the scope of the study was tested by chi-square analysis and logistic regression analysis For data analysis, SPSS (Statistical Package for Social Sciences) for Windows 22 was employed	Personality Traits Psychological Bias Financial Risk Tolerance	Financial Risk Tolerance
7. Household finances and the ‘Big Five personality traits	Sarah Brown, Karl Taylor	secondary	data are drawn from the British Household Panel Survey.	used standardized Cronbach alpha reliability index	Personality Traits Financial Decision Making	Unsecured Debt and Financial Assets
8. Do personality traits influence investors’ portfolios?	Alessandro Bucciol, Luca Zarri	secondary	Based on large-scale survey data from the 2006–2012 waves of the US Health and Retirement Study (HRS),	the correlation between financial investment decisions and information on personality scores We estimate our	Stable personality traits	Financial risk Taking

				regression equations using a probit model.,		
9. The role of personality traits in green decision-making.	Sontic, Natalia V. Czap, Franz Fuerst	secondary	Using the data from the Understanding Society UK survey	structural equation modelling is applied	Personality Traits	Investment Decisions in the Energy sector
10. Cultural influences on risk tolerance and portfolio creation.	Mark K. Pyles, Yongping Li, Shifang Wu, Steven D. Dolvin.	primary	The sample of American students (n = 215) was gathered at a public University in the southeast US, and the sample of Chinese students (n = 620) were gathered at two Universities in mainland China.	Bivariate analysis is applied to get the desired results	Culture	Risk Tolerance
11. Personality of individual investors.	Dr. P. Chitramani	primary	A sample of 200 experienced equity investors from Coimbatore was considered as the sample for the study.	Regression and correlation are applied using spss.	Demographics of Investors	Personality Traits
12. Do Personality Traits and Emotional The intelligence of Investors Determine Their Risk Tolerance?	Babli Dhiman Saloni Raheja	primary	The data was collected from 500 investors who invest through LSC Securities Ltd (formerly LSE Securities Ltd) in Punjab by using a structured questionnaire	Multiple regression test was applied through SPSS to test the significance of the relationship among the variables	Demographics Future Savings Future Expectations of Returns Future Planning	Risk Tolerance
13. Impact of Demographic Variables and Risk Tolerance on Investment Decisions: An Empirical Analysis.	Kavita Chavali1*, M. Prasanna Mohanraj2	primary	The questionnaire is administered to 257 respondents but only 101 responses qualified for the study	Data analysis is carried out using SPSS and factor analysis, Chi-square test, and Kendall rank correlation.	Financial Risk	Investment Pattern
14. Impact of Demographic Factors on Investment	Dr Dhiraj Jain, Mr Nikhil Mandot	primary	The questionnaire approach was used for collecting primary data from 200 investors.	cross-analysis by applying Correlation analysis. Chi-Square and Correlation	Demographic Factors	Risk Level

Decision of Investors in Rajasthan				analyses were used to test whether there was a significant relationship between the demographic factors and the level of risk-taking ability of the investors		
15. Impact of Personality Traits on Investment Intention: The Mediating Role of Risk Behaviour and the Moderating Role of Financial Literacy	Muhammad Nauman Sadiq _ Raja Ased Azad Khan y	primary	sample of 284 students with a finance background	Regression analyses were executed separate models for the mediator and the moderator	Personality Traits mediated by risk behaviour and moderated by Financial literacy	Investment Intention
16. Investment management and personality type.	Cliff Mayfield, Grady Perdue,* Kevin Wooten	primary	A total of 197 students participated seem).	personality traits are evaluated using structural equation modelling AMOS 7.0.	Big five personality traits	Short term & Long term investment intention
17. The influence of personality traits and demographics on financial decision making among Generation Y.	Joyce K.H. Nga and Leong Ken Yien	primary	The study sample comprises 314 undergraduate studentssample of undergraduates from a business school in Klang methodically, Malaysia	Hypotheses were tested using multiple linear regressions, t-tests and ANOVA	Big five personality traits	Financial Decision Making
18. Investors' Personality Influences Investment Decisions: Experimental Evidence on Extraversion and Neuroticism.	Andreas Oehlera, Stefan Wendtb, Florian Wedlich a, and Matthias Horna	primary	The dataset combines 364 undergraduate business students' questionnaire responses and their trading behaviour in the asset market.	software z-Tree. Spearman correlation coefficients and Kendall's Tau coefficients	Extraversion Neuroticism	Investment Decisions
19. Impact of personality on risk tolerance and investment decisions: A study on potential investors of Kazakhstan. International Journal of Commerce and Management.	Olga Pak, Monowar Mahmood,	primary	160 questionnaires were distributed among the students who had enrolled in the Investment Management course	, multiple regression models. Software packages SPSS and EViews were used to analyze the data.	Personality Traits Risk-taking attitude	Investment Decision

20. Understanding Investment Behaviour: A Study on the Role of Personality in Financial Investment Decisions in India.	Dr Archana Choudhary & Prof. Bala Subramania n R	primary sample of 113 Respondents from major cities in India	This study uses statistical tools of correlation and regression tests to analyse the data	Financial Personality	Investment Decision Making
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V. RESULTS AND FINDINGS

The majority of behavioural finance publications have recognized the existence of personality traits and differing levels of risk tolerance in different nations and among different types of investors. Only a few works of literature have suggested ways to mitigate the impact of personality traits on risk tolerance. This paper proposes a significant solution to this problem. Some of the literature on the causes of investors' differing risk tolerance levels when making investment decisions has previously been examined in the article. This section provides a fast overview of a few articles that have proposed ways to mitigate the consequences of personality traits.

Several behavioural studies have shown that investors are prone to making irrational decisions when under the influence of a strong emotional state (Fuller, 2000). That's why investors think they can outperform the market thanks to behavioural finance (Statman, 2014). An investment advisor's recommendations should take the investor's risk tolerance and other factors into account. (Olga and Monowar, 2015).

According to McCrae and Costa Jr. (1997), an extrovert is someone active, cheerful, thrill-seeking, and enjoys socialising in large groups. The findings of this study indicate a favourable association between extraversion and investing intention, which corroborates Pan and Statman's findings (2013). In the stock market, extraversion often results in a trade-off and generally tends to make more money than introverts. Individuals that possess the trait of openness to experience, according to Martins (2002), are open-minded, resourceful, and creative. They are drawn to unique ideas, aesthetics, and experiences (Gunkel et al. 2010). Mayfield et al. (2008) revealed a favourable relationship between openness to experience and investment intention, and the results of this study are consistent with their findings.

Agreeable people are less likely to get into arguments and are more likely to accept the information that others supply without giving it any critical thought (McCrae & Costa Jr, 1997). The findings of this study show that agreeableness has a favourable correlation with investment intention. People who are "conscientious" are involved in making decisions, according to Gunkel et al. As a result of this capacity, conscientious investors are less prone to rely on erroneous assumptions when making investing decisions and setting their risk tolerance (Sadi et al., 2011). According to the findings of this study, conscientiousness and investment intention are linked.

Neurotic investors shun uncertainty, are averse to risk, and steer clear of debt instruments and global equities (Niszczoła, 2014). This lack of critical thinking and analytical abilities is further compounded by a lack of knowledge of concepts, analytical capacity, and cognitive capabilities. These flaws cause neurotic people to be worried and apprehensive when making dangerous choices (McCrae & Costa Jr, 1997; Young et al., 2012). Neuroticism is linked to risky behaviour, according to Pak & Mahmood (2015). The findings of Mayfield et al. (2008), reported a negative correlation between risk aversion and investment intention.

VI. CONTRIBUTIONS TO THE FIELD OF BEHAVIOURAL FINANCE

This article provides an in-depth examination of the evolution of behavioural finance as a distinct field of study (Kahneman and Tversky, 1979). Behavioural finance has been detailed in this study, in contradiction to conventional finance theories. This article provides an overview of the vast body of published work on the topic of behavioural finance. Until now, this is the only study in the literature that has conducted a thorough analysis and created a list of several personality traits that are associated with the volatility of risk tolerance among investors.

On a practical level, this study belongs to the burgeoning subject of behavioural finance, which has shown some success in understanding how specific groups of investors behave and, in particular, what kind of portfolios they choose to keep (e.g., Campbell, 2006).

Although other research suggests that risk and behavioural evaluations aren't always accurate predictors of financial behaviour (Ackert, 2014), this study finds that particular personality qualities are linked to investing perceptions and behaviours. As a result, it could be useful information for both investors and financial educators, counsellors, and planners, as it could help them be more aware of their perceptions and decisions about investments and select better investment options by modulating differentiated financial proposals based on their client's characteristics. Investor behaviour frequently deviates from logic and reason, making it more difficult for financial planners to understand their customers' decisions (Ackert, 2014). According to this study, financial operators should pay more attention to their clients' personality qualities and decision-making patterns

by completing short surveys to better understand their perspectives and behaviour.

VII. FUTURE IMPLICATIONS

Promising and intriguing, this field appears to provide a simple and engaging approach to taking advantage of market possibilities. The field of behavioural finance has a plethora of potential research opportunities. To begin, researchers should focus on both direct market participants and those who participate through third-party financial institutions. When looking at the investment habits of investors, demographic and seasonal factors might have a significant role. An important aspect to investigate is the impact of regional climate and seasonal circumstances on investors' ability to make investment decisions. Investors' experience, occupation, financial demands, and other characteristics might help narrow down the target demographic. Industrialized economies like the United States, the United Kingdom, and Europe have performed extensive research behaviour pediments to gain a thorough knowledge of investor behaviour, emerging nations lack this type of analysis. In developing nations, such as India, there is a wide range of investment patterns, investor behaviours, and how behavioural variables influence security prices that may be studied. Shortly, students may take advantage of a wide range of exciting new prospects.

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