

“Risk Management Effectiveness and Perceived Portfolio Risk Performance: Empirical Evidence from Indian Asset Management Companies.”

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Abstract:

The expansion of the Indian mutual fund industry, along with its product diversification and portfolio complexity, has further solidified the requirement for robust and efficient risk management frameworks in the asset management companies (AMCs). While several studies have assessed the performance of mutual funds based on ex-post risk-adjusted performance, there is limited empirical work examining the link between the effectiveness of the institutional risk management process and portfolio performance. Drawing on Modern Portfolio Theory and Risk Management principles, this study aims to explore the association between Risk Management Effectiveness (RME) and Perceived Portfolio Risk Performance (PRP) in Indian Asset Management Companies (AMCs), with particular reference to hybrid mutual funds.

The study adopts a cross-sectional, primary data-driven design based on structured responses from 100 professionals engaged in investment, portfolio management and risk functions within Indian AMCs. The questionnaire was developed through a review of the literature, expert assessment, and pilot testing. Risk Management Effectiveness was conceptualised as a multidimensional construct comprising risk management practices, governance mechanisms, and operational risk control effectiveness. The construct covered policy communication, documented risk framework, diversification, quantitative risk measurement, liquidity and credit risk assessment, periodic analysis, risk limits and regulatory compliance. Composite scores were calculated using mean values of the relevant five-point Likert scale items. Reliability, exploratory validity, correlation and regression analysis were undertaken.

The findings show a statistically significant positive relationship between Risk Management effectiveness (RME) and Perceived Portfolio Risk Performance (PRP) ($\beta = 0.694$, $p < 0.001$), with Risk Management Effectiveness explaining 48.2% of the variation in Perceived Portfolio Risk Performance ($R^2 = 0.482$; Adj. $R^2 = 0.477$). The findings suggest that structured risk processes are associated with stronger portfolio stability, downside risk control, and perceived risk-adjusted performance.

By moving its focus from conventional performance measures to institutional-level risk practices, the study provides an understanding of how risk governance is associated with mutual fund outcomes in emerging markets. The findings highlight the need for a well-designed risk framework in supporting portfolio resilience and sustainable risk-return management. However, since the study is based on cross-sectional perceptual data, the results should be interpreted as an association rather than causation.

Keywords: Risk Management Effectiveness, Perceived Portfolio Risk Performance, Risk Governance, Hybrid Mutual Funds, Portfolio Resilience, Downside Risk.

JEL Classification: G11, G23, G32, C12, C51

1. Introduction

The Indian mutual fund industry has witnessed a significant structural shift over the past decade, becoming an integral part of the financial intermediary structure and seeing increasing investor preference. Mutual funds have

evolved from a budding market to a mature investment environment driven by market regulations, technological advancements, increased financial literacy, and the growing acceptance of Systematic Investment Plans (SIPs) (AMFI, 2022). As of 30 June 2026, the industry's assets under management stood at 82.22 lakh crore, compared with 13.81 lakh crore in June 2016. The investor folios have also increased to approximately 27.86 crore, while monthly contributions through Systematic Investment Plans reached 31,781 crores in June 2026 (AMFI 2026). This expansion has increased the scale of assets exposed to market, credit, liquidity and operational risks, strengthening the need for effective risk bemanagement practices within Asset Management Companies. However, the operating environment for the Indian capital market has experienced rising volatility factors, represented by fluctuations, globalisation, geopolitics, macroeconomic turbulence, Interest rate management, and market crises like the COVID-19 pandemic. As a result, Risk Management has become important to portfolio stability, investor protection and portfolio resilience (Bekaert & Hoerova, 2014).

Historically, the assessment of mutual funds has largely centred on returns; however, academic discussions have largely revolved around risk-return equilibrium emphasised by classical finance theory (Jensen, 1968; Markowitz, 1952; Sharpe, 1966; Fama & French, 1993). Benchmarking in these studies was traditionally done using risk-adjusted ratios such as the Sharpe Ratio, Treynor Ratio, and Jensen's Alpha, derived from Modern Portfolio Theory, Capital Asset Pricing Model, and Efficient Market Hypothesis, respectively. Notwithstanding their theoretical strength, their empirical completeness in present markets is increasingly under scrutiny. Although these measures remain useful, they may not fully capture downside asymmetry, tail exposure, liquidity constraints, and non-normal return distribution in emerging markets such as India (Sortino & van der Meer, 1991; Agarwal & Pradhan, 2019). As a result, there is a steady shift in discussion from "how much return a fund generates" to "how efficiently a fund manages risk while generating returns".

The Global Financial Crisis, volatility during the pandemic, commodity price shocks, exchange rate fluctuations, and inflation adjustments after COVID have illustrated the risk associated with the inherent instability of funds. Without adequate risk management strategies, portfolios faced the threat of downside risk, capital outflow, mutual fund redemptions, and reputational threat (Bali et al., 2014). In India, liquidity and credit risk in debt funds are examples of inherent vulnerability that stems from inadequate risk management practices. Even when return, the most critical aspect of any financial plan, can be clearly measured, the underlying component that influences it is "risk management."

Taking cognisance, SEBI has launched various initiatives to ensure better risk management and increased transparency. The key initiatives include the categorisation and rationalisation framework for mutual funds launched in 2017, enhanced portfolio disclosures, valuation and the introduction of the Risk-O-Meter concept for standardisation of risk visualisation by SEBI in 2017 and AMFI in 2022. The SEBI (Mutual Funds) Amendment Regulation 2025 introduces a provision for stress testing of schemes, mandating AMCs to perform and publish stress tests on schemes prescribed by the regulators. Additionally, SEBI's recent circular on disclosure of risk-adjusted return for equity mutual funds in January 2025 enhances information transparency pertaining to the risk-adjusted performance. The above developments highlight the need to review institutional risk frameworks on an institutional risk-to-return portfolio.

The concept of Risk Management Effectiveness (RME), used in this study, is the capacity of AMC to manage the portfolio risks, including the identification, assessment, monitoring and control of risks, in an integrated way of risk governance, compliance and investment. There are two aspects to RME: first, the quality of the risk management; second, the effectiveness of the implementation of the risk management.

Professionals' assessment of portfolio stability, downside-risk control and risk-adjusted outcomes under varying market conditions is called Perceived Portfolio Risk Performance (PRP). Here "perceived" is used since the construct is assessed based on survey-based professional judgments and not on actual performance.

Hence, on the basis of these considerations, it can be said that the results in regard to the effectiveness of the risk methods that are employed by the asset management companies are mostly contradictory and unclear. On the other hand, while the regulatory changes are yet to be sorted out, some of the studies highlight the improvement

in volatility management, portfolio resilience and the portfolio risk-adjusted performance, which are good risk management in Indian mutual funds. But studies point to several areas of remaining inefficiencies in category performance dispersion, style drift tendencies, unnecessary rebalancing, managers' herding behaviour and inadequate downside risk coverage in market downturns.

Further, there are three interrelated gaps in existing literature. First, the study of mutual funds remains largely focused on ex- post-performance evaluation with limited attention to the effectiveness of institutional risk management. Second, traditional performance measures act as lagging indicators and provide limited information on governance, monitoring and control processes that lead to the outcome of the portfolio without relatively newer instruments like Sortino Ratio, Value at Risk (VaR), Conditional Value at Risk (CVaR), Diversification Ratio Indices, Exposure Dynamic Analysis, and studies on liquidity risk (Agarwal and Pradhan, 2019). Thirdly, there are limited empirical studies, particularly on hybrid mutual funds, in India that involve risk management from the equity market, interest rate, credit and liquidity risk. The study addresses these gaps to examine the association between Risk Management Effectiveness (RME) and Perceived Portfolio Risk Performance among professionals in Indian Asset Management Companies (AMCs).

Modern portfolio theory provides the portfolio-level foundation for the study by explaining how diversification and systematic risk assessment can improve portfolio risk-return position (Markowitz, 1952; Sharpe, 1966). However, Modern Portfolio Theory alone does not explain how organisational structure translates risk information into investment decisions (Cremers & Petajisto, 2009). The risk governance approach complements modern portfolio theory (MPT) by influencing compliance, risk monitoring, risk management and coordination between investment and risk functions. Therefore, the study views RME as an organisational capability that may support portfolio resilience within the broader risk- return framework.

The study, therefore, examines the association between Risk Management Effectiveness (RME) and Perceived Portfolio Risk Performance (PRP) of Indian AMCs, with reference to hybrid mutual funds. The study adds the following. First, it shifts the focus from ex-post-performance indicators to institutional risk-level portfolio performance. Second, it defines Risk Management Effectiveness (RME) as a multidimensional construct involving risk-management practices, governance and operational risk-control effectiveness. Third, it provides evidence from experienced professionals in investment and risk management functions within Indian AMCs, thereby extending the discussion of optimised portfolio management.

1.1 Research Question

Despite the increasing awareness of risk governance and regulation within the Indian mutual fund industry, there are few empirical studies on Risk Management Effectiveness (RME) that lead to optimised risk-adjusted fund performance. In Particular, hybrid mutual funds are dynamically exposed to market, credit, and liquidity risks, making risk governance a critical driver of portfolio stability. Therefore, the study aims to answer the following research question:

“To what extent is Risk Management Effectiveness associated with perceived Portfolio Risk Performance in Indian Asset Management Companies with particular reference to hybrid mutual funds?”

2. An Overview of Earlier Works

In the present study, two major streams of literature are relevant. The first explores investments in mutual fund performance using return-based and risk-adjusted performance measures. The second looks at the risk identification, monitoring and management process in financial institutions using their organisational processes. While there is evidence in the performance literature of actual fund performance, there is little evidence on the effectiveness of institutional level-risk management strategies and their relationship to portfolio stability and downside risk protection. Based on this, the present review integrates the features of portfolio theory, risk-adjusted performance measures, institutional risk governance and risk factors of hybrid mutual funds.

2.1 Risk Governance and Mutual Fund Performance

The contemporary concept of risk-return trade-off in portfolio investment is rooted in Modern Portfolio Theory (MPT), which proposes that optimisation of risk and return is achieved by investors through diversification (Markowitz, 1952). This relationship was subsequently formalised through the Capital Asset Pricing Model (CAPM), which relates expected return to systematic risk measured by beta, while recognising that unsystematic risk can be reduced through diversification (Lintner, 1965; Sharpe, 1964). Arbitrage Pricing Theory further extended this perspective by explaining returns through exposure to multiple systematic and macroeconomic risk factors (Ross, 1976).

Within mutual fund performance evaluation, the pioneering contribution of Treynor (1965), Sharpe (1966), and Jensen (1968) introduced risk-adjusted performance evaluation measures called the Treynor Ratio, Sharpe Ratio, and Jensen's Alpha, respectively, that continue to be the building blocks for mutual fund performance evaluation in determining return for the level of risk taken. Ellul and Yerramilli (2013) found that stronger institutional risk control was associated with lower organisational risk. Cremers and Petajisto (2009), in contrast active portfolio diversification was associated with fund performance. These findings suggest the importance of balancing institutional risk management with appropriate managerial discretion.

The effectiveness of Risk Management can be measured at the institutional level, and it is not limited to the presence of formal risk policies at that level. It relies on how effectively risk information is shared among investment teams, on adherence to exposure limits, on the inclusion of market, liquidity and credit risk within portfolio decisions and on the ability of monitoring systems to provide timely intervention. Therefore, the quality of the risk-management framework at an AMC, which is the effectiveness of its application of risk-management across investment portfolios, is reflected in RME.

Modern Portfolio Theory (MPT) is a conceptual framework of the value of diversification and risk-return optimisation at the portfolio level, while the Risk-Governance perspective refers to structures, monitoring systems, accountability mechanisms and the coordination between the roles of investment and risk at the institutional level. These views yield the theoretical foundations needed to investigate the association between Risk Management Effectiveness and Perceived Portfolio Risk Performance as described by Markowitz (1952), (Ellul & Yerramilli, 2013; Tufano & Sevick, 1997).

2.2 Downside Risk Management and Hybrid Mutual Funds

Hybrid mutual funds are a mix of equity and debt securities and are therefore simultaneously exposed to equity market, interest rate, credit and liquidity risks. They rely on ongoing asset-allocation, portfolio-rebalancing and risk-monitoring decisions, in addition to security selection. For hybrid mutual funds, integrated risk management, in particular, holds particular importance in terms of ensuring portfolio stability (Bodie et al., 2021).

Mutual funds have traditionally been analysed using metrics like the Sharpe ratio, the Treynor ratio, and Jensen's Alpha (Jensen, 1968; Sharpe, 1966). However, most of these measures are focused on measuring total or systematic risk and not necessarily downside risk at times of economic crisis. Hence, new measures are developed to incorporate downside risk, such as the Sortino ratio and Value at Risk (Jorion, 2007; Sortino & van der Meer, 1991).

In the context of the present study, Portfolio Risk Performance is defined as the ability of a portfolio to remain stable, to be able to manage downside risk and deliver optimum risk-adjusted returns in a dynamic environment. These outcomes are evaluated through assessments collected from AMC professionals, and not directly in realised fund return data, thus called Perceived Portfolio Risk Performance (PRP). It accordingly reflects the respondents' assessment of the portfolio resilience, downside risk protection and risk-adjusted performance.

The importance of downside risk management became particularly evident during the Global Financial Crisis and the COVID-19 market disruption; some portfolios experienced substantial losses despite having stable returns from the past. Recent studies show that portfolios with efficient risk control, risk stress testing, and governance are more resilient and show better risk-adjusted performance amid turbulence in financial markets (Bali et al.,

2014). Although more research has been conducted on downside risk management, limited empirical work is available on the influence of risk management practices adopted by Asset Management Companies on the risk-adjusted performance of Indian hybrid mutual funds.

2.3 Risk Governance and Regulatory Framework in the Indian Mutual Fund Industry

Risk governance becomes particularly relevant in emerging markets where financial institutions face, for various reasons, a more volatile environment, liquidity pressures and shifting regulatory conditions. Portfolio stability and organisational resilience can be achieved through effective risk-governance systems, which help identify, measure, monitor and control material risks, as well as contribute to organisational stability and resilience (Tufano & Sevick, 1997).

The Securities and Exchange Board of India (SEBI) has gradually tightened the regulatory regime for mutual funds through the scheme categorisation and rationalisation, the Risk-o-Meter, enhancing disclosures of the portfolios, valuation of schemes and the stress-testing provisions, among others (SEBI, 2017; SEBI, 2023). The progress toward a systematic approach of risk governance and transparency in AMCs is reflected in these developments.

However, limited empirical evidence is available on the effectiveness of risk management strategies employed by AMCs in association with better risk-adjusted portfolio performance. The study is narrow for hybrid mutual funds, which are characterised by market exposure, credit and liquidity risks at the same time. Thus, evaluating the association between institutional Risk-Management Effectiveness (RME) and portfolio risk performance (PRP) becomes critical for the study.

2.4 Empirical Evidence on Risk Management and Portfolio Risk Performance

There is a considerable literature on measuring the performance of mutual funds, both from a benchmark and risk-adjusted perspective. There is some evidence that the excess returns shown in the past have been partly due to this increased risk-taking and not necessarily to consistently better managerial performance (Fama & French, 2010). Other studies suggest that the persistence of fund performance may vary across market conditions and can be relatively short-lived (Bollen & Busse, 2005).

In emerging markets, the link between risk and performance could be more complex, due to volatility and other factors such as changing market structures, constraints on liquidity and regulatory changes. In these circumstances, some funds may find that active management and portfolio reallocation can help them in adjusting to macroeconomic shifts, but there is no assurance of consistent performance (Huij & Verbeek, 2009).

International evidence on the performance of risk controls is inconclusive. Appropriate diversification, liquidity controls and structured monitoring can enhance portfolio resilience and limit exposure to large-scale losses. However, excessively rigid control can restrict active portfolio decisions and limit the flexibility required to respond to market opportunities. Risk-management effectiveness should therefore not be seen as merely risk restriction, but as the ability to maintain risk within acceptable limits while supporting informed portfolio decisions.

In India, empirical studies are largely focused on the performance of the schemes, along with traditional risk-adjusted measures. These studies provide evidence on realised fund outcomes, but provide little information on the institutional processes that enable AMCs to identify, monitor and manage risks in their portfolios. Empirically, the quality and implementation of risk-management systems have received less attention if it is linked to portfolio stability, protection from downside risk and perceived risk-adjusted performance. This constraint provides a rationale for analysing the relationship between Risk Management Effectiveness and Perceived Portfolio Risk Performance in Indian AMCs.

3. Research Gap, Conceptual Framework

There is a large literature that examines the performance of mutual funds in terms of realised returns, comparisons with benchmarks, and risk-adjusted performance measures such as the Sharpe ratio, Treynor ratio and Jensen's

alpha. This evaluation has been furthered in more recent studies using measures of risk sensitivity, like the Sortino ratio and Value at Risk. These measures give useful information on realised fund performance but have limited value in providing insight into the institutional processes that Asset Management Companies follow to identify, assess, monitor and control portfolio risks.

This is even more apparent in the Indian scenario. Although measures taken by SEBI, such as scheme classification, improved disclosure, stress testing, and Risk-o-Meter, have improved the risk management framework (SEBI, 2017; AMFI, 2022), research in academia has remained limited to the point where it has not yet assessed the effectiveness of these measures at the AMC level. Current literature on Indian markets is mostly focused on performance analysis on a per-scheme or time-series basis and does not examine the implementation of risk management practices and their effectiveness in reducing susceptibility to market stress (Agarwal & pradhan, 2019). Further, the current literature offers mixed evidence on the effectiveness of risk management practices, with some studies suggesting better stability and management, while others point out problems of style drift, herding, liquidity mismatch, and poor downside protection(Bali et al., 2014).

Traditional performance metrics are mostly ex-post or lagging indicators as they assess outcomes once returns and risks have been realised. They do not directly measure the effectiveness of the communication of risk policies, whether exposure limits are consistently observed, whether the risks of liquidity and credit are taken into account in portfolio decisions or whether monitoring systems allow for timely intervention. Therefore, a relevant gap is present: Risk Management Effectiveness (RME) must be addressed both at the formal level in the design of the risk-management framework and at the operational level when evaluating the implementation of the risk-management framework in investment decision-making.

A Conceptual gap exists in the Indian mutual fund industry. While the regulatory evolution has improved risk governance, there is limited empirical evidence on how risk-management professionals within Indian AMCs assess the effectiveness of the relationship between the effectiveness of institutional risk-management and the outcome of portfolio risk. This is a matter of special importance to hybrid mutual funds as they involve equity-market, interest rate, credit and liquidity risk simultaneously, which calls for constant monitoring, asset allocation and portfolio rebalancing.

The study aims to fill these gaps by studying the relationship between Risk Management Effectiveness and Perceived Portfolio Risk Performance of the professionals involved in the Investment, Portfolio Management and Risk functions of the Indian AMCs. RME is understood as a multi-dimensional institutional capacity, which encompasses formal risk-management processes, governance and compliance frameworks, risk monitoring, exposure management and operational risk management implementation. Perceived PRP is the professionals' estimates of the stability of the portfolio, management of downside risk and risk-adjusted return in the face of changing markets.

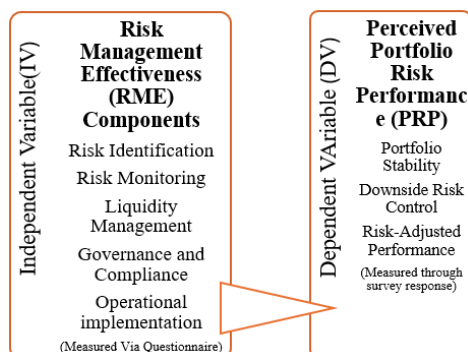


Figure 1: Conceptual Framework linking Risk Management Effectiveness with Perceived Portfolio Risk Performance. (Risk Management Effectiveness acts as an institutional- level antecedent of Perceived portfolio performance, which reflects professionals' assessment of portfolio stability, downside risk control and risk-adjusted outcomes)

Risk-adjusted performance measures such as Sharpe Ratio, Sortino Ratio, Jensen's Alpha and VaR are examined separately to support secondary evidence and are not included in the hypothesis-testing model. Their purpose is to provide supplementary fund-level context in relation to primary survey-based analysis.

The framework proposes that risk management effectiveness is positively associated with perceived portfolio resilience, downside risk control and risk-adjusted outcomes. Thus, the proposed model combines risk processes at the organisational level with optimisation, from conventional frameworks of performance assessment by incorporating the effectiveness of managerial risk strategies within the risk-return trade-off.

3.1. Hypothesis of the study

According to Modern Portfolio Theory, systematic risk assessment, diversification and informed asset allocation can attain an optimised risk-return position. These principles at the institutional level are based on the presence of effective risk identification, risk monitoring, and risk coordination functions at the Asset Management Company (AMC). A well-structured implementation of such processes can help fund managers adjust to market fluctuations, limit downside risk and ensure portfolio stability.

However, Risk Management Effectiveness should not be interpreted as additional restrictions on portfolio decisions. It represents the ability to control risk within acceptable bounds while assisting in informed and timely investment decisions. Therefore, the greater the Risk Management Effectiveness, the more positive the Perceived Portfolio Risk Performance.

Therefore, the following hypothesis is proposed.

H1:

The risk management effectiveness is positively associated with perceived Portfolio Risk Performance in Indian Asset Management Companies (AMCs).

3.2. Objectives

1. To examine the institutional risk management practices adopted by Asset Management companies (AMCs) in the Indian Mutual fund industry.
2. To assess the risk-adjusted performance and downside risk characteristics of selected hybrid mutual funds.
3. To examine the relationship between Risk Management Effectiveness and Perceived Portfolio Risk Performance in Asset Management Companies.

4. Research Methodology

4.1 Research Design

The method used in the study is an empirical research design to study the effectiveness of risk management strategies followed by Asset Management Companies in the Indian market. The study uses primary and secondary data to address the gap in research as mentioned above.

4.2 Data Sources

The primary data were collected using a questionnaire-based survey method from professionals in investment risk management, fund managers, finance analysts and other functions across AMCs of Indian mutual funds. The data were collected on critical risk management parameters, such as market risks, credit risks, liquidity risks, and perceptions of portfolio stability and downside risk protection.

Secondary data includes monthly NAV returns of selected Hybrid mutual funds during January 2021 to December 2024 (covering periods such as the COVID-19 pandemic, the global monetary tightening in 2022-2023 and the recent geopolitical events) along with Nifty 50 TRI as scheme benchmarks and the 91-day treasury bill yield used as a proxy. The Sharpe Ratio, Treynor ratio, Jensen's Alpha and Sortino Ratio using monthly returns. The Value

at Risk (VaR) was calculated at 95% confidence level, for a 1-month horizon, with the historical simulation approach.

4.3 Sampling Technique

The study employed purposive sampling for data collection from individuals experienced in investments in Indian Asset Management Companies. These individuals included fund managers, portfolio managers, risk management experts, compliance officers, and risk analysts.

For the purpose of ensuring the validity and reliability of data obtained from respondents, individuals experienced in managing portfolios were selected for the study. A total of 100 responses were collected and used for the analysis. The respondents possessed a minimum of three years of professional experience in portfolio management, risk management, compliance, or investment research operations within the mutual fund industry. This figure surpasses the minimum number of participants required for regression analysis according to the recommendations made by Hair et al. (2019).

4.4 Questionnaire Development

The questionnaire was developed by analysing the literature critically about risk management, portfolio management and performance of mutual funds. Structured questions were used on a five-point Likert scale to measure Risk Management Effectiveness (RME) and Perceived Portfolio Risk Performance (PRP) that were part of the survey instrument. The questionnaire was reviewed by academicians and practitioners to enhance its content validity and clarity before conducting the study. The respondents were asked to participate by a voluntary method; the responses were anonymised, and their information would be used only for academic research purposes. The degree of risk performance of the portfolios was calculated based on the respondents' evaluation of portfolio stability, downside risk protection, and risk-adjusted performance. Only secondary fund-level measures provided supporting descriptive evidence.

4.5 Data Preparation.

The 100 responses to the survey were checked for completeness, coding accuracy, duplicate responses and consistency of responses before running the statistical analysis. The five-point Likert scale responses were all coded between 1 (Strongly Disagree) and 5 (Strongly Agree). One entry in the text was invalid and was ignored. The missing RME value was substituted from the mean score of the 18 RME items that the respondent completed. A single value out of the range of 1 to 5 (51) was deemed to be a data entry error and has been changed to the highest possible value (5) on the scale. The dataset was also checked for exact duplicate responses and uniform responses, which showed no exact duplicate responses or uniform responses. The names of respondents were anonymised before analysis. After data screening, all 100 responses were included, and composite scores for RME and Perceived PRP were derived for each (average of items for each composite score).

These procedures helped to make the final data complete, consistently coded and appropriate for reliability, correlation and regression.

4.6 Reliability and Internal Consistency

Cronbach's α was used to evaluate the internal consistency of the measurement scales. The Cronbach's alpha for the Risk Management Effectiveness scale was 0.832, which was considered good internal consistency. The Perceived Portfolio Risk Performance scale had a Cronbach's alpha of 0.700, which is at or above the standard of 0.7 for exploratory research. The results show that within each construct there are satisfactory internal consistencies. Therefore, composite scores are possible for each construct and can be used, as required, in a correlation and regression analysis.

4.7 Exploratory Factorability and Construct Structure

The factorability and exploratory structure of the measurement scales were tested using the Kaiser-Meyer-Olkin (KMO) measure, Bartlett's test of sphericity and parallel analysis. The overall KMO value for the 27-item

instrument was 0.750, which shows sampling adequacy. The correlation matrix met the assumptions of Bartlett's test of sphericity, which was statistically significant, $\chi^2(351) = 1021.83$, $p < 0.001$.

The 19-item Risk Management Effectiveness scale and the 18 Perceived Portfolio Risk Performance scale also had acceptable KMO values of 0.735 and 0.729, respectively. In both, Bartlett's statistic was significant ($p < 0.001$), which confirms the factorability of the scales.

The Parallel analysis showed the RME items had two dimensions. The first is related to governance and risk-management practices, such as policy communication, formal risk frameworks, and arrangements for monitoring and compliance. The latter includes measures of operational risk-control effectiveness, including operational liquidity, credit, exposure and regulatory controls. The results suggest that RME is a complex phenomenon and cannot be considered as a one-dimensional scale.

The Perceived PRP items, on the other hand, were summarised under a single underlying dimension measuring professionals' perceptions of portfolio stability, downside-risk protection and risk-adjusted outcomes. The overall RME scale internal consistency and the RME items were conceptually related; therefore, the mean score of all 19 items of the RME scale was used as the primary composite measure for the hypothesis testing. The dimensional structure was employed to aid the interpretation of the overall construct.

The results give preliminary evidence of the structural validity of the measurement scales. The factor structure, however, should be tested with a larger independent sample in future research using confirmatory factor analysis since the sample for this study was limited to 100 respondents; the factor structure needs to be confirmed.

Construct	Items	KMO	Bartlett's test	Factor indication
Risk Management Effectiveness	19	0.735	$p < 0.001$	Two related dimensions
Perceived Portfolio Risk Performance	8	0.729	$p < 0.001$	One dimension
Overall measurement instrument	27	0.75	$\chi^2(351) = 1021.83$, $p < 0.001$	Suitable for exploratory assessment

Common method variance was assessed using Harman's single-factor test, given that Risk Management Effectiveness and Perceived Portfolio Risk Performance were measured using the same questionnaire. The first unrotated factor explained 24.6% of the variance, showing that there was no single dominant factor. This indicates that the relationship observed among constructs is probably not entirely accounted for by common method variance. But Harman's single-factor test is a preliminary diagnostic and does not completely rule out the presence of common method effects. The results are thus interpreted with caution as evidence of association and not causation.

5 Data Analysis and Interpretation

5.1 Profile of Respondents

The study involved primary data collected from professionals in Indian mutual fund Asset Management Companies (AMCs), such as fund managers, portfolio managers and finance analysts involved in decision-making. The respondents represented a diverse mix of investment, portfolio management, compliance, and risk management functions, thereby adding value from different aspects of mutual fund operations.

A final sample size of 100 valid responses was used for regression analysis. The method of purposive sampling ensured that the respondents had direct risk exposure and risk management decision-making processes, which increased the validity of perceptual constructs employed in the research.

5.2 Reliability and Internal Consistency of Constructs

Cronbach's Alpha was used to test the internal consistency of the constructs.

Table 1: Reliability of the constructs

Construct	Cronbach's Alpha
Risk Management Effectiveness (RME)	0.832
Perceived Portfolio Risk Performance (PRP)	0.700

The RME scale recorded a Cronbach's alpha of 0.832, indicating good internal consistency. The Perceived PRP scale recorded 0.70, meeting the commonly accepted minimum threshold for exploratory research. These results show items used to measure both constructs are internally consistent (Nunnally & Bernstein, 1994).

5.3 Composite Score Construction

The composite scores for RME and PRP were calculated as the arithmetic mean of their respective Likert scale items. The use of mean scores retained the original scale metric and facilitated the interpretation of variables in the correlation and regression analysis.

5.4 Correlation Analysis

Variable	RME	PRP
RME	1	0.694
PRP	0.694	1

Pearson's correlation analysis revealed a positive and statistically significant correlation between Risk Management Effectiveness and Perceived Portfolio Risk Performance ($r=0.694$, $p<0.001$). This finding indicates that the higher the level of RME, the more positive the professional judgement of portfolio stability, downside-risk control and risk-adjusted outcomes. But common method variance may not be completely ruled out since both were assessed in the same survey.

5.5 Regression Analysis

To examine the association of Risk Management Effectiveness and Perceived Portfolio Risk Performance, a simple linear regression model was estimated

$$PRP = \beta_0 + \beta_1 (RME) + \varepsilon$$

Where,

PRP: Dependent Variable (Perceived Portfolio Risk Performance)

RME: Independent Variable (Risk Management Effectiveness)

β_0 : Intercept

β_1 : Regression Coefficient, ε = Error term

Table 2: Regression Results

Variables	Coefficient	Std Error	t-value	Significance
Constant	0.505	0.295	1.716	p= 0.089
RME	0.821	0.085	9.643	p<0.001

Model Statistics

$R^2 = 0.482$, Adjusted $R^2 = 0.477$, F-Statistic Significance at $p < 0.001$

Results of the regression analysis yielded a statistically significant association between Risk Management Effectiveness and Perceived Portfolio Risk Performance, with a coefficient of determination, $R^2 = 0.482$. ($B = 0.821$, $SE = 0.085$, $\beta = 0.694$, $t = 9.643$, $p < 0.001$). The unstandardised coefficient means that a unit increase in RME is associated with an increase of 0.821 units in Perceived PRP.

The model accounted for 48.2% of the variation in Perceived Portfolio Risk Performance $R^2 = 0.482$; adjusted $R^2 = 0.477$) and was statistically significant, $F(1, 100) = 92.995$, $p < 0.001$. Hence, the hypothesis H1 is supported.

The findings indicate that stronger institutional risk-management systems are associated with greater positive perceptions of the stability of the portfolio, downside-risk control, and risk-adjusted outcomes for AMC professionals. The relationship is to be understood as an association since it is a perceptual cross-sectional study. The study does not include all hybrid mutual funds, but rather is representative of the respondents.

5.6 Secondary Evidence: Risk-Adjusted Performance of Hybrid Mutual Funds

The secondary analysis provides supporting evidence and is not included in the hypothesis-testing model. It examines the risk-adjusted performance (Sharpe Ratio, Sortino Ratio, Treynor Ratio, Jensen's Alpha and VaR) based on procedures described in Section 4.2.

Table 3: List of selected Hybrid Mutual funds and their Assets Under Management (AUM),

Fund House	Representative Hybrid fund (Equity Oriented)	AUM (Cr)
SBI MF	SBI Equity Hybrid Fund (Hybrid Equity)	77,500
HDFC MF	HDFC Hybrid Equity Fund (Direct)	24,528
ICICI MF	ICICI Equity & Debt Fund (Hybrid)	49,641
KOTAK MF	Kotak Aggressive Hybrid Fund (Hybrid)	8,509
AXIS MF	Axis Equity Hybrid Fund (Direct)	1,550

Source: AMFI 2026

Table 4: Risk-Adjusted Performance Measures of Selected Hybrid Mutual funds

Fund Representative	Sharpe Ratio	Treynor	Jensen's Alpha	Sortino Ratio	VaR
SBI	0.15	0.172	4.29%	1.65	-0.96%
HDFC	0.23	0.23	3.86%	2.27	-0.33%
ICICI	0.33	0.214	5.35%	2.13	-1.01%
Kotak	0.28	0.246	6.10%	2.83	-0.97%
Axis	0.38	0.239	5.89%	2.65	-0.97%

The Sharpe ratios vary from 0.15 for SBI to 0.38 for Axis, implying that the return earned per unit of total risk is different for all the funds. In the selected sample, SBI had the lowest, while Axis, ICICI and Kotak had relatively higher Sharpe Ratios.

The Treynor ratios vary from 0.172 to 0.246, which are relatively small. Among the selected funds, Kotak and Axis had the highest Treynor ratios.

All five funds have positive alphas, with the highest being for Kotak at 6.10% and the lowest being for HDFC at 3.86%. These values signify positive returns above the benchmarks over the period. The results, however, should only be interpreted descriptively as no statistical significance tests are reported for the alpha estimates.

Sortino ratios range from 1.65 for SBI to 2.83 for Kotak, indicating a difference in the returns generated relative to downside risk. The range of the estimated downside exposure from the VaR estimates is between -0.33% and -1.01%, which reflects the variation of the estimates. The smallest absolute VaR was obtained by HDFC and the largest was obtained by ICICI.

Overall, the measures reflect variations in the risk-adjusted and downside risk characteristics of the selected hybrid mutual funds. The results provide supplementary fund-level context and do not stand on their own as evidence of the association between Risk Management Effectiveness and Perceived Portfolio Risk Performance.

6 Findings and Discussion

The study examined the association between Risk Management Effectiveness and Perceived Portfolio Risk Performance among professionals working in Indian Asset Management Companies. The results of Pearson's correlation showed a statistically significant positive association between RME and Perceived PRP ($r=0.694$, $p<0.001$). The regression model also revealed a positive and statistically significant association ($B=0.821$, $\beta=0.694$, $p<0.001$). The model accounted for 48.2% of the variance in Perceived PRP ($R^2=0.482$; adjusted $R^2=0.477$), thereby supporting H1.

Further, the results suggest that better institutional risk-management systems are linked to more positive, professional ratings of portfolio stability, downside-risk protection and risk-adjusted performance. This relationship can be indicative of the role of well-communicated risk policies, frameworks for monitoring, risk exposure control, and governance accountability and coordination between investment and risk. Risk management should therefore be regarded not merely as a compliance activity, but as an organisational process that supports informed portfolio decisions.

The findings are consistent with the principles of the Modern Portfolio Theory, particularly its emphasis on diversification and systematic risk assessment, and the risk-governance approach, concerning institutional monitoring and control.

This association is particularly relevant to hybrid mutual funds because they are simultaneously exposed to equity market, interest rate, credit and liquidity risks. Hybrid mutual funds, however, are a specific subset of the study and only a sample of the respondents.

The secondary analysis unveiled the disparity in Sharpe ratio, Treynor ratio, Jensen's alpha, Sortino and VaR measures of the selected hybrid mutual funds. These results are supplementary at the fund level and are not used to test or confirm the association between RME and Perceived PRP.

The issue of common method variance cannot be ruled out completely, as both constructs were assessed using the same cross-sectional survey. The results, therefore, may only be interpreted as an association and not as causation.

6.1 Theoretical Contributions

The study adds to the literature by shifting attention from only being concerned with the actual mutual fund performance to the institutional risk-management processes that precede portfolio outcome. It defines RME as a multi-dimensional phenomenon consisting of risk-management practices, governance mechanisms and the

effectiveness of operational risk-control. The study connects RME to Perceived PRP, integrating Modern Portfolio Theory and risk governance from the organisational perspective in the Indian AMC.

6.2 Implications

The results have implications for the Asset Management Companies (AMCs), regulators, industry practitioners and investors. The positive association between RME and Perceived PRP reinforces the need for structured risk monitoring, proper implementation of exposure limits, stress testing and coordination between the investment and risk/compliance functions for AMCs. Risk governance should thus always be considered as part of the portfolio decision-making and not just compliance.

For regulators like SEBI, the findings support continued attention to risk disclosure, governance accountability and transparency within AMCs. However, the evidence is cross-sectional and subjective; it should be interpreted with caution and not as conclusive proof that regulatory or governance practices cause improved fund performance.

From an investor perspective, the findings indicate that fund-house risk-governance characteristics could be a valuable ancillary source of information in addition to return and traditional risk measures when considering mutual funds.

7. Limitations and Future Research

There are some limitations of the study. First, the cross-sectional design does not permit causal interpretation. Second, both constructs were assessed with self-reported responses that were obtained by the same survey instrument, allowing for the possibility of common method variance. Third, the study considers only Risk Management Effectiveness as a predictor of Perceived Portfolio Risk Performance and does not consider other aspects of the organisation, the fund, or the macroeconomy. Longitudinal designs, multiple data sources and objective measures of fund performance can be used in future research to validate and extend the results of this study.

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