

MUTUAL FUNDS INDUSTRY IN INDIA: AN EMPIRICAL STUDY WITH FOCUS ON RETURNS, RISK AND PERFORMANCE MEASURES

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OCTOBER, 2021**

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PERFORMANCE MEASURES**

by

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Submitted

in fulfillment of the requirements of the degree of

Doctor of Philosophy

to the



Indian Institute of Technology Delhi

OCTOBER, 2021

CERTIFICATE

The thesis titled, “**Mutual Funds Industry in India: An Empirical Study with Focus on Returns, Risk and Performance Measures**”, being submitted by **Ms. Manasi Gupta** to the **Indian Institute of Technology Delhi**, for the award of the degree of **Doctor of Philosophy** is a record of bonafide research work carried out by her. She has worked under our guidance and supervision, and has fulfilled all the requirements for the submission of the thesis, which has attained the standard required for a Ph.D. degree of this institute. The results presented in this thesis have not been submitted elsewhere for the award of any degree or diploma.

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ACKNOWLEDGEMENTS

This doctoral thesis concludes the journey encompassing unparalleled learning opportunities at the Department of Management Studies, Indian Institute of Technology, Delhi. I would like to thank and express my deepest gratitude to all those without whom this journey would not have been accomplished.

At the outset, I would like to thank the Almighty for providing me strength and courage to sail through the challenging phases of research. I would like to take this opportunity to express my sincere gratitude and utmost respect to my research supervisors, Prof. P. K. Jain and Prof. Surendra Singh Yadav, for providing invaluable guidance. Their vision, dynamism, dedication, motivation, inspiration and above all, their belief in me have transformed me professionally as well as personally; their level of patience in grooming me ‘as a researcher’ (academician) is immensely appreciable.

Besides my supervisors, I would also like to thank my Student Research Committee members; Prof. Shveta Singh (Chairperson), Prof. V. Upadhyay (External Expert) and Dr. Smita Kashiramka (Internal Expert); their insightful feedback has helped me in enriching the quality of my research work. I would like to express my special thanks of gratitude to Prof. Seema Sharma (Head, DMS) for creating the cohesive and inter-disciplinary research environment in the department.

I am highly grateful to Ms. Rejani Raghu and Mr. Vimal Kumar for their great help. I am sincerely thankful to all my colleagues at the department for their immense co-operation and support. I am also thankful to all the survey respondents for sparing their precious time to provide me with the desired data for this research.

I would like to take this opportunity to thank my family, friends and well wishers whose constant support and encouragement has been a great source of inspiration and motivation to

me. It is their unconditional love and faith in my abilities that kept me going towards my objectives and ultimate destination.

I dedicate this work to my parents and the higher consciousness who have been a source of strength in my life.

MANASI GUPTA

October 2021

ABSTRACT

Fifty-six years since its inception, the Indian mutual fund industry today constitutes an important part of the Indian financial system. During the quarter 1 of the year 2020, the 44 assets management companies (AMCs) that comprise this industry reached assets under management (AUM) equal to nearly one-fifth of India's real gross domestic product (GDP). During this period, the equity schemes held over one-third of the total industry AUM, with inflows progressively growing since the global financial crisis (GFC) of 2008 and post-demonetization in November 2016. Being so, the growth and performance of equity mutual funds is of particular relevance for research in view of not only their strong growth in AUM but also their perceived potential to create long-term wealth for their investors.

The extent to which mutual funds succeed in their main function of savings mobilization will, *inter-alia*, depend on their financial performance in terms of rates of return, made available to investors, commensurate with their expectations. This, in turn, depends on several internal and external factors (under which mutual funds operate). The major external factors are broad market performance, macroeconomic environment, investor sentiments, the regulatory environment, liquidity conditions, global influencing events, etc. The internal factors primarily relate to selection of portfolio for investment and corporate governance.

Several facets of the performance of mutual funds have been researched (globally and in India) in relation to their returns, sources of risk, risk-adjusted returns, securities selection, portfolio management, benchmarks, performance attribution, external and internal factors of influence, regulation / governance, investor behaviour, active versus passive management, factor based models, fund manager style and process, sources of managerial outperformance, performance persistence, sensitivity of fund inflows, fund characteristics (age, size, type, ownership etc) and fund flows etc. (notable studies include Barber *et al.*, 2015; Blitz, 2017; Nguyen *et al.*, 2018; Deb, 2018; Alhorani, 2019; Agrawal, 2020; Biswas, 2020; Chauhan, 2020).

The successive growth of fund inflows from a wide spectrum of investors ranging from foreign institutions to retail investors is a signal to the potential of Indian mutual funds in generating adequate and satisfactory returns for their heterogeneous group of investors. In-depth studies are necessary to assess returns in justification of the growth in assets of mutual funds industry in India.

Thus, objectives of the study are: evaluation of aggregate performance on the basis of returns, risk and performance measures, Sharpe ratio, Treynor ratio and Jensen's Alpha; assessment of long-term performance disaggregated in relation to scheme characteristics; comparison of long-term performance in periods during and after the global financial crisis; and to gain insights, *inter-alia*, into the perceptions about returns, risk and performance of equity mutual funds from the perspective of practitioners, namely, the fund managers directly in-charge of assets under management.

The study assesses the long-term performance of equity mutual fund schemes in India during the period April 2000 to March 2018, using the sample of 350 equity mutual fund schemes. For the purpose of analysis, the 18-year long study period has been divided into 18 annual sub-periods that comprise two long-term phases, based on the GFC, namely, pre-crisis phase 1 (8 sub-periods within April 2000 – March 2008) and post-crisis phase 2 (10 sub-periods within April 2008 – March 2018). The total returns to scheme investors (inclusive of dividends paid by relevant schemes) form the base to compute total risk (using standard deviation); beta constitutes the basis of market risk, followed by well accepted risk-adjusted return measures of Sharpe ratio, Treynor ratio and Jensen's Alpha.

Aggregate performance of the sample schemes has been evaluated using mean, median and quartile values in relation to measures of performance and paired samples t-test has aided in establishing the significance of differences between the series. To present a comprehensive view of performance beyond their standalone performance, the relative performance of the sample equity

mutual fund schemes has been analysed with respect to market benchmark Nifty total return index (TRI) and risk free benchmark Government of India 10-year Bond yield.

The results from the analysis of returns reveal that Indian equity mutual fund schemes have, by and large, performed favourably on the objective of generating long-term returns for their investors. Returns of the sample equity schemes have been higher than average inflation as well as returns from risk-free asset benchmark over the entire study period. However, scheme returns have not outperformed the returns of market benchmark during the 18-year long study period as returns from market benchmark have been much higher during the 8-year long pre-crisis phase 1.

The sample equity schemes in lower standard deviation category have displayed better returns as well as risk-adjusted returns in comparison to schemes in higher standard deviation category. On aggregate basis, the overall results indicate that equity schemes do possess the ability to generate positive risk-adjusted returns commensurate to level of risk undertaken by them as demonstrated by positive values of Sharpe ratio, Treynor ratio and Jensen's Alpha for the study period.

The present study notes that higher total risk and market risk have been detrimental for their long-term performance. The schemes with poor performance (represented by the lower Alpha category) have been largely associated with higher standard deviation category and higher beta category. Juxtaposed to this, better performing schemes (symbolized by the higher Alpha category) frequently demonstrated both lower standard deviation category and lower beta category. But, at the same time, comparatively better performance of schemes, having low degrees of correlation with market benchmark, indicates the prevalence of unique risk factors that are unrelated to benchmark but are influencing returns regularly.

The performance has also been studied in relation to scheme characteristics – age (defined by years since launch) and size (defined by its AUM). Analysis of secondary data indicates that scheme size is of relevance while evaluating their performance in relation to their returns as well as risk-adjusted returns. Performance of very large size schemes during phase 2 demonstrates

statistical difference from other size groups; returns are higher than other size groups; and total risk lower than other size groups. Meanwhile, scheme age is of relevance in relation to Sharpe ratio and Jensen's Alpha only. Empirical results show that returns have declined as scheme age progresses. And, when compared to more aged groups, the middle age group is statistically different and has a superior ability to generate risk-adjusted returns.

The unexpected global financial crisis brought its own set of challenges for fund managers in the assets management industry worldwide. Notable studies have documented its significant influence on the risk management practices of the banking and financial services industry globally as well as in India. The survey of Indian fund managers provides the same conclusion and empirical results also corroborate the findings with an observed statistically significant decline in the total risk of the sample equity mutual fund schemes during post-crisis phase 2 from pre-crisis phase 1.

सार

अपने 56 सालों के इतिहास के माध्यम से, भारतीय म्यूचुअल फंड उद्योग आज के दौर में भारतीय वित्तीय प्रणाली का अहम अंग बन चुका है। सन 2020 की पहली तिमाही में, इस उद्योग की सभी 44 एसेट्स मैनेजमेंट कंपनियों (AMCs) के समस्त एसेट्स अंडर मैनेजमेंट (AUM) भारतीय सकल घरेलू उत्पाद (GDP) के लगभग पांचवे भाग के बराबर पहुँच चुके थे। इसी दौरान सभी इक्विटी स्कीमों द्वारा जुटाया गया AUM, सन 2008 में वैश्विक वित्तीय संकट और सन 2016 में डेमोनेटिज़ेशन से प्रभावित होकर लगातार बढ़ते इनफ्लोज़ के चलते, समस्त उद्योग AUM के एक तिहाई स्तर के पार पहुँच गया। इक्विटी म्यूचुअल फंड्स स्कीमों की उन्नति और वित्तीय प्रदर्शन अध्ययन के लिए महत्वपूर्ण है न केवल उनके दृढ़ता से बढ़ते हुए AUM की वजह से बल्कि निवेशकों द्वारा उनकी लम्बे समय अवधि में लाभ क्षमता की बोध के कारण भी।

म्यूचुअल फंड अपने मुख्य कार्य निवेशकों के बचत संग्रहण में कितना सफल हो पाते हैं, यह अन्य बातों के अलावा, इस बात पर निर्भर करता है की वे अपने निवेशकों को उनकी अपेक्षानुरूप कितना लाभ पहुँचा सके या नहीं। म्यूचुअल फंड्स का वित्तीय प्रदर्शन उनके अंदरूनी और बाहरी पहलुओं से लगातार प्रभावित होता रहता है। बाहरी पक्ष में आते हैं - शेयर बाजार की अवस्था, मैक्रोइकनॉमिक माहौल, निवेशकों की भावनायें, रेगुलेटरी परिस्थितियां, लिक्विडिटी का स्तर, वैश्विक प्रभावकारी घटनाएं आदि। अंदरूनी पहलुओं में आते हैं पोर्टफोलियो का चुनाव और कॉर्पोरेट गवर्नेंस।

तदनुसार, म्यूचुअल फंड्स के वित्तीय प्रदर्शन सम्बन्धी कई पहलुओं का अध्ययन राष्ट्रीय और अंतर्राष्ट्रीय स्तर पर हुआ है। अध्ययन के विविध सम्बंधित पक्ष रहे हैं - रिटर्न, रिस्क के स्रोत, रिस्क-एडजस्टेड रिटर्न, सेक्युरिटीज़ सिलेक्शन, पोर्टफोलियो मैनेजमेंट, बेंचमार्क, परफॉरमेंस एट्रीब्यूशन, अंदरूनी और बाहरी प्रभावी फैक्टर्स, रेगुलेशन / गवर्नेंस, निवेशकों का व्यवहार, एक्टिव या पैसिव सञ्चालन, फैक्टर बेस्ड मॉडल्स, फंड मैनेजर स्टाइल और प्रोसेस, मैनेजीरियल आउट-परफॉरमेंस के स्रोत, परफॉरमेंस पर्सिस्टेंस, फंड इनफ्लोज़ की संवेदनशीलता, फंड करैक्टरिस्टिक्स (उम्र, साइज़, टाइप, ओनरशिप आदि) और फंड इनफ्लोज़ इत्यादि। बड़ी संख्या में मौजूद अध्ययनों में विशेषतर अध्ययन हैं - बार्बर एट अल, 2015; गुएन एट अल, 2018; देब, 2018; अल्होरानी, 2019; अग्रवाल, 2020; बिस्वास, 2020; चौहान, 2020 ।

रिटेल निवेशक से ले कर फॉरेन इंस्टीट्यूशन्स तक से आने वाले फंड इन्फ्लोज़ की लगातार बढ़ोतरी होना एक संकेत है की भारतीय म्यूच्युअल फंड्स में सभी तरह के निवेशकों के लिए संतोषजनक लाभ उत्पन्न करने की संभावित क्षमता है। यह देखना महत्वपूर्ण है कि भारतीय म्यूच्युअल फंड उद्योग के द्वारा उत्पन्न रिटर्न्स का गहन परिक्षण हो।

अतः इस अध्ययन के उद्देश्य हैं - एग्रीगेट वित्तीय प्रदर्शन का आंकलन रिटर्न्स, रिस्क और रिस्क-एडजस्टेड रिटर्न्स के आधार पर; वित्तीय प्रदर्शन की डिसएग्रीगेटेड पड़ताल स्कीमों की उम्र और साइज़ के आधार पर; वैश्विक वित्तीय संकट के सम्बन्धी तुलना; और रिटर्न्स, रिस्क और रिस्क-एडजस्टेड रिटर्न्स के बारे में एसेट्स मैनेजमेंट के प्रत्यक्ष तौर पर उत्तरदायी फंड मैनेजर्स के परस्पर अनुभवों में अंतर्दृष्टि पाना।

वर्तमान अध्ययन का सैंपल 350 भारतीय इक्विटी म्यूच्युअल फंड स्कीमों के प्रसंग में अप्रैल 2000 से मार्च 2018 के दौरान अर्जित वित्तीय प्रदर्शन का मूल्यांकन करता है। इस उद्देश्य वश, 18 साल लम्बी समय अवधि को 18 वार्षिक सब-पीरियड में विभाजित किया गया जो की वैश्विक वित्तीय संकट के आधार पर पुनः बांटे गए। आठ साल लम्बा अप्रैल 2000 से मार्च 2008 का समय प्री-क्राइसिस पीरियड कहा गया और 10 साल लम्बा अप्रैल 2008 से मार्च 2018 का समय पोस्ट-क्राइसिस पीरियड कहा गया है। निवेशकों द्वारा संगृहीत टोटल रिटर्न (जो की डिविडेंड को जोड़ कर गणित किया गया है) अन्य गड़नाओ के लिए मूल है। इसके आधार पर अनुमानित किये गए हैं - टोटल रिस्क (स्टैण्डर्ड डेविएशन की मदद से); मार्केट रिस्क (बीटा के आधार पर) और रिस्क-एडजस्टेड रिटर्न्स जिन्हें शार्प रेश्यो, ट्रेनोर रेश्यो और जेन्सेन अल्फा के माध्यम से दर्शाया गया है।

एग्रीगेट वित्तीय प्रदर्शन के विश्लेषण में मीन, मीडियन और क्वार्टआइल तथा पेयर्ड सैम्पल्स टी-टेस्ट का इस्तेमाल किया गया है जिसकी मदद से सीरीज़ के आपसी मतभेदों में स्टटिस्टिकल सिग्रीफिकेन्स का विश्लेषण किया गया है। विस्तृत तौर पर म्यूच्युअल फंड स्कीमों के वित्तीय प्रदर्शन की विशेषताओं को उजागर करने के अलावा आपेक्षिक तौर पर उनकी तुलना मार्केट बेंचमार्क निफ्टी टोटल रिटर्न इंडेक्स तथा रिस्कफ्री एसेट बेंचमार्क भारत सरकार के 10 वर्षीय बॉन्ड के रिटर्न्स के साथ करी गयी है।

विश्लेषण के परिणाम यह प्रकट करते हैं कि भारतीय इक्विटी म्यूच्युअल फंड स्कीमों ने, आम तौर पर, लम्बे समय तक अपने निवेशकों को रिटर्न्स देने का संतोषजनक प्रदर्शन किया है। अध्ययन की समय

अवधि के दौरान स्कीम रिटर्न्स इन्फ्लेशन रेट से बढ़कर तो हैं ही और साथ ही रिस्कफ्री रिटर्न्स से भी ऊपर रहे हैं। किन्तु स्कीम रिटर्न्स इतने सशक्त नहीं थे की मार्केट रिटर्न्स को पार कर पाते जिसकी वजह थे 8 साल लम्बे प्री-क्राइसिस पीरियड में देखे गए मज़बूत मार्केट रिटर्न्स।

इसके अलावा, सैंपल इक्विटी स्कीमों के स्टैंडर्ड डेविएशन के आधार पर किये विभाजन से पता चला की जहाँ कम स्टैंडर्ड डेविएशन वाली स्कीमों ने बेहतरीन वित्तीय प्रदर्शन किया वहीं ज़्यादा स्टैंडर्ड डेविएशन वाली स्कीमों का वित्तीय प्रदर्शन सबसे बदतर रहा। एग्रीगेट परिणाम यह दर्शाते हैं की इक्विटी स्कीम यह क्षमता रखती हैं की वे सकारात्मक तौर पर रिस्क-एडजस्टेड रिटर्न्स (शार्प रेश्यो, ट्रेनोर रेश्यो और जेन्सेन अल्फा) लम्बी अवधि में उत्पन्न कर सकें।

वर्तमान अध्ययन यह सूचित करता है की टोटल रिस्क और मार्केट रिस्क की अधिकता स्कीम के वित्तीय प्रदर्शन को कमज़ोर बनती है। अन्य स्कीमों की तुलना में कमतर प्रदर्शन (लोअर अल्फा कैटेगरी) देने वाली स्कीमों के साथ हाई स्टैंडर्ड डेविएशन कैटेगरी और हाई बीटा कैटेगरी अक्सर जुड़ी पायी गयीं। वहीं दूसरी ओर, बेहतर प्रदर्शन (हायर अल्फा कैटेगरी) देने वाली स्कीमों के साथ लोअर स्टैंडर्ड डेविएशन कैटेगरी और लोअर बीटा कैटेगरी बहुधा जुड़ी रहीं। इसी समय, तुलनात्मक तौर पर ऐसी स्कीमों का बेहतर प्रदर्शन जो 'मार्केट बेंचमार्क से सहसम्बन्धित नहीं है, इस बात का संकेत है की कुछ यूनिक रिस्क फैक्टर्स लगातार स्कीम रिटर्न्स को प्रभावित कर रहे हैं।

म्यूच्युअल फंड स्कीमों के वित्तीय प्रदर्शन का विश्लेषण उनके करैक्टरिस्टिक्स, यानी, उम्र (लॉन्च के बाद बीते साल) और साइज़ (AUM) के आधार पर भी किया गया है। सेकेंडरी डाटा पर शोध के निष्कर्ष यह बतलाते हैं की स्कीम का साइज़ उसके प्रदर्शन को समझने में प्रासंगिक है। फेज़ 2 के दौरान साइज़ में सबसे बड़ी स्कीमों ने अन्य साइज़-ग्रुप की तुलना में स्टैटिस्टिकली भिन्न प्रदर्शन किया; सबसे अधिक रिटर्न्स पाये; और टोटल रिस्क में सबसे कम रहे। वहीं दूसरी ओर, स्कीम की उम्र का विश्लेषण सिर्फ शार्प रेश्यो और जेन्सेन अल्फा की तुलना में ही प्रासंगिक रहा। एम्पिरिकल परिणाम यह प्रदर्शित करते हैं की बढ़ती उम्र के साथ रिटर्न्स की रफ़्तार गिरने लगती है। अन्य ग्रुप की तुलना में मिडिल ऐज ग्रुप न सिर्फ स्टैटिस्टिकली अलग है बल्कि ज़्यादा रिस्क-एडजस्टेड रिटर्न्स भी प्रदर्शित कर रही हैं।

अकल्पित वैश्विक वित्तीय संकट ने अंतर्राष्ट्रीय स्तर पर एसेट्स मैनेजमेंट उद्योग में कार्यकारी फंड मैनेजर्स के लिए कई चुनौतियों का निर्माण किया। दर्शनीय अध्ययन हुए हैं जिनमें बैंकिंग और फाइनेंशियल सर्विसेज़ उद्योग के रिस्क मैनेजमेंट प्रैक्टिसेस पर इस संकट से उत्पन्न होने वाले प्रभाव का संचार हुआ है। इस अध्ययन के दौरान किये गए सर्वेक्षण में भारतीय फंड मैनेजर्स के अनुभव और सेकेंडरी डाटा से एम्पिरिकल परिणाम भी यही सूचित करते हैं की सैंपल इक्विटी म्यूच्युअल फंड स्कीमों के टोटल रिस्क में प्री-क्राइसिस पीरियड की तुलना में वैश्विक वित्तीय संकट के बाद पोस्ट-क्राइसिस पीरियड में गिरावट देखी गयी है।

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ABBREVIATIONS

AMC	Asset Management Company
AMFI	Association of Mutual Funds of India
AUM	Assets Under Management
BFSI	Banking and Financial Services Industry
BSE	Bombay Stock Exchange
CAGR	Compounded Average Growth Rate
CEO	Chief Executive Officer
CFO	Chief Financial Officer
ETF	Exchange Traded Fund
FII	Foreign Institutional Investor
FPI	Foreign Portfolio Investor
GDP	Gross Domestic Product
GFC	Global Financial Crisis
HNI	High Networth Investor
MFI	Mutual Fund Industry
NAV	Net Asset Value
NSE	National Stock Exchange
PSU	Public Sector Undertaking
RBI	Reserve Bank of India
SEBI	Securities and Exchange Board of India
SIP	Systematic Investment Plan
TER	Total Exchange Ratio
TRI	Total Return Index
USA	United States of America