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Research Article

A Study on the Portfolio Mix of the Retail Investors during COVID-19 with Special Reference to Mumbai Region

Dr. Gowri Shankar Mupppavaram[1] , Mrs. Kanan Bhatt[2]

Abstract

As survival goals became predominant during the unexpected contingency of Covid-19, it became equally important look after one's financial health. Many people suffered from a money crisis due to unemployment, pushing them to look for alternate sources of income such as investment in Portfolio channels, which promised higher returns. It became imperative for the Retail investors to manage their Portfolio mix with due care and diligence so as to extend a strong support to their family incomes during the Covid-19 period. The present study focuses upon studying the various components of the Portfolio mix of the Retail investors as well as the factors influencing their Portfolio mix. It is also aimed at analysing the trends of Portfolio mix of Retail investors before and after the outbreak of Covid-19. In alignment of the research objectives stated above, the hypotheses were formulated. Various statistical techniques like Simple Percentage Method, One Way ANOVA, Pearson Correlation, Cluster Analysis and Structural Equation Modelling were used for the purpose of testing the hypotheses. The Strurctural Equation Modelling[SEM] has been designed in the study to determine the impact of the situation of Before COVID-19[BCO] and During COVID-19[DCO] on Digital Payment System [DPS].

Keywords **:** *Covid-19, Portfolio mix, Retail investors, Digital Payment System*

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[1]Assistant Professor, Lala Lajpatrai Institute of Management, Mumbai – 400034, **Email:** gmuppavaram1@gmail.com

[2] Professor, Lala Lajpatrai College of Commerce and Economics – 400034, **Email:** kananbhatt123@gmail.com

1. Introduction

To build up a hundred-percent perfect Portfolio-mix is a hypothetical situation, yet a good Portfolio can be described as the one having a beautiful blending varieties of asset classes in such a manner that the maximum returns can be earned at a given level of risk. Finance is not for the life but life itself. The basic objective of the present research is to study the impact of various demographic factors on the patterns, preferences and attitudes of individual investors while constructing their Portfolio-mix, before and during the occurrence of Covid-19 pandemic period. The frequency and

speed of using electronic payment system has tremendously increased owing to the contact-less transactions and compliance to adhere to the social distancing norms. The digital payment system offers a strong platform to make investments from plethora of online apps. Building a well-diversified Portfolio is a smart art and a self-disciplined strategy which gets the 'add-on quick settlements feature' due to today's technology-driven e-payment system.

2. Literature Review

Scott P.Frush (2005) in his book writes about the basic ideologies of constructing well-balanced and well-diversified portfolios by the individual investors and suggests that they must have clarity of investment objectives and external market barriers in advance. The author further explains that every investment avenue has its own unique degree of risk and return and therefore investors must thoroughly know their risk absorbing capacity before planning to invest money. At a given level of risk, the higher-return generating investment is preferred over the lower-return generating investment and at a given amount of return, an investment with a lower degree of risk is preferred than the one with higher risk. Lastly, the risk tolerance limit of an individual depends upon his current stage in the life-cycle.

Dr.Yasmeen Ansari & S.C.Dhamija (2011) studied the impact of demographic variables on the investment habits of Indian investors. Investment decisions of an individual depend upon various factors such as his/her level of income, education, occupation, family structure, lifestyle, investment experiences, life-cycle stage, information channels and financial self- discipline.The study concluded that Indian investors being average risk-takers, should be offered investment products such as to fit into their tolerable risk limits. Financial literacy programmes must be organized to keep the investors well-versed in the latest investment opportunities and market trends.

Dhanesh Kumar Khatri (2011) in his book advises that every investor must be well-versed with his/her own investmment goals and constraints. The saving, spending and investing activities must be planned wisely, carefully and in an unbiased manner. Financial wisdom comes from finacial knowledege which in turn is gained through financial literacy. Efficiency and effectiveness of investment decisions can be achieved by skillful investment strategies and therefore, financial securities must be combined and correlated in such a manner that the total return earned from the Portfolio mix as a whole is the maximum and within the desirable boundaries of risk.

Rehmavati, et.al. (2015) examined the investment risk-taking behaviour of citizens from pakistan by analyzing demographic factors like age, income, gender, employment and nationality. Age was found to be inversely related with risk-exposure while wealth had a direct relation. A strong association was also found between education level and the risk-bearing capacity of individual investors. As for women, conservative behaviour and cultural practices

were found to have hindered risky investment decisions. The study suggested that investment companies should consider not only gender but also income group differences while designing their investment products.

Wida Purwidianti (2018) discussed locus of control as one of the key psychological factors affecting one's household financial planning. The study aimed at describing the impact of various socio-demographic factors like family size and gender as well as infographic factors such as financial know-how, self-control and proficiency on the financial decision-making by the households. To collect the data, 85 family heads residing in Purwokerto town of Indonesia were interviewed. It was found that there was no direct association between Gender, family size and Financial behavioral patterns of the households.

P.V.Subramanyam (2019) in his book writes about the investment goals for post-retired life and suggests that financial autonomy and freedom can be only achieved through a pre-planned agenda where in-service earnings are fruitfully converted to build substantial assets at old age. It propogates the idea of – 'Let you work for money when young, so that your money works for you when you grow old.'

Surabhi Kumthakar & Dr.Varsha Nerlekar (2020) evaluated the investment trends of individual investors in post-covid period. Their study focused on analysing the most popular kind of investments before and after the outbreak of covid-19. It was found that mutual funds, followed by bank fixed deposits were the most favoured investment choices by retail investors both in pre-covid and post-covid period. The researchers also concluded that income level had the most influence on the investment plans of individual investors during this period.

Gurleen Kaur & Bijay Prasad Kushwaha (2021) developed the conceptual model to compare the cash payment and the digital payment system. The study showed that paper currencies, coins and plastic money were the major transmitters of covid-19 infection. To overcome this risk and to support the norms of social distancing, it was advised to use contact-free, virtual modes of payment.

Mr.Rajeev Kumar, et.al. (2021) examined the effects of Covid-19 on the key areas of personal finance-saving,spending and investing. It was found that the life insurance, health insurance, Systematic Investment Plan(SIP), and fixed deposits became the highly preferred investment options during covid-19. The repliers suggested to adopt the ideology of discliplined savings and thoughtful spendings amongst the citizens to tackle with the financial contingencies during pandemic.

Dr.S.Padma Annakamu & Dr.R.Mahesvari (2021) Covid-19 diverted the attention of Retail traders towards digital transformation of their routine financial transactions. The study focused upon analysing the demographic, socio-economic and technological factors affecting Tamilnadu's retailers while using the digital payment system.

Speed, security and low-cost were found to be the major advantages of adopting the digital mode whereas lack of technical support system and confidence were the major drawbacks. The frequency of using E-payment was found more in males than females, young population than the old and higher income than lower income respectively.

3. Objectives of the Study

1. To study various components of the Portfolio mix of Retail investors during Covid-19 period.
2. To determine the factors influencing Portfolio mix of Retail investors during Covid-19 period.
3. To analyse the trends of Portfolio mix of Retail investors before and after the outbreak of Covid-19. Pandemic.

4. Hypothetical Statements(s)

1. The Portfolio mix of Retail investors during Covid-19 period differ significantly by demographic factors like gender, age, education, marital status, occupation, work experience and annual salary.
2. There is a significant effect of Pandemic Covid-19 situation (before & during) on the investment decisions taken by the retail investors.
3. There is a significant influence of digital payment system in the retail investors decision before and after the outbreak of Covid-19 pandemic.

5. Study Limitations

1. The study did not focus on all the investment options of retail investors.
2. The findings of the research are based on the data gathered from only specific city and cannot be used to relate to the other areas.
3. The opinions expressed by the investors cannot be considered as the final views to the study due to the pandemic crisis.

6. Methodology of the study

6.1.Sources for the Data

- **Primary data**
  - A well-designed formal questionnaire was distributed to collect the information from investors who are investing in diverse portfolios.
  - On a scale of 1-5, the questionnaire was administered using scaling techniques consisting of Nominal Scale, Interval Scale and a Likert-Rating scale.
- **Secondary Data**
  - The literature has been reviewed from Text Books, Journals, Online Newspaper articles and websites regarding the portfolio mix of retail investors.

6.2.Research Design

Descriptive Cross-sectional design:

The views expressed by the investors are primarily based on their availability to share and exchange information during the pandemic situation. As it is a onetime study, it can be referred to as a descriptive, cross-sectional research design.

6.3.Sampling Design

Sample Size: A total of 250 retail investors have been contacted to acquire the information from the suburbs of Mumbai.

Sampling Method

Quota Sampling: Quota sampling method has been used to collect information exclusively from those 250 retail investors having detailed knowledge about the portfolio mix during this pandemic situation.

6.4.Statistical tools

By using Excel and SPSS, the data has been analysed and interpreted through the various statistical techniques like Simple Percentage Method, One Way ANOVA, Pearson Correlation, Cluster Analysis and Structural Equation Modelling.

7. Results

Table 1: Descriptive analysis to classify the financial position of retail investors

Financial position of retail investors	Frequency	Percent
No savings and significant debt	26	10.4
Little savings and a fair amount of debt	25	10.0
Some savings and some debt	68	27.2
Some savings and little or no debt	88	35.2
Significant savings and little or no debt	43	17.2
Total	250	100.0

Inference Table 1 shows that out of 250 respondents, 26(10%) of the respondents classified their position as no savings and significant debt, 25(10%) as little savings and a fair amount of debt, 68(27%) as some savings and some debt, 88(35%) as some savings and little or no debt and 43(17%) as significant savings and little or no debt.

Hypothesis Testing

The following hypothesis is tested by using One way Analysis of Variance [ANOVA]

Hypothesis 1

Null Hypothesis ($H1_O$): The Portfolio mix of Retail investors during Covid-19 period do not differ significantly by demographic factors like gender, age, education, marital status, occupation, work experience and annual salary.

Alternative Hypothesis ($H1_A$): The Portfolio mix of Retail investors during Covid-19 period differ significantly by demographic factors like gender, age, education, marital status, occupation, work experience and annual salary.

Table 2(a): Portfolio mix of Retail investors by gender

Description	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.092	1	.092	.007	.934
Within Groups	3278.408	248	13.219		
Total	3278.500	249			

Table 2(b): Portfolio mix of Retail investors by age

Description	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	11.630	4	2.907	.218	.928
Within Groups	3266.870	245	13.334		
Total	3278.500	249			

Table 2(c): Portfolio mix of Retail investors by education

Description	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	33.828	3	11.276	.855	.465
Within Groups	3244.672	246	13.190		
Total	3278.500	249			

Table 2(d): Portfolio mix of Retail investors by marital status

Description	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	9.615	1	9.615	.725	.395
Within Groups	3261.607	246	13.259		
Total	3271.222	247			

Table 2(e): Portfolio mix of Retail investors by occupation

Description	Sum of Squares	Df	Mean Square	F	Sig.

Between Groups	8.108	3	2.703	.203	.894
Within Groups	3270.392	246	13.294		
Total	3278.500	249			

Table 2(f): Portfolio mix of Retail investors by work experience

Description	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	96.681	4	24.170	1.861	.118
Within Groups	3181.819	245	12.987		
Total	3278.500	249			

Table 2(g): Portfolio mix of Retail investors by annual salary

Description	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	57.475	3	19.158	1.463	.225
Within Groups	3221.025	246	13.094		
Total	3278.500	249			

Inference: The significance levels have been observed to be more than 5% for all the tables from 2(a) to 2(g) respectively. It reveals that null hypothesis can't be rejected. It can be further depicted that the Portfolio mix of Retail investors during Covid-19 period do not differ significantly by demographic factors like gender, age, education, marital status, occupation, work experience and annual salary.

Hypothesis 2

Null Hypothesis ($H2_O$): There is no significant effect of Pandemic Covid-19 situation (before & during) on the investment decisions taken by the Retail investors

Alternative Hypothesis ($H2_A$): There is a significant effect of Pandemic Covid-19 situation (before & during) on the investment decisions taken by the Retail investors

Table 3: [Before Covid-19 * During Covid-19]

Description	Before Covid-19	During Covid-19	N	Sig. Level
Before Covid-19	1.000	0.645	250	0.000
During Covid-19	0.645	1.000	250	0.000

Inference

The significance level (less than 5%) reveals that the null hypothesis can be rejected. It shows that there is a significant effect of Pandemic Covid-19 situation (before & during) on the investment decisions taken by the Retail investors. The value of ***r*** (Pearson correlation coefficient: **0.645**) indicates that there is a positive moderate correlation between Covid-19 situation (before & during) on the investment decisions taken by the Retail investors.

Cluster Analysis for grouping the variables for tools of Digital Payment System

The table(s) 4 & 4(a) represent Cluster Analysis, which is a Multivariate Analysis for grouping the variables having similar characteristics:

Table 4: Agglomeration Schedule

Variables	Cluster Combined			Stage Cluster First Appears		
	Cluster 1	Cluster 2	Coefficients	Cluster 1	Cluster 2	Next Stage
1	7	8	84.000	0	0	4
2	1	9	344.500	0	0	3
3	1	3	638.667	2	0	7
4	5	7	953.333	0	1	7
5	2	4	1296.833	0	0	6
6	2	6	1756.000	5	0	8
7	1	5	2235.833	3	4	8
8	1	2	3221.778	7	6	0

Inference: Table 1 represents the stages at which the variables are joined together. At stage 1, the variable 7 is joined with variable 8. At stage 2, 3, 7 & 8, the variable 1 is joined with variables 9, 3, 5 & 2 respectively. At stage 4, the variable 5 is joined with variable 7. At stage 5 & 6, the variable 2 is joined with 4 & 6 respectively.

The following table is presented to know the cluster membership to determine the number of clusters through Ward's Method generated by SPSS output

Table 4(a): Cluster Membership (for deciding the number of Clusters)

Sr.no	Variables	Membership
1	BHIM UPI	1
2	Google Pay	1

3	Paytm	1
4	Debit card	2
5	Credit card	2
6	NEFT/IMPS/RTGS	2
7	Razor Pay	3
8	Mobile wallet	3
9	Phone Pe	1

Inference: Table 4(a) represents the membership of the various variables. This table also determines the cluster membership. The following are the groups of clusters:

Cluster 1

- BHIM UPI
- Google Pay
- Paytm
- Phone Pe

Cluster 2

- Debit card
- Credit Card
- NEFT/IMPS/RTGS

Cluster 3

- Razor Pay
- Mobile wallet

The tools of digital payment system can be classified into three clusters.

Cluster 1 is grouped into, BHIM UPI, Google Pay, Paytm and Phone Pe

Cluster 2 is grouped into Debit card, Credit Card and NEFT/IMPS/RTGS

Cluster 3 is grouped into Razor pay and Mobile wallet

Structural Equation Modelling (SEM) to determine the effect of the situation of Before COVID-19[BCO] and During COVID-19[DCO] on Digital Payment System [DPS]

Structural Equation Modelling (SEM) is an expansion of the general linear model (GLM) that helps the researcher to test a set of regression equations simultaneously. In SEM, independent variables are called exogenous variables which are assumed to be measured without error and dependent or mediating variables are called endogenous or downstream variables.

SEM users represent relationships among observed and unobserved variables using path diagrams. Ovals or circles represent latent variables, while rectangles or squares represent measured variables. Residuals are always unobserved, so they are represented by ovals or circles. The single arrow in the diagram indicates path and the double arrow indicates covariances among the variables. The model used in SEM is recursive model.

In the diagram shown below, correlations and covariances are represented by bidirectional arrows, which represent relationships without a clearly defined causal direction.

The dependent variable or endogenous variable for this study is Digital Payment System [DPS] which is represented by rectangle.

The independent variables or exogenous variables for this study have been classified as Before COVID-19[BCO] and During COVID-19[DCO]. The error variance has been represented as e1 which is the part of SEM model.

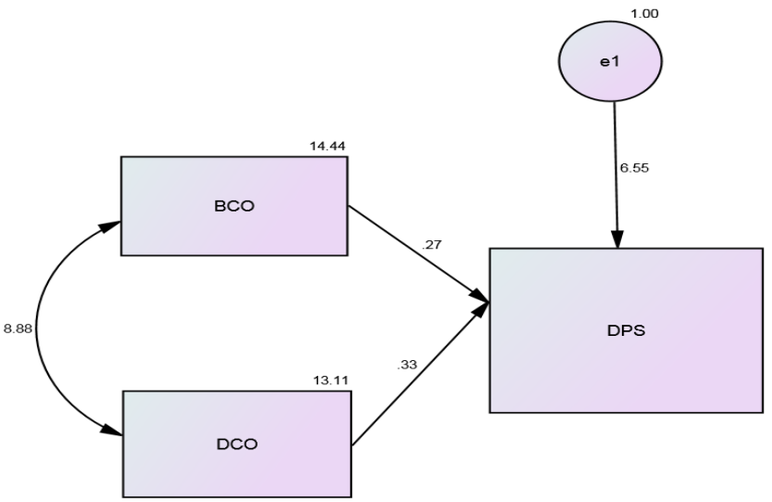

Figure 1: Unstandardized Estimates

Inference for unstandardized estimates

The values observed for BCO (.27) and DCO (.33) are the unstandardized estimates. The highest value has been observed for DCO (.33) indicates that during COVID-19, the impact of digital payment system has been highly significant.

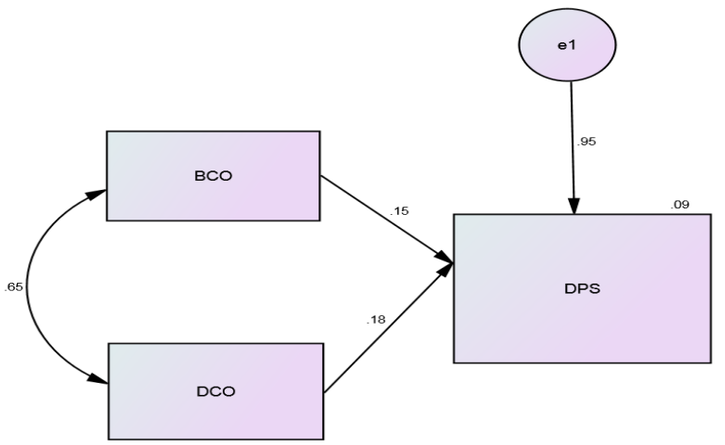

Figure 2: Standardized Estimates

Inference for standardized estimates

The values observed for BCO (.15) and DCO (.18) are the standardized estimates. The double arrow between BCO and DCO represents the covariance with a value of 0.65. The covariance value with 0.65 between BCO and DCO indicates the positive moderate association. The highest value of the standardised estimates has been observed for DCO (.18) indicates that during COVID-19, the usage of digital payment system was quite high.

Interpretation for Model Fit estimates for Digital Payment System [DPS]

Adjusted Goodness-of-Fit Index (AGFI)

The standard value should be ≥ 0.80. The achieved value through SEM model is one which indicates the perfect fit.

Normalized Fit Index (NFI)

It should be > 0.90. The achieved value through SEM model is one which indicates the perfect model fit.

Comparative Fit Index (CFI)

It should be > 0.90. The achieved value through SEM model is one which indicates the perfect model fit.

Tucker Lewis Index (TLI)

It should be ≥ 0.90. The achieved value through SEM model is one which indicates the perfect model fit.

As per the SEM model, any three model fit estimates indicate the utility of the model.

Hence from all the model estimates like AGFI, NFI, CFI and TLI, it can be revealed that SEM model is suitable for predicting the effect of the situation of Before COVID-19[BCO] and During COVID-19[DCO] on Digital Payment System [DPS].

It can be summarised from the model that the utility of Digital Payment System [DPS] has been highly influential During COVID-19[DCO].

8. Discussion(s) from the Study

1. The study from 250 respondents to classify the financial situation of Retail investors infers that the majority of the Retail investors have some savings with little or no debt followed by some savings and some debt. The strength of the portfolio mix can be ascertained through the extent of savings possessed by the Retail investors in the pandemic situation.

2. The hypothesis testing using One way Analysis of Variance [ANOVA] revealed that that the Portfolio mix of Retail investors during Covid-19 period do not differ significantly by demographic factors like gender, age, education, marital status, occupation, work experience and annual salary.

2. The hypothetical analysis using Pearson Correlation highlighted that there is a significant effect of Pandemic Covid-19 situation (before & during) on the investment decisions taken by the Retail investors. The observed value of r (Pearson correlation coefficient: 0.645) revealed that there is a positive moderate correlation between Covid-19 situation (before & during) on the investment decisions taken by the Retail investors.

3. The analysis through Cluster Analysis, under which the tools of digital payment system can be classified into three clusters:

Cluster 1 is grouped into, BHIM UPI, Google Pay, Paytm and Phone Pe

Cluster 2 is grouped into Debit card, Credit Card and NEFT/IMPS/RTGS

Cluster 3 is grouped into Razor pay and Mobile wallet

5. The Strurctural Equation Modelling[SEM] has been designed in the study to determine the impact of the situation of Before COVID-19[BCO] and During COVID-19[DCO] on Digital Payment System [DPS]. The values observed for

BCO (.27) and DCO (.33) are the unstandardized estimates. The highest value observed for DCO (.33) indicates that during COVID-19, the impact of digital payment system has been highly significant. The values observed for BCO (.15) and DCO (.18) are the standardized estimates. The double arrow between BCO and DCO represents the covariance with a value of 0.65. The covariance value with 0.65 between BCO and DCO indicates the positive moderate association. The highest value of the standardised estimates observed for DCO (.18) indicates that during COVID-19, the usage of digital payment system was quite high.

Hence from all the model estimates like AGFI, NFI, CFI and TLI, it can be revealed that SEM model is suitable for predicting the effect of the situation of Before COVID-19 [BCO] and During COVID-19[DCO] on Digital Payment System [DPS].

It can be summarised from the model that the utility of Digital Payment System [DPS] has been highly influential During COVID-19[DCO].

9. Conclusion

From the research, it can be concluded that there is no significant association between the demographic factors & the pattern of Portfolio mix of the Retail investors in Mumbai city during Covid-19. It can also summarised that the Digital Payment System is used very frequently during Covid-19 period. Through this study, the researchers would like to suggest that the individual investors must inculcate the habits of regular savings to strengthen their Portfolio mix and to tap the reliable sources of market information to educate themselves about the latest developments in the field of financial planning and management. One must also learn how to use various virtual mode of payments for smooth monetary transactions. The present study will provide further range of scope for conducting research into various areas like Strategic investment planning, Risk-Return analysis of Retail investors, Role of Emotional finance in planning for the Portfolio mix, Portfolio management during crisis, Family financial planning during Pandemic, role of socio-economic factors in the growth of online payment system etc.

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