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Impact of COVID-19 on portfolio allocation decisions of individual investors

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Covid-19 has impacted the financial markets dramatically. The risk and return expectations of investors have changed, leading them to reallocate their portfolios. This paper aims to analyse the impact of Covid-19 on the portfolio allocation decisions of individual investors. The study examines the perceptions of investors about various investment avenues before and during the period of extreme uncertainty caused by the COVID-19 pandemic. The data were collected from individual investors residing in Delhi and Mumbai. AHP is used to rank the investment preferences of the respondents. The results show that due to the present financial crisis pertaining to COVID-19, investors have started reallocating their portfolios. Since the returns on risky assets are not as expected, investors are moving towards a conservative portfolio. However, the case of transition from risky to risk-free assets is not the same in the case of all investors.

KEYWORDS
AHP, Covid-19, finance, investment portfolio, stock markets

1 | INTRODUCTION

COVID-19 was declared a global health emergency by the World Health Organization (WHO, 2020) on 30 January 2020 and later a pandemic on 11 March 2020 due to the severity of spread. The outbreak is unprecedented as it is highly contagious in nature compared to any other recent epidemics. The infection rate of COVID-19 and other epidemics is given in Table 1.

This has led governments across the world to the most challenging decisions of lockdowns. Lockdowns, first strictly and later at ease have been imposed since the outbreak, as a containment measure. This has affected human activities and practically brought down the economy to its knees. The global economic loss for the year 2020 has been estimated between 0.1% and 0.4% of global GDP, plunging the economy into recession (Abdul & Mia, 2020). The studies on the impact of pandemic suggest that the outbreak has spill over effect on almost every other sector of the economy across the globe (Fernandes, 2020; Ozili & Arun, 2020).

In the case of India, the disruption in supply chain management at both global and domestic market has been rendered as one of the most critical factors that would be responsible for India's growth output disruption. The other factors are constrained demand and supply at global level and decline in domestic demand (Agrawal et al., 2020; Dev & Sengupta, 2020). Baker et al. (2020), in their study, explored the effect of COVID-19 on economy and concluded that half of the contraction in output was due to the environment of economic uncertainty. With no conclusive vaccination for at least another year, the climate of uncertainty looms. As per ADB Report (2020), the estimated economic loss ranges between 7% and 10% of India's GDP, under two-case scenario (shorter and longer lockdown). Now, with the lockdowns being re-instated in several cities due to increasing number of COVID-19, a higher figure of 10% loss could be assumed. The negative rate of GDP propagates fear among all investors. Although the central banks of various economies took steps to encourage investors, the steps proved inefficacious as investors are following a selling spree, leading to plunging of major indices (Sharma et al., 2020; Siddiquei & Khan, 2020). This selling spree has hit investors' confidence to such a level that till April 9, Indian, European and U.S. stock markets lost 26%, 20% and 14% in dollar terms, respectively (Rakshit & Basistha, 2020; Singh & Neog, 2020).

TABLE 1 Infection rates of COVID-19 and other epidemics

Epidemic	Infection rate (per infected person)
Ebola	1.5–2.5
MERS	0.42–0.92
SARS	3
COVID-19	1.5–3.5
Seasonal flu	1.3

Note: Abdul, A., & Mia, A. (2020). The Economic Impact of the COVID-19 Outbreak on Developing Asia. https://www.adb.org/sites/default/files/publication/571536/adb-brief-128-economic-impact-COVID19-developing-asia.pdf.

The environment of perpetual uncertainty is not conducive for investors as the investment is made with basic objective of receiving a continuous cash flow over a period of time and retaining the principal amount safely (Geetha & Vimala, 2014). Investors prefer to make informed decision that is challenged during times of crisis and uncertainty. Investors' decision-making during the crisis period has been observed to be influenced by emotional factors. As explained by the behavioural finance, emotions such as fear and sadness lead to risk aversion (Aren & Hamamci, 2020). During the period of financial crisis, the stock market reveals contradictory observations related to assumptions of standard finance (Nigam et al., 2018). It is also observed that decision-making for risky investments is more influenced by psychographic variables (Sahi et al., 2012). Liu et al. (2020) have established that investor's sentiments such as bad mood and anxiety make the investor risk averse, which consequently affects the return on assets. In their study of stock market of 21 countries, including India, during COVID-19, they find that investors' sentiments have played a mediating role in influencing the stock market caused due to the COVID-19 outbreak.

There are extensive studies exploring various dimensions of investors' order of preference for selected investment avenues. One such study is the one by Manikandan and Muthumeenakshi (2017), in which the attributes of investment, which influences investors' order of preferences, are reviewed. However, investors' preference for different investment avenues during a crisis of the magnitude of recent pandemic is still to be addressed.

It is imperative to ask the question, how investors perceive various investment avenues before and during the period of extreme uncertainty caused by the COVID-19 pandemic. This paper seeks to examine the order of preference for such investments during COVID-19 and compare it with post-COVID-19 pattern. It will give insight into investors' perceptions of preferred investment avenues and enable the policymakers in formulating financial policies.

2 | LITERATURE REVIEW

The most critical investment avenues available in India have been identified as bank deposits (savings, current), provident fund, insurance policy, securities (shares, debentures, and bonds), mutual funds and derivatives (futures and options), based on risk, return, marketability, tax shelter and convenience (Mittal, 2018). The liberalisation in financial services introduced the non-traditional investment avenues like diverse mutual funds schemes and investment plans (Arora & Marwaha, 2014). Insurance plans emerged as a safe alternative investment avenue than merely as a risk coverage instrument for the middle and salaried class investors (Kathuria & Singhania, 2010). Investments in real estate, gold and post office deposits are considered as reliable traditional investments due to the ease of operation, familiarity, inflation-resistance, tax shield and physical presence (Murithi et al., 2012; Nagpal & Bodla, 2007).

2.1 | Stocks

It was traditionally recognised that the high-income group had preference to invest in securities market, specifically in shares (Das, 2012; SEBI-NCAER, 1964). Recently, the middle income and salaried class investors have begun to invest in stocks due to increased awareness and better services provided by brokerage agencies (Bandgar, 2000; Mittal & Dhade, 2007). Demographically, the urban investors have been investing in shares and most of them invest with a long-term perspective (SEBI-NCAER, 2000; Thirumavalavan, 1987). Liquidity, low investment and capital appreciation are the factors influencing investments in equity shares (Kumar, 2010). Studies reveal that around 24%–30% of investors prefer to invest in stocks (Agrawal & Jain, 2013; Mane & Bhandari, 2014). The investment in equity shares is preferred over mutual fund schemes by retail investors since it gives direct control over the holding (SCMRD, 2004).

2.2 | Mutual funds

Investment in mutual funds influences the return, liquidity, flexibility, affordability and transparency (Parihar et al., 2009). The higher income and highly educated group have traditionally been investing in mutual funds (Bhatt & Bhatt, 2012). Investment in mutual funds is a preferred tax-saving investment next to insurance (Rathinavel, 1992). Compared to insurance, bonds, shares in terms of service quality and risk–return trade-off, mutual funds are preferred by investors (Walia & Kiran, 2009). Some investors perceive it as less risky than bank deposits (Jothilingam & Kannan, 2013).

2.3 | Bonds/debentures

Bonds and debentures provide steady income. They are exposed to interest rate risk and credit risk. There is a moderate and continuing shift from shares to high-quality bonds (Gupta et al., 2001). Income level is a closely associated factor affecting investment in bonds, that is, the high-income group prefers to invest in bonds (Mittal & Dhade, 2007).

2.4 | Bank deposits

Bank deposits are the most preferred investment avenue among all income groups, followed by insurance and post-office savings because of less risk and high security (Agrawal & Jain, 2013; Samudra & Burghate, 2012). It is preferred over high return investment for contingency and long-term plan such as higher education and marriage of children (Pati & Shome, 2011; Sathiyamoorthy & Krishnamurthy, 2015). Majority of investors prefer to invest in fixed deposit with banks (Pandian & Thangadurai, 2013; Umamaheswari & Kumar, 2014). Both fixed deposits and saving deposits are considered in the study.

2.5 | Savings with post office

Safety and security remain the major factors for investors to invest in post office savings bank account (Jain & Kothari, 2012). Investors from diverse income groups prefer to invest in post office deposits (Bhatt & Bhatt, 2012). It is an ideal investment during recession because it is stable and risk-free (Kasilingam & Jayabal, 2009). Previous studies have reported that postal savings may play a critical role in generating fund for the country (Kasilingam & Jayabal, 2009; Senthilkumar & Kannaiah, 2014).

2.6 | Public provident fund

Provident fund is preferred by all income and category group of investors (Agarwal, 2001). As a tax-saving investment, it is found to be the first preference for investors (Rathinavel, 1992) followed by NSC (National saving scheme; Nagpal & Bodla, 2007). Investors with retirement purpose prefer to invest in provident fund along with pension fund (Ranganathan, 2006).

2.7 | Insurance

Academic literature shows mixed results on the relationship of income of individuals and investment in insurance. Investment in insurance is preferred by higher-income group with high educational background (Bhatt & Bhatt, 2012). On the contrary, Palanivelu and Chandrakumar (2013) identified that low- and middle-income group of investors prefer insurance. Nagpal and Bodla (2007) found that around 86% of investors invest in insurance policies. Tax benefit is a primary factor for investment in insurance for more than half of the investors than the risk coverage factor (Agrawal & Jain, 2013).

2.8 | Real estate

Investment in real estate was traditionally preferred by higher-income group and no association with education level (Bhatt & Bhatt, 2012). Chalam (2003) showed that investors have the first preference for real estate investments, followed by mutual fund schemes and gold.

2.9 | Gold

Studies reveal that all income group prefer to invest in gold, demographically it is more popular in rural areas because of awareness and traditional form of investment (Kumar & Vikkraman, 2010). Gender-based study on investor preference suggests that women prefer to invest in gold to avoid lengthy procedures, formalities, commission and brokerage fee associated with stocks (Desigan et al., 2006; Yogesh & Charul, 2012). Hema (2007) also suggests that women prefer to invest in gold that is ranked after bank deposits.

2.10 | Derivatives

Financial derivative is a risk management financial product introduced in India in June 2000 and since then it has grown exponentially. It is observed that equity futures are most preferred by traders and investors (Vashishtha & Kumar, 2010). The investor base for derivatives is mostly youth in the age group of 31–40, students, working executives and entrepreneurs (Mittal, 2018; Ravichandran, 2008).

3 | RESEARCH METHODOLOGY

MCDM approaches like AHP, Fuzzy AHP and DEMATEL have been employed to rank the criteria in various research studies such as behavioural finance, banking, financial reporting, taxation and industrial asset maintenance (Antony & Joseph, 2017; Gupta et al., 2020; Manda & Bansal, 2020; Mathew et al., 2020). The study uses AHP to rank the investment avenues in India. The ranks obtained before and during COVID-19 will help in knowing how investment preferences have been changed due to the COVID pandemic. The technique was developed by Saaty (1980), which helps in dealing the complex decision-making problems (Antony & Joseph, 2017). The steps of AHP given by Saaty are shown in Figure 1. (Chen & Wang, 2010).

3.1 | Case study

The possible investment avenues were identified from the literature. Five investment avenues were identified under each of the two categories: risk-free and risky investments. Figure 2 shows all selected investment avenues. These avenues were compared through a pairwise comparison matrix.

Questionnaire was mailed to the respondents. The data were collected from 184 individual investors residing in Delhi and

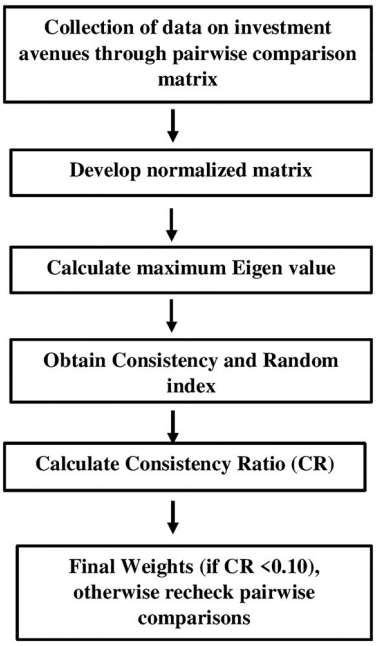

FIGURE 1 Steps in AHP

Mumbai using the snowball sampling method. The data were collected between May 2020 and mid of July 2020. These respondents compared investment avenues according to their preference in a pairwise comparison matrix before COVID-19 and during COVID-19.

4 | RESULTS AND DISCUSSION

Table 2 shows the preference of investment avenues (main criteria and sub-criteria) based on weights before COVID-19. The preference for risky assets (64.8%) is higher than that for risk-free assets (35.2%). Based on local weights of sub-criteria and global weights, investment in stocks (I6) is the highly preferred investment avenue. Based on global weights, mutual funds (I7) are ranked second, followed by real estate (I9). It reflects that investors are more willing to take higher risk for obtaining higher returns before the COVID pandemic.

Table 3 shows the preference of investment avenues (main criteria and sub-criteria) based on weights during COVID-19. The local weights of main-criteria show that there is no significant difference towards investing in either risky assets or risk-free assets. Respondents believe that investors have shifted their investments to risk-free assets due to high uncertainty. However, plummeting stock prices due to pandemic induce some investors to invest in risky assets for better future gains. The results reflect that insurance is the most preferred investment avenue followed by gold, bank deposits and public provident funds (PPF).

At the present time, due to COVID, financial markets are witnessing a crisis and there is a situation of uncertainty in the market environment for investment. The study sheds some light on the behaviour of Indian investors during this period of uncertainty in the market environment for investment. The preferences of investors in various assets like stock, mutual funds, bonds and others were sought both in pre-COVID and during the COVID-19 period. The results showed that due to the present financial crisis pertaining to COVID-19, investors have started to reallocate their portfolios. In the pre-COVID period, the main preferences of investors in descending order were stocks, mutual funds, real estate, bank deposits and public provident funds. However, due to uncertainty in the financial markets, investors re-apportioned their portfolios in a manner that insurance has come out as the topmost preference, gaining from Rank 8 in the pre-COVID period to first rank during the COVID-19 period, followed by other assets that climbed up the rank ladder like gold, bank deposits and PPF.

A reason for a change in portfolio allocation is due to the performance feedback of various securities. Once investors invest in various assets, they take feedback on the performance of those assets in the market. The returns from the previous allocation help investors in framing future portfolios (Sundali et al., 2012). The results show that since the returns on the risky assets have not come as expected (Azimli, 2020; Mazur et al., 2020; Topcu & Gulal, 2020), some investors are moving towards a conservative portfolio. The findings are in accordance with studies stating that prior gains lead to more investment in risky assets and prior losses lead to a cut in the risk-taking ability, also named as 'the snake bite effect' (Massa & Simonov, 2005; Verma & Verma, 2018).

Another explanation to this attitude of investors can be attributed to the 'Somatic market hypothesis' (Bechara et al., 1997; Damasio, 2001), which indicates that emotions (like fear, anger, etc.) act as external stimuli that trigger a somatic state in the brain, directing individuals consciously or unconsciously in the act of decision-making. Academic literature shows that emotions act as a shortcut mechanism for making decisions during periods of financial disturbances (Loewenstein et al., 2001).

During the period of financial crisis, investors are driven to invest more in safe assets (like insurance, gold, bank deposits and PPF) and less in risky assets (like stocks and mutual funds; Zhang et al., 2020). However, the case of transition from risky to risk-free assets is not same in the case of all investors. The results show that stocks slipped from the most preferred investment avenue to the sixth rank in the chosen alternatives. The choice of stocks is still favoured by some investors who feel that the prices of stocks will rise once a vaccine for COVID is explored. The risk-lover investors are ready to bet upon this risk and so, they, along with keeping their prior investments in stocks, are also investing more funds in stocks in the hope of higher profits in the future. This result is an evidence of 'Disposition effect', which states that investors keep holding on to losing investments in the hope of realising profits from them (Chen et al., 2007). Since some of the investors are opting not to change their existing portfolios, even in the case of financial crisis, they are susceptible to 'Status-Quo bias'.

Overall, the study finds the effect of disposition effect, status quo bias and snake-bite effect on the portfolio holding decisions of investors in situations of financial uncertainty. The results show that 'one

FIGURE 2 Different investment avenues

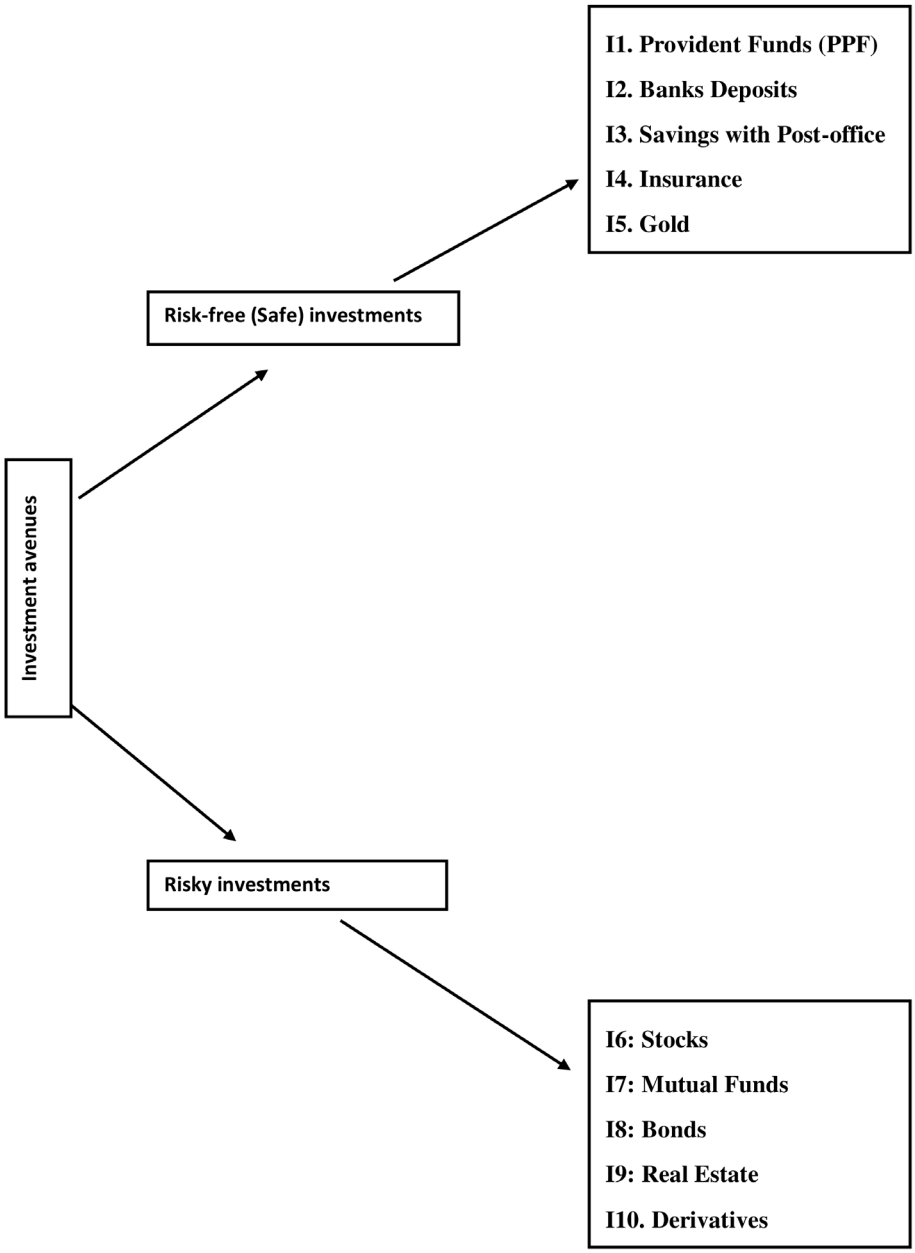

TABLE 2 Preference for investment avenues before COVID-19

Main criteria	Local weights	Sub-criteria	Local weights	Global weights	Ranks
Risk-free assets	0.352	I1. Public Provident Funds (PPF)	0.227	0.080	5
		I2. Banks Deposits	0.312	0.110	4
		I3. Savings with Post office	0.225	0.079	6
		I4. Insurance	0.145	0.051	8
		I5. Gold	0.090	0.032	9
Risky assets	0.648	I6. Stocks	0.440	0.285	1
		I7. Mutual Funds	0.247	0.160	2
		I8. Bonds	0.105	0.068	7
		I9. Real Estate	0.179	0.116	3
		I10. Derivatives	0.028	0.018	10

TABLE 3 Preference for investment avenues during COVID-19

Main criteria	Local weights	Sub-criteria	Local weights	Global weights	Ranks
Risk-free assets	0.586	I1. Public Provident Funds (PPF)	0.202	0.118	4
		I2. Banks Deposits	0.214	0.125	3
		I3. Savings with Post office	0.132	0.077	9
		I4. Insurance	0.230	0.135	1
		I5. Gold	0.222	0.130	2
Risky assets	0.414	I6. Stocks	0.226	0.094	6
		I7. Mutual Funds	0.232	0.096	5
		I8. Bonds	0.197	0.082	8
		I9. Real Estate	0.218	0.090	7
		I10. Derivatives	0.127	0.053	10

size fits all' policy does not work in the case of investors. So, financial managers, policymakers should frame policies by keeping in view the different types of investors.

5 | CONCLUSION AND FUTURE SCOPE

A successful investor undertakes all possible measures to earn good returns. Investment avenues range from risk-free simple asset such as bank deposits to complex and risky assets such as stocks and bonds. According to traditional finance, investors make the financial decisions on the basis of risk and return of various assets (Markowitz, 1959). However, behavioural finance theories state that in addition to risk and return, other factors affecting investment preferences are investment objectives, time horizon, safety of principal, future security, market environment and heuristics (Barber & Odean, 2001; Tversky & Kahneman, 1986). Market environment is an important factor for portfolio allocation (Chen et al., 2011). In the wake of COVID-19, a question arises on how the pandemic has affected the decisions concerning portfolio allocation.

The study examines the perceptions of investors about various investment avenues before and during the period of extreme uncertainty caused by the COVID-19 pandemic. The preferences for different investment avenues were examined using AHP. Based on the literature review, 10 investment avenues were selected, which were classified into risk-free and risky investments. The AHP results show that the preference for risky assets is higher than that for risk-free assets before COVID-19. Stocks are the highly preferred investment avenue. During COVID-19, the preferences for investment have been changed. Risk-free assets become more preferable. Insurance is the most preferred investment avenue followed by gold, bank deposits and public provident funds (PPF). The findings of the study will be useful to different investors and investment analysts while taking their investment decisions. Investment avenues considered in the study are not exhaustive, and preference for other avenues can also be explored. Future studies can use secondary data to analyse the portfolio holding strategies of various investors and the returns of such portfolios during COVID-19.

CONFLICT OF INTEREST

We have no conflict of interest.

AUTHOR CONTRIBUTIONS

Nikhat Mushir: Theoretical background, introduction of topic, review of the literature. Ritika: Data collection and discussion of the results. Himanshu: Research methodology, data analysis. Ratan Suryavanshi: Conceptualisation, data collection.

DATA AVAILABILITY STATEMENT

Research data are not shared.

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