

# Construction of Optimum Portfolio & Analyzing the Performance of Selected Mutual Funds during 2017-22 in Indian Stock Market

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## Abstract

In this paper the performance of mutual funds is analyzed and optimum portfolio selection model in mutual funds is introduced. This study focuses to find the optimum portfolio which maximizes the returns with taking the minimum level of risk. In this regard the analysis started with considering sixteen mutual funds from NSE & BSE and analyzing these funds' fundamental characters and basic statistics, performance is measured using Sharpe ratio, Treynor ratio and Jensen's Alpha. Results indicates that 'Axis Bluechip Fund Growth' has highest Sharpe ratio as well as highest Jensen's Alpha and 'Bnp Paribas Large Cap Fund Growth' has the highest Treynor Ratio. Efficient frontier table has been constructed by evaluating various possible portfolios and it has been found that portfolio- 2 to portfolio- 10 construct the efficient frontier curve, and portfolio- 7 is the optimum one, as it has the greatest rate of return (23.808%) with taking the minimum level of risk (10.563%) and also it has the highest Sharpe ratio.

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**JEL Code :** G1; G12

**Keywords :** Mutual Funds; Risk; Return; Sharpe Ratio; Treynor Ratio; NSE; BSE; Performance; Efficiency Frontier; India

## I. Introduction

MUTUAL FUNDS HAVE become an important investment option for small and individual investors, especially in developing capital markets like India. By pooling money from various investors and investing in a mix of securities, mutual funds help spread risk and offer the possibility of stable returns. This approach has made them a preferred choice for those who may not have the time, knowledge, or resources to invest directly in the stock market.

In recent years, mutual funds have seen significant growth in India. Their presence in the capital market not only provides investment opportunities to the public but also supports the overall development

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### 5.1 Limitation of the study

Like most research, a study can hardly be perfect; this study also has few limitations. However, these limitations also present opportunities for future research. This study has focused on a few numbers of mutual funds based upon their performance parameters in particular area whereas other mutual funds based upon other criterion should also be considered for the future study. Various other techniques and financial tools could also be applied and an extension can be made in this area of research.

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**Annexure**  
**Table A1**  
**Variance Co-variance Matrix of Sixteen Mutual Funds**

	Axis Bluechip	Uti Master	Invesc Bluechip	Kotak Bluechip	Mirae Index	Hdfc Index	Sbi Bluech	Bnp Pariba	IciciP. Bluec	ICICI Tata	ICICI Tata	ICICI Tata	Index F	IDFC	Edelweis	Nippon
Axis Bluechip	413.07	9.04	8.37	4.34	6.81	60.16	6.66	11.72	55.25	-10.17	-10.10	-10.46	-9.94	-7.59	-7.04	-10.27
Uti Master Share	9.04	481.67	463.24	471.28	481.06	54.40	482.37	55.10	51.55	-13.24	-13.42	-13.51	-13.15	-14.70	-10.17	-13.63
Invesco India	8.37	463.24	508.80	495.48	502.71	61.02	501.66	52.46	57.96	-11.54	-11.70	-12.38	-12.08	-12.73	-9.08	-12.52
Kotak Bluechip	4.34	471.28	495.48	508.87	513.57	56.33	512.66	49.43	53.01	-13.29	-13.50	-14.16	-13.80	-14.80	-10.14	-14.34
Mirae Asset Large	6.81	481.06	502.71	513.57	532.93	64.80	525.13	54.27	61.05	-13.44	-13.65	-14.41	-13.97	-15.69	-10.80	-14.58
Hdfc Index Sensex	60.16	54.40	61.02	56.33	64.80	577.69	62.97	23.95	527.57	-24.28	-24.35	-24.63	-24.30	-24.78	-19.59	-24.78
Sbi Bluechip Fund	6.66	482.37	501.66	512.66	525.13	62.97	537.11	54.05	59.18	-12.39	-12.53	-13.27	-12.94	-15.22	-10.30	-13.40
Bnp Paribas Large	11.72	55.10	52.46	49.43	54.27	23.95	54.05	446.10	21.48	8.54	8.15	8.60	7.94	11.68	7.13	8.20
Icici P. Bluechip	55.25	51.55	57.96	53.01	61.05	527.57	59.18	21.48	508.66	-19.29	-19.28	-19.81	-19.57	-19.54	-14.71	-19.98
ICICI P. Sensex	-10.17	-13.24	-11.54	-13.29	-13.44	-24.28	-12.39	8.54	-19.29	569.31	565.68	565.76	556.53	520.88	515.34	564.03
Tata Index Fund Sensex	-10.10	-13.42	-11.70	-13.50	-13.65	-24.35	-12.53	8.15	-19.28	565.68	562.27	562.16	553.06	517.81	512.25	560.47
ICICI P. Nifty	-10.46	-13.51	-12.38	-14.16	-14.41	-24.63	-13.27	8.60	-19.81	565.76	562.16	566.29	557.08	522.23	517.25	564.55
Tata Index Fund Nifty	-9.94	-13.15	-12.08	-13.80	-13.97	-24.30	-12.94	7.94	-19.57	556.53	553.06	557.08	548.29	513.77	508.96	555.38
IDFC Large Cap	-7.59	-14.70	-12.73	-14.80	-15.69	-24.78	-15.22	11.68	-19.54	520.88	517.81	522.23	513.77	504.43	485.32	520.59
Edelweiss Large	-7.04	-10.17	-9.08	-10.14	-10.80	-19.59	-10.30	7.13	-14.71	515.34	512.25	517.25	508.96	485.32	487.38	515.59
Nippon India Index	-10.27	-13.63	-12.52	-14.34	-14.58	-24.78	-13.40	8.20	-19.98	564.03	560.47	564.55	555.38	520.59	515.59	562.94

Source: Self Computed

**Table A2**  
**Correlation Matrix of Sixteen mutual funds**

	Axis Bluechip Master	Uti Master	Invesc Bluechip	Kotak Bluechip	Mirae Index	Hdfc Index	Sbi Bluech	Bnp Pariba	Icici P. Bluec	ICICI Tata	ICICI Tata	Tata Index F	IDFC	Edelweis	Nippon
Axis Bluechip	413.07	9.04	8.37	4.34	6.81	60.16	6.66	11.72	55.25	-10.17	-10.10	-10.46	-9.94	-7.59	-10.27
Uti Master Share	9.04	481.67	463.24	471.28	481.06	54.40	482.37	55.10	51.55	-13.24	-13.42	-13.51	-13.15	-14.70	-13.63
Invesco India	8.37	463.24	508.80	495.48	502.71	61.02	501.66	52.46	57.96	-11.54	-11.70	-12.38	-12.08	-12.73	-12.52
Kotak Bluechip	4.34	471.28	495.48	508.87	513.57	56.33	512.66	49.43	53.01	-13.29	-13.50	-14.16	-13.80	-14.80	-14.34
Mirae Asset Large	6.81	481.06	502.71	513.57	532.93	64.80	525.13	54.27	61.05	-13.44	-13.65	-14.41	-13.97	-15.69	-14.58
Hdfc Index Sensex	60.16	54.40	61.02	56.33	64.80	577.69	62.97	23.95	527.57	-24.28	-24.35	-24.63	-24.30	-24.78	-24.78
Sbi Bluechip Fund	6.66	482.37	501.66	512.66	525.13	62.97	537.11	54.05	59.18	-12.39	-12.53	-13.27	-12.94	-15.22	-13.40
Bnp Paribas Large	11.72	55.10	52.46	49.43	54.27	23.95	54.05	446.10	21.48	8.54	8.15	8.60	7.94	11.68	8.20
Icici P. Bluechip	55.25	51.55	57.96	53.01	61.05	527.57	59.18	21.48	508.66	-19.29	-19.28	-19.81	-19.57	-19.54	-19.98
ICICI P. Sensex	-10.17	-13.24	-11.54	-13.29	-13.44	-24.28	-12.39	8.54	-19.29	569.31	565.68	565.76	556.53	520.88	564.03
Tata Index Fund Sensex	-10.10	-13.42	-11.70	-13.50	-13.65	-24.35	-12.53	8.15	-19.28	565.68	562.27	562.16	553.06	517.81	560.47
ICICI P. Nifty	-10.46	-13.51	-12.38	-14.16	-14.41	-24.63	-13.27	8.60	-19.81	565.76	562.16	566.29	557.08	522.23	564.55
Tata Index Fund Nifty	-9.94	-13.15	-12.08	-13.80	-13.97	-24.30	-12.94	7.94	-19.57	556.53	553.06	557.08	548.29	513.77	555.38
IDFC Large Cap	-7.59	-14.70	-12.73	-14.80	-15.69	-24.78	-15.22	11.68	-19.54	520.88	517.81	522.23	513.77	504.43	520.59
Edelweiss Large	-7.04	-10.17	-9.08	-10.14	-10.80	-19.59	-10.30	7.13	-14.71	515.34	512.25	517.25	508.96	485.32	515.59
Nippon India Index	-10.27	-13.63	-12.52	-14.34	-14.58	-24.78	-13.40	8.20	-19.98	564.03	560.47	564.55	555.38	520.59	562.94

Source: Self Computed

Table A3  
Efficient Frontier Table

	Minimum Variance					Optimum					(In Percent)
Expected Return	22.820	22.430	22.710	22.980	23.260	23.530	23.810	24.080	24.360	24.630	
Risk	12.840	10.290	10.320	10.370	10.430	10.480	10.560	10.780	11.170	11.710	
Sharpe Ratio	1.771	2.171	2.193	2.209	2.222	2.237	2.246	2.227	2.174	2.096	
	<b>Proportionate Weights Under Optimally Weighted Portfolio using MS Solver</b>										
<b>Selected Mutual Funds</b>											
Axis Bluechip	6.300	23.000	24.100	24.900	25.200	25.100	26.000	28.800	31.500	34.300	
Uti Master Share	6.300	10.700	9.800	9.100	9.800	9.700	8.700	5.200	1.600	-	
Invesco India	6.300	-	-	0.000	0.000	0.300	1.900	8.700	15.600	22.600	
Kotak Bluechip	6.300	7.500	8.900	10.000	9.600	9.400	9.100	6.800	4.400	-	
Mirae Asset Large	6.300	-	-	-	-	-	-	-	-	-	
Hdfc Index Sensex	6.300	-	0.000	0.000	0.000	8.800	15.800	17.300	18.800	20.300	
Sbi Bluechip Fund	6.300	-	-	-	-	-	-	-	-	-	
Bnp Paribas Large	6.300	19.700	19.100	18.600	18.500	18.700	17.100	11.600	6.000	0.300	
Icici P. Bluechip	6.200	16.400	16.100	16.000	16.000	7.100	-	-	-	-	
ICICI P. Sensex	6.200	-	-	0.800	-	-	-	-	-	-	
Tata Index Fund Sensex	6.200	-	4.000	10.500	19.800	20.900	21.200	21.700	22.100	22.500	
ICICI P. Nifty	6.200	-	-	-	-	-	-	-	-	-	
Tata Index Fund Nifty	6.200	-	-	-	-	-	-	-	-	-	
IDFC Large Cap	6.200	5.800	-	-	-	-	-	-	-	-	
Edelweiss Large	6.200	16.900	18.000	10.000	1.100	0.000	-	-	-	-	
Nippon India Index	6.200	-	-	-	-	-	-	-	-	-	

Source: Self Computed