INCENTIVE FEES AND OPPORTUNISTIC RISK-SHIFTING: AN EMPIRICAL ANALYSIS OF MANAGERIAL DISCRETION IN COLLECTIVE INVESTMENT

Ing. Pavla Vaverková

Department of Management, Faculty of Management, Prague University of Economics and Business
hanp12@vse.cz

Abstract: *Asymmetric incentive structures in mutual fund management generate tournament pressures leading to opportunistic risk-shifting. This study analyzes managerial discretion using a panel of 150 US equity mutual funds (2014–2025). The research employs a two-stage regression system to isolate systematic risk (Beta) and active risk (Tracking Error). The empirical findings reveal that incentive fees significantly increase only active specific risk, while the effect on systematic risk remains insignificant. A semi-annual analysis demonstrates a highly significant negative relationship between first-half performance and second-half risk changes. Underperforming managers aggressively exploit their managerial discretion to inflate idiosyncratic risk to secure performance bonuses. Results carry profound implications for optimal contract design, proving that controlling overall volatility is insufficient to mitigate agency conflicts, while contributing to behavioral finance by integrating ex-ante incentives and ex-post realized risk to reveal microeconomic moral hazard mechanisms.*

***Keywords*:** collective investment, incentive fee, managerial discretion, mutual fund, risk-shifting

INTRODUCTION

The tension between human judgment and algorithmic standardization remains a key area of study in modern asset management (Fabozzi et al., 2025). Within mutual funds, delegating capital creates persistent agency conflicts and moral hazard, leading to strategic risk-shifting driven by convex compensation schemes and tournament pressures (Li, 2022; Zhao et al., 2024). While early literature established the theoretical foundation of money manager incentives (e.g., Jensen & Meckling, 1976; Brown et al., 1996; Chevalier & Ellison, 1997), contemporary financial economics concentrates on how modern contractual designs shape actual risk profiles in active portfolio management (Servaes & Sigurdsson, 2022; Chen et al., 2025).

This paper develops an empirical framework to analyze how performance fees interact with managerial discretion to determine portfolio risk-taking. Although traditional models assume that managerial flexibility is used solely to target benchmark-beating excess returns (Williamson, 1963; Yang, 2024), empirical evidence suggests that this discretion is often reallocated for tournament-driven self-preservation (Chrétien et al., 2025). To disentangle these effects, this study distinguishes between ex-ante strategic intent and ex-post realized risk. By analyzing active manager discretion, realized portfolio risk is decomposed into systematic exposure (Beta) and active deviation (Tracking Error), directly addressing the limitations of older, one-dimensional volatility research (Lee et al., 2021).

To operationalize these relationships, a two-stage regression system is applied to a panel of 150 US equity mutual funds over the period 2014–2025. The first stage filters out broad market factors using a monthly Carhart (1997) model to isolate systematic risk (Beta) and Tracking Error (TE). The second stage tests these risk characteristics against fund fee structures. Rather than relying on simple OLS regressions, this study employs the Hausman-Taylor (1981) panel estimator as the primary econometric specification to control for unobserved individual heterogeneity and the endogeneity of time-invariant variables (such as stable fund fees). The empirical findings demonstrate that incentive fees stimulate the opportunistic inflation of idiosyncratic risk, whereas their effect on systematic market exposure remains statistically insignificant. Furthermore, a semi-annual analysis reveals a highly significant negative relationship between

first-half performance and second-half risk changes. Underperforming managers aggressively exploit their discretion to inflate active risk in the second half of the year to secure performance bonuses.

METHODOLOGY

To operationalize the multi-level decision-making process of fund managers, this study develops a two-stage econometric model applied to a panel of 150 actively managed US equity mutual funds over the period 2014–2025, representing a total of 21,600 monthly observations. The defined twelve-year horizon covers different phases of the business cycle, allowing for the testing of the robustness of managerial reactions across distinct macroeconomic regimes. By utilizing the full twelve-year panel, this research design captures the long-term structural and behavioral dynamics of portfolio risk management, ensuring that the empirical findings are representative and robust across varying market conditions.

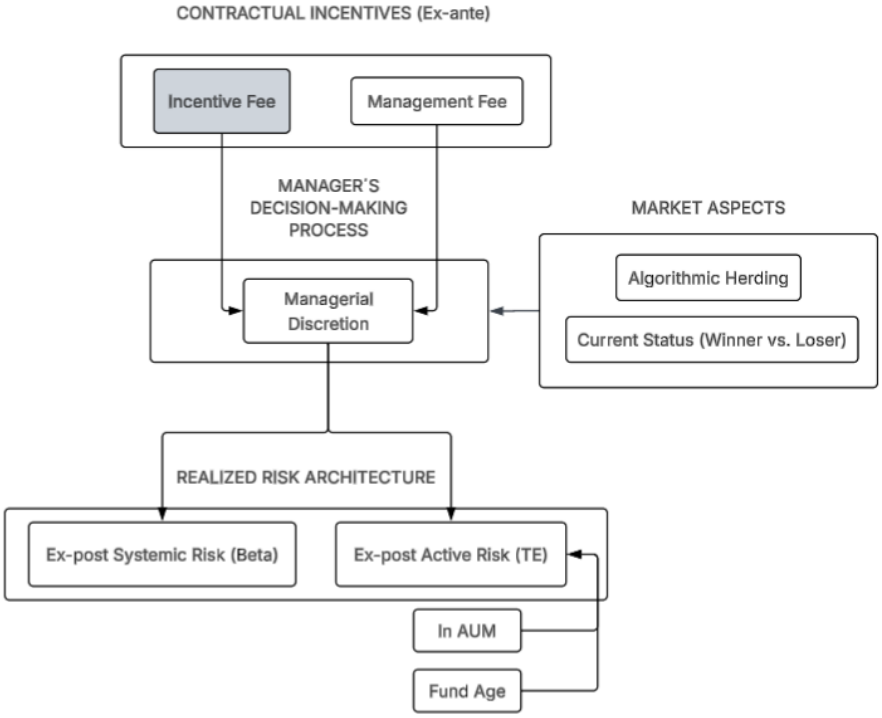

Figure 1 Conceptual Model of Managerial Discretion and Realized Risk Architecture

Source: (Author's own illustration, 2026)

Within this research design, two key research questions (RQ) are formulated:

- **RQ1:** *How do asymmetric incentive fees determine the interannual allocation of realized risk (*systematic Beta versus active specific TE*) among portfolio managers?*
- **RQ2:** *How does managers' risk-taking behavior in the second half of the year change under the influence of incentive fees depending on their interim results from the first half of the year?*

Based on the theoretical foundations of Agency Theory, Williamson's discretionary model, and contract design literature, the following four hypotheses (H) are tested:

- **H1:** *The contractual presence of a incentive fee (Incentive Fee) positively and statistically significantly affects only active specific risk (TE), while its effect on systematic market risk (Beta) is statistically insignificant.*
- **H2:** *Interim losers with asymmetric incentive fees increase their active specific risk in the second half of the year ($\Delta TE > 0$) significantly more aggressively than interim winners or managers without incentive fees.*
- **H3:** *Assets under management (ln AUM) exhibit a negative relationship with realized active specific risk (TE) due to capacity constraints of active management.*
- **H4:** *Fund age exhibits a negative relationship with realized active specific risk (TE), as mature and long-established funds tend to institutionalize their investment processes, reducing aggressive deviations from the benchmark.*

In the first stage, monthly fund returns are risk-adjusted by subtracting the risk-free rate, represented by the real historical yield on one-month US Treasury Bills from the official FRED database. This step isolates the net value added of active management in the form of the monthly fund excess return ($R_{it} - R_{ft}$). The dataset is subsequently divided into 1,800 separate subpanels, each representing one specific year of a single fund. Carhart's 4-factor model (Carhart, 1997) is applied to these subpanels to serve as a market filter:

$$R_{it} - R_{ft} = \alpha_i + \beta_i(Mkt\_RF_t) + s_i(SMB_t) + h_i(HML_t) + m_i(UMD_t) + \varepsilon_t$$

This model filters out four systematic capital market influences from the returns: the market premium (Mkt_RF), the size factor (SMB), the value factor (HML), and momentum (UMD). The output of the first stage consists of two annual risk characteristics:

- **Beta** (β_i), expressing the fund's net passive sensitivity to market movements (systematic risk).
- **Tracking Error** (TE_i), representing the deviation of the manager's residual bets from the benchmark (active specific risk), calculated as the annualized standard deviation of residuals (ε):

$$TE = \sqrt{12} \times \sigma(\varepsilon)$$

To capture the intra-year tournament dynamics in greater depth (RQ2), this baseline model is alternatively estimated on semi-annual subpanels (a total of 3,600 subpanels) in the first stage. This yields separate risk profiles for the first half ($TE_{i,y,H1}$ for the January–June period) and the second half ($TE_{i,y,H2}$ for the July–December period) of a given year. In this modified intra-year model, the dependent variable is the change in active specific risk between the two halves, expressed as $\Delta TE_{i,y} = TE_{i,y,H2} - TE_{i,y,H1}$. The fund's interim status is defined at the end of the first half relative to the median return of the peer group; the dummy variable $Loser_{i,y}$ takes the value of 1 if the fund's first-half return is below the market median, and 0 otherwise. In the second stage, these extracted risk characteristics are used as dependent variables for the final quantification of the impact of fund fee structures. For the baseline interannual analysis (RQ1), the Pooled OLS model is specified as follows:

$$\text{Risk}_{it} = \beta_0 + \beta_1 \text{Incentive\_Fee}_i + \beta_2 \text{Management\_Fee}_i + \beta_3 \text{TER}_{it} + \beta_4 \ln(\text{AUM})_{it} + \beta_5 \text{Fund\_Age}_{it} + u_{it}$$

The regression relationship is estimated separately: once for systematic risk (Beta) and once for active specific risk (TE). To test the intra-year tournament dynamics, a key interaction term is implemented in the model:

$$\Delta TE_{i,y} = \gamma_0 + \gamma_1 Loser_{i,y} + \gamma_2 Incentive\_Fee_i + \gamma_3 (Loser_{i,y} \times Incentive\_Fee_i) + \gamma_4 Controls_{i,y} + u_{i,y}$$

In both models, the main independent variables are the time-invariant *incentive* fee and the fixed management fee. These are supplemented by control variables: the total expense ratio (TER), the natural logarithm of assets under management (ln AUM) to capture fund capacity constraints, and fund age (Fund Age). When designing the second-stage panel regression, standard estimators were rigorously evaluated. While a Fixed Effects (FE) model controls for unobserved individual heterogeneity, it is unsuited because our primary independent variables–stable fee structures (Incentive Fee and Management Fee) – are time-invariant and would be eliminated by demeaning. Conversely, the Random Effects (RE) model is rejected by the Hausman test $(\chi 2 = 34.81, p < 0.001)$, indicating severe endogeneity. To resolve these econometric issues, two specifications are employed. First, Pooled OLS with Cluster-Robust Standard Errors (using the variable Fund_ID for 150 fund clusters) serves as our baseline, preserving the time-invariant variables while robustly correcting for heteroscedasticity (BP $= 192.29, p < 2.2 \times 10^{-16}$) and autocorrelation. Second, the Hausman-Taylor (1981) panel estimator is employed (1981) panel estimator as a robust alternative, utilizing time-varying exogenous regressors (ln AUM and TER) as instruments to yield consistent, unbiased estimates for the stable fee parameters without endogeneity bias.

FINDINGS

The empirical findings provide robust confirmation of the behavioral transmission channels of risk-shifting. In line with the theory of convex incentives, the Incentive Fee variable exhibits a highly significant positive relationship with active specific risk (Tracking Error), whereas its impact on systematic market sensitivity (Beta) is statistically insignificant. While the relationship for systematic risk is statistically insignificant ($p = 0.863$), the positive slope for active risk (as shown in Figure 2; $p < 0.001$) delivers direct visual proof supporting Hypothesis 1. To prevent distortion from serial correlation, standard errors are robustly clustered by fund identity.

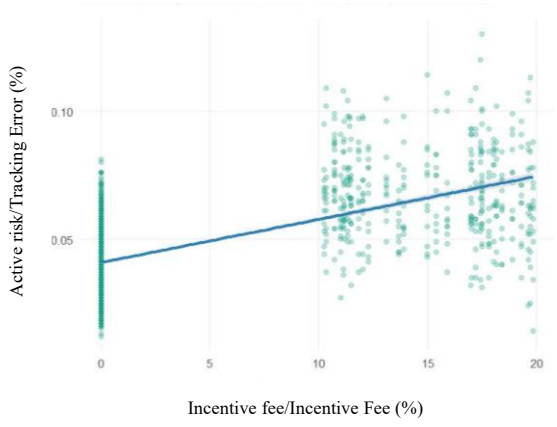

Figure 2 Impact of Incentive Fees on Active Risk (Tracking Error)

Source: (Author's own illustration, 2026)

This contrast provides crucial empirical evidence supporting Hypothesis 1 (Selective risk-shifting): portfolio managers do not modify the risk profile of funds through broad adjustments to market exposure. Instead, stimulated by the option-like nature of performance bonuses, they exercise their discretion to increase idiosyncratic volatility through concentrated stock-picking, consciously deviating from the benchmark to outperform their peer group. The analysis of intra-year tournament dynamics reveals even more specific behavioral patterns. The coefficient of the interaction term Loser * Incentive_Fee is positive and highly statistically significant ($p < 0.001$). This confirms the validity of Hypothesis 2 (Asymmetric tournament effect). Interim losers (Loser = 1) with asymmetric incentive fees in their contracts extremely aggressively increase their active bets against the benchmark in the second half of the year (Δ TE > 0) to reverse their unfavorable position and reach the bonus bracket. Conversely, losers without incentive fees tend to exhibit passivity or slightly reduce risk, which is consistent with career concerns and the desire to avoid job loss. The inclusion of the control variable ln AUM yields a statistically significant negative coefficient, fully supporting Hypothesis 3 (Fund size effect) in accordance with the equilibrium model of Berk and Green (2004). As assets under management grow, active management encounters capacity and liquidity constraints, restricting the ability to generate a high Tracking Error. Finally, the Fund Age coefficient is statistically insignificant ($p = 0.41$), rejecting Hypothesis 4. This indicates that in our sample, mature, long-established funds are not significantly more restricted in their strategic risk allocation than younger peers, and both groups exhibit a similar propensity for active risk-shifting under incentive pressures.

These findings make a significant contribution to contract theory in active portfolio management. By demonstrating that incentive fees specifically drive idiosyncratic deviations rather than systematic market risk, we confirm that asymmetric incentives encourage highly targeted active bets. This selective risk-shifting is further amplified by intra-year tournament dynamics, where interim underperformance motivates managers to aggressively exploit their discretionary power to secure performance bonuses, while career concerns dictate more conservative behavior for managers without such contractual incentives.

CONCLUSIONS

This study links ex-ante manager incentives with ex-post realized risk, demonstrating that incentive fees drive the selective inflation of active risk (Tracking Error). This behavior is further accelerated by intra-year tournament pressures, where interim underperformers aggressively shift risk. Although these results provide robust insights, limitations remain, including the exclusive focus on the US mutual fund market–which differs from the European UCITS framework–potential survivorship bias, and a semi-annual tracking frequency that may overlook finer monthly adjustments. Theoretically, this research extends agency and contract theories by showing that discretion is exercised selectively rather than through broad market exposure, while practically offering a tool to evaluate risk sustainability. Consequently, because controlling total volatility is insufficient to mitigate moral hazard, it´s recommended that institutional contracts implement explicit limits on active specific risk (Tracking Error) to safeguard fiduciary capital.

REFERENCES

Berk, J. B., & Green, R. C. (2004). Mutual fund flows and performance in rational markets. Journal of Political Economy, 112(6), 1269–1295.

Brown, K. C., Harlow, W. V., & Starks, L. T. (1996). Of tournaments and temptations: An analysis of managerial incentives in the mutual fund industry. The Journal of Finance, 51(1), 85–110.

Busse, J. A. (2001). Another look at mutual fund tournaments. Journal of Financial and Quantitative Analysis, 36(1), 53–73.

Carhart, M. M. (1997). On persistence in mutual fund performance. The Journal of Finance, 52(1), 57–82.

Chen, J., Hughson, E., & Stoughton, N. (2025). Strategic Mutual Fund Tournaments. Journal of Financial and Quantitative Analysis, 60(1), 115–142.

Chevalier, J., & Ellison, G. (1997). Risk taking by mutual funds as a response to incentives. Journal of Political Economy, 105(6), 1167–1200.

Chrétien, S., Coggins, F., & Deslauriers, C. (2025). Tournament effects in equity mutual funds: Impact of economic conditions and investment styles. Journal of Financial Research, 48(2), 241–269.

Fabozzi, F. J., Chin, A., Yelnik, I., & Liew, J. K. S. (2025). The Disappearing Edge: AI, Machine Learning, and the Future of the Discretionary Portfolio Manager. Financial Analysts Journal, 81(1), 45–68.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics, 3(4), 305–360.

Lee, J. H., Trzcinka, C., & Venkatesan, S. (2021). Mutual fund risk-shifting and management contracts. Journal of Financial and Quantitative Analysis, 56(6), 2035–2072.

Li, C. W. (2022). Mutual fund tournaments and fund Active Share. Journal of Financial Stability, 63, 101083.

Servaes, H., & Sigurdsson, K. (2022). The costs and benefits of performance fees in mutual funds. The Review of Financial Studies, 35(5), 2321–2357.

Williamson, O. E. (1963). Managerial discretion and business behavior. The American Economic Review, 53(5), 1032–1057.

Yang, Q. (2024). Performance ranking, regulatory penalty, and improper risk adjustment behavior of fund managers. International Review of Economics & Finance, 93, 261–279.

Zhao, L., Wang, L., & Luo, R. (2024). Mutual fund tournaments: State-dependent risk taking with transaction costs. Emerging Markets Review, 59, 101112.