



# THE EFFECT OF OVERCONFIDENCE BIAS ON INVESTMENT DECISIONS: AN ANALYSIS OF INDIVIDUAL INVESTORS

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## ABSTRACT

The study's main goal is to determine whether overconfidence has an influence on investors' investment decisions and whether risk perception and religion have a moderating effect on this connection. Through the use of a well-structured questionnaire, data is gathered. The sample size is 156 and systematic sampling is performed. According to statistical findings, overconfidence has a substantial influence on investors' investing choices. However, there is no empirical proof that religiosity and risk perception have a moderating effect on the model's moderating component. Thus, the study shows that overconfidence has an impact on investors' investment decisions, but that religiosity and risk perception have no moderating effects. The analysis is helpful for brokers, investors who are deciding whether to purchase or sell stocks, as well as for business owners. In addition, this study is unique and of higher significance since risk aversion and religion have never been associated with one another in the Indian stock market. The current research is helpful for academics who wish to investigate the influence in more detail in a different setting with different factors.

**Keywords:** Overconfidence, Risk perception, Religiosity, Indian stock Exchange

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## INTRODUCTION

Humans approach everyday life decisions with information. The most recent research reveals that there are other resources than knowledge that might help people make decisions. They have biases that are prone to developing over time since they are a personality trait. These behavioral biases lead to poor performance while making financial decisions. The tendency for humans to take shortcuts tends to make these biases worse. shortcuts that show investors don't always respond logically. Overconfidence is one of the heuristics that this study is

taking into account. "The persistent overvaluation of the own investment decision" is how it is characterized. Because it places too much emphasis on one's own abilities and gives other information too little weight, the overconfidence bias makes people think they are superior, which has a negative impact on their ability to make decisions. Many people in the working world have excessive self-confidence. Investors are not always rational, as shown by the US stock market crashes of 1987 and 2008. Behavioral biases do exist, and one of them that is more potent and influences investor choice is "overconfidence."

One of the most researched behavioral biases is overconfidence. People who are overconfident tend to make decisions that are more extreme than they should be. Investors must be mindful of their risk aversion and financial responsibility while making financial decisions. It's not that easy to find proof of overconfidence. As a result, it is difficult to measure overconfidence for empirical analysis. There are few traits that set overconfident investors apart from others. Overconfident investors blame their poor luck for their failures and credit their talents for their triumphs. Additionally, they have a tendency to trade more frequently, which is another way to look at the overconfident aspect of investors. Overconfident investors misjudge the danger connected with the stock since they are familiar with routine trading. How frequently an investor trades may readily reveal how overconfident they are. Most of the time, they focus on higher returns and employ mental shortcuts when engaging in routine trading. Investors aren't all arrogant. Individual investors are emotional and illogical, but institutional investors are more rational, employ major trading tactics, and have less prejudices.

Individual stock investors have less success than institutional investors in terms of performance. According to psychologists, overconfidence is also influenced by culture, belief systems, knowledge, gender, and experience. Cognitive biases are based on a person's gender, such as the notion that men are more overconfident than women. Belief system theory is used to describe ideas and attitudes that are more concerned with a person's personality. People tend to overestimate their own ability to identify biases, despite the fact that they can readily spot prejudice in others. Because they are less likely to make mistakes, seasoned investors behave more logically. Experienced investors make fewer trades and maintain a portfolio with lower levels of risk. The goal of the current study is to examine how overconfidence affects decision-making while taking into account risk perception and religious (i.e., belief system) components. Given that India is a nation where the majority of people appear to adhere to their religious system, this study gives fresh perspective. In order to better

understand overconfidence and financial decision-making, the current study proposes a model that examines the influence of a belief system on biasness (i.e., overconfidence). The research conducted a literature review and identified the following factors that are relevant to the current investigation.

## **LITERATURE REVIEW**

Busenitz and Barney (1997) define overconfidence as "a tendency to overestimate the probability of being right." Overconfidence, as defined by Zacharakis and Shepherd (2001), is a propensity to overestimate the possibility of any given chain of events. They also mentioned the fact that people naturally like to concentrate more on prior achievements than errors, which might breed hubris and raise the possibility of repeating the same investing blunders. The inclination to enthusiastic overconfidence was referred to by Griffin and Varey (1996) as an overconfidence in one's favored outcome. Nevertheless, the contrary of overconfidence involves exaggerating one's ability to back up a conclusion. Zacharakis and Shepherd (2001) contend that both types of overconfidence proposed by Griffin and Varey (1996) lead to unsatisfactory decisions. Dittrich, Guth, and Maciejovsky found that task intricacy and elevated perceived risks are the real drivers of developing overconfidence in their 2005 investigation of overconfidence in investment decisions.

Overconfidence may have an impact on two distinct types of judgements, according to D'Acunto (2015), who examined the overconfidence of male and female investors in their hazardous investment choices. According to him, investors decide if they want they should make an investment (extensive margin) before selecting how much money to spend (intense margin). Zacharakis and Shepherd (2001), who studied venture capitalist investors and their investment decisions, claim that excessive trust is a bias which hinders acquiring since an overly optimistic shareholder is less likely to carefully consider all relevant information, which obstructs advancement throughout the manner in which decisions are made. Overconfidence itself does not always end in a poor choice, they claim. Investors place a great value on their own investing decisions, and they are hesitant to switch to any other investment opportunities, claim Dittrich, Güth, and Maciejovsky (2005).

The least degree of assurance is required for perfect judgments, but excessive quantities of confidence result in overconfidence (Griffin & Varey, 1996). On the other side, D'Acunto (2015) said that overconfidence is a trait that may endure over time since it rewards

consumers across the world. Kahnman and Tversky (1991) established the idea of the prospect theory, and this has the greatest potential to describe choices made pursuant to uncertainty and risk, where one's decision is based on gains and losses according to a specific point in time. This can be further investigated and recognized by Moore and Healy (2008) where they characterize overconfidence with regard to three factors. Since investors are explicitly described as being risk-averse, this notion is relevant to investors. 1) Overestimation, which depicts when a person has too much faith in their capacity to predict their own performances. 2) over placement, which refers to comparing one's own preferences to those of others. 3) the degree to which one can foresee uncertainty; the preference for precision.

According to Daniel et al. (1998), overconfident investors tend to overreact to private signals while underreacting to public signals when they participate in excessive trading (Biais et al. 2002). Barber and Odean (1999) conducted an analytical analysis of overconfidence. Empirical evidence indicates that psychological factors have an effect on financial decisions. When investors switch from trading over the phone to trading online, their performance suffers (Barber & Odean, 2001b). De Bondt and Thaler (1995) investigated the enticing qualities of choices about portfolios by comparing the differences between a median portfolio, one's personal portfolio, and one's professional portfolio. Their research established the concept of over and underconfident investors and showed that institutional and average strategies had a lead over personal portfolios. (Ullah, Ullah, & Rehman, 2017) Overconfidence and investing decision-making have a positive relationship.

The decision to accept or reject a risk depends on how that risk is seen, thus it's critical to comprehend the factors that influence that perception. Cooper et al. (1988), a small group of researchers, claim that behavioral biases frequently lead people to overestimate the danger they are exposed to. These biases influence how risk is perceived, which influences decision-making. This demonstrates that the relationship between behavioral biases and investor evaluations is mediated by risk perception. A person feels the need to decide whether to start a new business since risk perception and risk propensity are two different things. According to Nutt (1993), people perceive danger similarly in identical circumstances. Instead, Simon et al. (1999) made the case that people interpret information based on their limited information capacity, which can lead to cognitive biases that directly influence how people perceive risk. These biases subtly reduce the perceived amount of danger; further research is required on this (Simon et al., 1999).

Khursheed, a senior analyst at Topline Securities, speaks out against the State Bank of India's basis point policy because brokers and investors are concerned about a scenario akin to the 2008 financial crisis. Investors are therefore responding emotionally and irrationally, which is why GDP growth is slower than it was in the previous fiscal year (Khan et al., 1986). Many investors also blame the government for the failures, despite their confidence in their own abilities and capabilities. The stock market has had its greatest loss since August 15th, 2017, and even bank fund managers were angry as a result of little inflation (Bahoo et al., 2018). Due to the pending decisions in the Nawaz Sharif case, the stock market fell and the Indian economy was destroyed. Most blue chip stocks appeared red and only reached lower levels; the biggest loss, Rs. 233 billion, was recorded when the KSE-100 index dropped from 41000 points to 40345 points (Afzal & Habib, 2018). As a result, the study concludes that this issue has persisted for millennia without any obvious answers, yet investors consistently act in an overconfident manner while making judgments. Since overconfidence is one of the cognitive biases that affects investor decisions, it doesn't matter whether the decision has to do with buying and selling stocks, investing in bonds, or purchasing real estate—overconfidence will always have an impact. It mostly has to do with how danger is seen, however it may also have something to do with religious views. It can have a good or bad impact at times.

Investor decisions are heavily influenced by their perception of risk. Some investors are risk enthusiasts, while others are risk averse. others who are always willing to take a chance regularly trade in contrast to others who may be risk averse due to a fear of losing money. A reasonable investor may occasionally overreact due to overconfidence, and occasionally, a person's religious beliefs might give them the confidence to make confident selections. This study seeks to answer the question, are religiosity and risk perception somewhat affected or not, in order to determine the moderating influence of religiosity and risk perception on the link between overconfidence and investor's resolves. Due to the fact that many investors suffer from behavioral biases, this study will assist investors in taking these variables into account while making investing decisions in order to save time and money. As a result, it is necessary to expand the body of literature by conceptualizing and researching the phenomena.

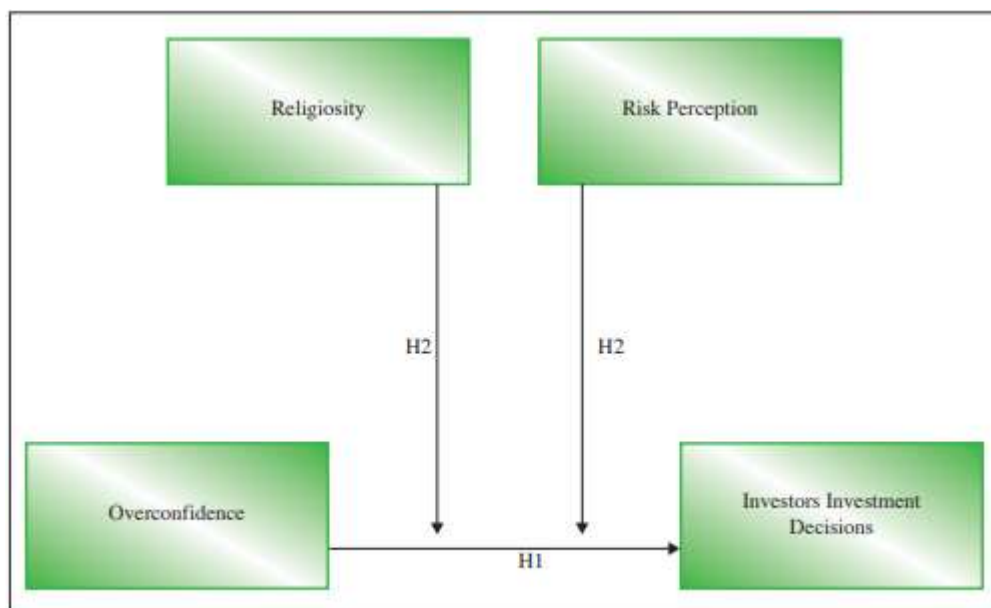


Figure 1: Conceptual Research Model

The conceptualization presented above shows that overconfidence is an independent variable. Investors' choice of investments is the dependent variable, whereas risk perception and religion are the moderating variables. Thus, the following methodology is used to study the effects.

### OBJECTIVES OF THE STUDY

- To determine how overconfidence affects investors' investing choices.
- To evaluate the connection between investor investment decisions and overconfidence and risk perception.

### METHODOLOGY

The cross-sectional survey serves as the foundation for the quantitative investigation. A survey is used to gather information. All brokers on the Indian Stock Exchange make up the population's universe, whilst brokers are the population's goal. In probability sampling, systematic random sampling was chosen because it was thought to be simple and useful for gathering data since the population was already known. The study carefully determined the size of its sample, which is N=156 out of a total population of 340. The study makes use of SPSS to analyze the variance, but regression analysis's ease of use makes it simple to identify and explain how an independent variable affects a dependent variable. In order to determine whether religiosity and risk perception serve as moderators in explaining the association between overconfidence and investment choice, the study additionally employed the F test of

moderation of model 2. The study has taken into account the ensuing measures in order to evaluate the current data.

## RESULTS & DISCUSSIONS

For all research constructs, Table 1 shows the Cronbach alpha value above the median (0.6). The adopted questionnaire's reliability and that of this study are pretty similar.

**Table 1.**

*Reliability Statistics*

| Variables                     | Reliability |
|-------------------------------|-------------|
| Overconfidence                | 0.60        |
| Religiosity                   | 0.773       |
| Risk Perception               | 0.858       |
| Investors Investment Decision | 0.70        |

### Regression Analysis

The statistical significance of the F-test. As a consequence, the study's findings suggest that the model can adequately account for the variation in investors' investment choices. To achieve the main goal of the study, regression analysis was used to examine the effects of overconfidence on investors' investment choices. The dependent variable is the investor's investment choices, whereas overconfidence is viewed as an independent variable. R-square score of 0.189 demonstrates that overconfidence can account for 18.9% of the variation in an investor's investing choice.

### Membership role for participation and outcome

A fuzzy set is thought of as a relationship (characteristic) utility that assigns a participation value to each item. There are offered many involvement tools. The group management processes are crucial for designing and evaluating a variety of replacements. The next-most crucial task is to eliminate any replacements that fall beyond the crucial criteria's bottom bounds. In the fuzzy inference system's first and second stages, three fuzzy membership configurations are operational for both input and output purposes. As a result, the fuzzy distribution of dialectal variable expressions in the first stage includes "Low," "Medium," and "High." As shown in Table 2, these included variables are the same for fuzzy figures on a range of figures from 1 to 5.

**Table 2:**  
*Coefficients*

| Model          | Unstandardized Coefficients |            | Standardized Coefficients | t    | Sig. |
|----------------|-----------------------------|------------|---------------------------|------|------|
|                | B                           | Std. Error | Beta                      |      |      |
| (Constant)     | 2.076                       | .439       | 4.728                     | .000 |      |
| Overconfidence | .072                        | .094       | .061                      | .762 | .000 |

*R<sup>2</sup> = 0.189, Adj R<sup>2</sup> = 0.172  
F = 11.700, Sig Value = .000*

The empirical findings show that overconfidence has a statistically significant influence on investing decisions. Overconfidence raises the likelihood of making decisions since the relationship is good. The Andrew F. Hayes approach was employed for moderation in the part study (model 2). by way of regress. These are the outcomes of moderation:

### **Main Effects:**

Overconfidence can forecast investors' investing decisions, according to research  $b = 2.2$ ,  $t(149) = 2.7$ ,  $p = .0071$ . Religion and risk perception, however, do not generally predict an investor's investing choices.

### **Interaction Effects:**

Addition to the interaction  $F(1,149) = .44$ ,  $p = .5072$ , interaction 1 OC\_Avg x RP\_Avg  $b = -.14$ ,  $t(149) = -.66$ , Change  $R^2 = 0.0023$ , Interaction 2 OC\_Avg x Religion  $b = -.42$ ,  $t(149) = -1.8$ ,  $p = .0672$ , Added to the interaction  $F(1,149) = 3.39$ ,  $p = 0.0672$ , Change  $R^2 = .0177$ . The study demonstrates that religion and risk perception are not statistically significant, hence it is impossible to determine their function as moderating variables.

## **DISCUSSION**

Due to our limited reasoning, we only swiftly digest incomplete information when it is compared to the accepted paradigm of reality. It was highlighted that different purchasers have different levels of comprehension of complex pricing, and that sellers take advantage of this reality to benefit, illustrating the importance of overconfidence in an investor's choice of an investment. The research presented in this study suggests that excessive confidence might forecast an investor's investing choices.

## **CONCLUSION**

The study's main motivation was to examine the moderating effects of religion and risk perception in order to determine the influence of overconfidence on investor investment



decisions. A questionnaire was used to gather the information. The research so backs up the initial idea. In terms of religion, there is no significant association between it and investment decisions ( $p > 0.05 = 0.761$ ), and the relationship between overconfidence and religiosity is likewise inconsequential ( $p > 0.05 = 0.0672$ ). The study came to the additional conclusion that risk perception significantly affects investor choice ( $p < 0.05 = 0.5072$ ). As a result, the study did not support hypotheses 2 or 3, leading to the conclusion that religiosity and risk perception do not need a moderator to explain the association between overconfidence and investors' investment decisions. The current study has specific limitations, such as the fact that it solely considers brokers on the Indian stock exchange. The paper advises future research into entrepreneurs and other financial advisors using the methodology.

## REFERENCES

- Afzal, M., & Habib, M. D. (2018). Corporate Governance and Earnings Management: A Model and Empirical Investigation from Karachi Stock Exchange. *Journal of Finance and Economics Research*, 3(2), 51-67.
- Ariff, M., & Mannan, M. A. (1982). Developing A System Of Islamic Financial Instruments, Jeddah: Islamic Research And Training Institute, Chapra, M. Umar, (1982) " Money And Banking In An Islamic Economy" In Ariff, Mohammed.
- Al-Awadhi, A. M., & Dempsey, M. (2017). Social norms and market outcomes: The effects of religious beliefs on stock markets. *Journal of International Financial Markets, Institutions, and Money*, 50, 119-134.
- Babajide, A. A., & Adetiloye, K. A. (2012). Investors' behavioural biases and the security market: An empirical study of the Nigerian security market. *Accounting and Finance Research*, 1(1), 219-229.
- Barber, B. M. & Odean, T. (1999). The courage of misguided convictions: the trading behavior of individual investors, *Financial Analysts Journal*, 55, pp. 41–55.
- Bailey, J. M., & Sood, J. (1993). The effects of religious affiliation on consumer behavior: A preliminary investigation. *Journal of Managerial Issues*, 3, pp.328-352.
- Barber, B.M. & Odean, T. (2001a). Boys will be boys: gender, overconfidence, and common stock investment, *Quarterly Journal of Economics*, 116, pp. 261–292.
- Barber, B. M. & Odean, T. (2001b). The internet and the investor, *Journal of Economic Perspectives*, 15, pp. 41–54.
- Bahoo, S., Saeed, S., Iqbal, M. J., & Nawaz, S. (2018). Role of China-India Economic Corridor in India's Trade, Investment, Energy, Infrastructure, and Stock Market. *Journal of*

*Independent Studies and Research-Management, Social Sciences and Economics*, 16(1), 63-84.

Benartzi, S. & Thaler, R. H. (2002) How much is investor autonomy worth? *Journal of Finance*, 57, pp. 1593–1616.

Biais, Bruno and Hilton, Denis and Mazurier, Karine and Pouget, Sebastien, Psychological Traits, and Trading Strategies (February 2002). *CEPR Discussion Paper No. 3195*.

Brimble, M., Vyvyan, V., & Ng, C. (2013). Belief and investing: Preferences and attitudes of the faithful. *Australasian Accounting, Business and Finance Journal*, 7(1), 23-41.

Busenitz, L. W., & Barney, J. B. (1997). Differences between entrepreneurs and managers in large organizations: Biases and heuristics in strategic decision-making. *Journal of Business Venturing*, 12(1), 9–30.

Cooper, A.C., Woo, C.Y. & Dunkelberg, W. C. (1988) Entrepreneurs' perceived chances of success, *Journal of Business Venturing*, 3, pp. 97–108.

Czerwonka, M. (2014) "The Influence of Religion on Socially Responsible Investing," *Journal of Religion and Business Ethics*: Vol. 3, Article 21.

Chang, S. C., Chen, S. S., Chou, R. K., & Lin, Y. H. (2008). Weather and intraday patterns in stock returns and trading activity. *Journal of Banking & Finance*, 32(9), 1754-1766.

De Bondt, W. F., & Thaler, R. H. (1995). Financial decision-making in markets and firms: A behavioral perspective. *Handbooks in operations research and management science*, 9, 385-410.

D'Acunto, F. (2015). Identity, overconfidence, and investment decisions. *Available at SSRN* 2641182.

Dittrich, D. A. V., Güth, W., & Maciejovsky, B. (2005). Overconfidence in investment decisions: An experimental approach. *The European Journal of Finance*, 11(6), 471–491.

Dunning, D., & Story, A. L. (1991). Depression, realism, and the overconfidence effect: Are the sadder wiser when predicting future actions and events?. *Journal of personality and social psychology*, 61(4), 521.

Daniel, K., Hirshleifer, D., & Subrahmanyam, A. (1998). Investor psychology and security market under\_ and overreactions. *The Journal of Finance*, 53(6), 1839-1885.

Fershtman, C., & Kalai, E. (1993). Complexity considerations and market behavior. *The RAND Journal of Economics*, 224-235.

Griffin, D. W., & Varey, C. A. (1996). Towards a Consensus on Overconfidence. *Organizational Behavior and Human Decision Processes*, 65(3), 227–231.

- Gunnoe, M. L., & Moore, K. A. (2002). Predictors of religiosity among youth aged 17–22: A longitudinal study of the National Survey of Children. *Journal for the Scientific Study of Religion*, 41(4), 613-622.
- Grinblatt, M., & Keloharju, M. (2001). How distance, language, and culture influence stockholdings and trades. *The Journal of Finance*, 56(3), 1053-1073.
- Grežo, M. (2018). Explaining the ambiguous impact of overconfidence corporate decision-making: a critique of the research methodology. *Človek a spoločnosť*, 21(2), 1-15.
- Hill, P. C., Pargament, K. I., Hood, R. W., McCullough, J., Michael E., Sawyers, J. P., Larson, D. B., & Zinnbauer, B. J. (2000). Conceptualizing Religion and Spirituality: Points of Commonality, Points of Departure. *Journal for the Theory of Social Behaviour*, 30(1), 51–77.
- Humra, Y. (2014). Behavioral Finance: An Introduction to the Principles Governing Investor Behavior in Stock Markets. *International Journal of Financial Management*, 5(2), 23-30.
- Helble, M. (2007). On The Influence of World Religions on International Trade. *Graduates Institute of International Studies. University of Geneva. Switzerland*.
- Iqbal, N., Ahmad, N., Abrar, M., & Hassan, A. (2014). Determinants of Retail Investors Behavior and its Impact on Investment Decision. *International Letters of Social and Humanistic Sciences (ILSHS)*, 7, 31-43.
- Jiang, F., John, K., Li, C. W., & Qian, Y. (2018). Earthly Reward to the Religious: Religiosity and the Costs of Public and Private Debt. *Journal of Financial and Quantitative Analysis*, 53(5), 2131-2160.
- Jamaludin, N. (2013). Religion and individual investment choice decision: the case of Malaysia. *International Journal of Business and Social Science*, 4(1).
- Jamaludin, N., & Gerrans, P. (2015). Retirement Savings Investment Decisions: Evidence from Malaysia. *Journal of the Asia Pacific Economy*, 20(4), 644-657.
- Khan, M. S., Zuberi, H. A., & Khilji, N. M. (1986). Exchange Rate Policies of Developing Countries in the Context of External Shocks [with Comments]. *The India Development Review*, 25(3), 403-427.
- Korniotis, G., & Kumar, A. (2005). *Does investment skill decline due to cognitive aging or improve with experience?*. Social Sciences Research Network.
- Locke, P. R., & Mann, S. C. (2005). Professional trader discipline and trade disposition. *Journal of Financial economics*, 76(2), 401-444.
- Lipman, B. L. (1995). Information processing and bounded rationality: a survey. *Canadian Journal of Economics*, 42-67.

- Jamaludin, N. (2013). Religion and individual investment choice decision: The case of Malaysia. *International Journal of Business and Social Science*, 4(1).
- Jamaludin, N., & Gerrans, P. (2015). Retirement savings investment decisions: Evidence from Malaysia. *Journal of the Asia Pacific Economy*, 20(4), 644-657.
- Mansour, W., & Jlassi, M. (2014). The effect of religion on financial and investing decisions. *Investor Behavior: The Psychology of Financial Planning and Investing*, 135-151.
- Mathur, A. (2012). Measurement and meaning of religiosity: A cross-cultural comparison of religiosity and charitable giving. *Journal of Targeting, Measurement, and Analysis for Marketing*, 20(2), 84-95.
- Moore, D. A., & Healy, P. J. (2008). The trouble with overconfidence. *Psychological Review*, 115(2), 502.
- Mahdzan, N. S., Zainudin, R., Che Hashim, R., & Sulaiman, N. A. (2017). Islamic religiosity and portfolio allocation: the Malaysian context. *International Journal of Islamic and Middle Eastern Finance and Management*, 10(3), 434-452.
- Mokhlis, S. (2009). Relevancy and measurement of religiosity in consumer behavior research. *International Business Research*, 2(3), 75-84.
- Nutt, P. C. (1993). Flexible decision styles and the choices of top executives. *Journal of Management Studies*, 30(5), 695-721.
- Nunnally, J.C., (1978). *Psychometric theory* (2nd ed). New York: Mc Graw-Hill.
- Onyima, J. K., & Ojiagu, N. C. (2017). Religiosity and financial decisions of young adult Nigerians: Is the financial advice of religious leaders sacrosanct? *Journal of Economics and Sustainable Development*, 8(8), 84–92.
- Odean, T. (1999). Do investors trade too much?. *American economic review*, 89(5), 1279-1298.
- Peifer, J. L. (2010). Morality in the financial market? A look at religiously affiliated mutual funds in the USA. *Socio-Economic Review*, 9(2), 235–259.
- Qasim, M., Hussain, R., Mehboob, I., & Arshad, M. (2019). Impact of herding behavior and overconfidence bias on investors' decision-making in India. *Accounting*, 5(2), 81-90.
- Renneboog, L., & Spaenjers, C. (2012). Religion, economic attitudes, and household finance. *Oxford Economic Papers*, 64(1), 103-127.
- Rokeach, M. (1968). A Theory of Organization and Change Within Value\_Attitude Systems. *Journal of Social Issues*, 24(1), 13-33.
- Rubinstein, A. (1993). On price recognition and computational complexity in a monopolistic model. *Journal of Political Economy*, 101(3), 473-484.

Shahzad, S. K., Awan, H. M., & Qureshi, A. S. (2014). Influence of religion and culture on investment behaviour of Muslim investors in India. *International Journal of Social Entrepreneurship and Innovation* 4, 3(2), 85-105.

Simon, M., Houghton, S. M., & Aquino, K. (2000). Cognitive biases, risk perception, and venture formation: How individuals decide to start companies. *Journal of business venturing*, 15(2), 113-134.