The Role of Managerial Experience on Mutual Fund Performance

Jisna James*

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Abstract

This study examines how managerial experience affects mutual fund performance, particularly during a Recession. Using CRSP Survivor-Bias-Free US Mutual Fund Data (2000-2013), we find a concave relationship between experience and fund performance. While experience initially improves fund Returns, Sharpe ratios, and Jensen's Alphas, these benefits diminish and eventually turn negative beyond approximately 15 years of experience. During a Recession, experienced managers generate significantly higher raw returns, though this effect is not statistically significant for risk-adjusted measures. Our theoretical model tries to explain some of the empirical findings with standard assumptions.

1 Introduction

Managerial experience is often viewed as a proxy for skill and the accumulation of human capital in the asset management industry. This paper explores two central questions: First, how does managerial experience influence fund performance? Second, does this relationship vary during periods of financial crisis?

There are several potential mechanisms through which experience may impact performance. On the one hand, more experienced managers may benefit from learning-by-doing and possess a greater ability to navigate turbulent market conditions. On the other hand, prolonged time in the industry may lead to diminishing returns to experience due to factors such as burnout or a growing tendency toward risk aversion. This study aims to disentangle these opposing effects to provide a clearer understanding of the role experience plays in shaping mutual fund outcomes.

2 Data

- Data sourced from CRSP Survivor-Bias-Free US Mutual Fund database (1979–2014).
- The analysis focuses on the Annualised Quarterly (AQ) period from 1999 to 2013.

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- Fama-French and Momentum factors are used, originally available at a monthly frequency starting from January 1992. Monthly values are averaged to obtain estimates at the AQ frequency.
- Final dataset: 169,926 observations and 32,326 unique funds.
- Performance measures:
  - **Return**: The total return generated by a mutual fund over a specific period, without adjusting for risk or market factors.

$$Return = \frac{NAV_t - NAV_{t-1}}{NAV_{t-1}} * 100$$

  - **Sharpe Ratio** (Sharpe, 1966): A risk-adjusted performance metric that measures the excess return per unit of risk. It is defined as:

$$\text{Sharpe Ratio} = \frac{R_p - R_f}{\sigma_p}$$

    where R_p is the fund's return, R_f is the risk-free rate, and σ_p is the standard deviation of the fund's return. A higher Sharpe ratio indicates better risk-adjusted performance.
  - **Jensen's Alpha** (Jensen, 1968): Jensen's Alpha evaluates a fund's abnormal return relative to what would be predicted by a given asset pricing model. It is the intercept term in a regression of fund excess return on market excess return.
    * **1-Factor Jensen's Alpha**: Based on the Capital Asset Pricing Model (CAPM), it is calculated as the intercept from the regression:

$$R_p - R_f = \alpha + \beta(R_m - R_f) + \epsilon$$

      where R_p is the portfolio return, R_m is the market return, and R_f is the risk-free rate.
    * **4-Factor Jensen's Alpha**: Extends the CAPM to include additional risk factors, capturing size, value, and momentum effects:

$$R_p - R_f = \alpha + \beta_m(R_m - R_f) + \beta_s\text{SMB} + \beta_v\text{HML} + \beta_m\text{MOM} + \epsilon$$

      where SMB (Small Minus Big), HML (High Minus Low), and MOM (Momentum) are the additional factors, the Alpha (α) represents the fund's abnormal return after accounting for all four factors.
- Explanatory variables:
  - Managerial experience (years)
  - Crisis dummy
  - Expense ratio
  - Total net assets

3 Empirical Strategy

To examine the relationship between managerial experience and fund performance, we estimate the following unbalanced panel regression model using Fixed effect OLS:

$$\begin{aligned} Performance_{it} = \beta_0 + \beta_1\, Experience_{it} + \beta_2\, Experience_{it}^2 \\ + \beta_3\, (Experience_{it} \times Crisis_t) \\ + \boldsymbol{\gamma}'\mathbf{X}_{it} + \alpha_i + \gamma_t + \varepsilon_{it} \end{aligned} \tag{1}$$

where $Performance_{it}$ denotes one of the performance metrics for fund i in period t, such as Return, Sharpe ratio, or Jensen's Alpha. The key explanatory variables are the manager's years of experience ($Experience_{it}$), its square to capture non-linear effects, and an interaction term between experience and a Recession indicator ($Crisis_t$) to allow for heterogeneous effects during the recession.

The vector $\mathbf{X}_{it}$ includes control variables such as the fund's expense ratio and total net assets. The specification also includes fund fixed effects (α_i) to control for time-invariant fund-specific characteristics and year fixed effects (γ_t) to account for common temporal shocks. Standard errors are clustered at the fund level to correct for serial correlation.

4 Results

Table 1 presents the results from four regression models estimating the impact of managerial experience on various fund performance metrics: Returns, Sharpe ratio, and Jensen's Alpha, both the one-factor and four-factor from CAPM models.

Across all specifications, the relationship between experience and performance is consistently concave, as evidenced by the positive and statistically significant coefficients on the linear term of experience and the negative, highly significant coefficients on the squared term. This confirms the presence of diminishing returns to experience, where performance initially improves with additional years of experience but declines after a certain threshold. The turning point of this inverted-U-shaped relationship lies approximately between 15 and 18 years, depending on the specification.

In column (1), we find that managerial experience has a nonlinear effect on fund returns. Specifically, the coefficient on the linear term suggests that, at lower levels, each additional year of experience is associated with an increase of approximately 0.0693 percentage points in annual returns during normal times. However, this effect diminishes with higher experience due to the negative and statistically significant squared term, indicating a concave (inverted-U) relationship.

The Sharpe ratio results in column (2) follow a similar pattern. Although the magnitude is smaller, the positive coefficient on experience (0.00404) and negative coefficient on its square (–0.000126) are both statistically significant at the 1% level. This implies that risk-adjusted returns also exhibit a non-linear relationship with experience.

Columns (3) and (4) report the effect of managerial experience on Jensen's Alpha, estimated using both the one-factor and four-factor models. In both cases, we observe a concave relationship. In the one-factor model, at a lower level of experience, each additional year of experience is associated with an increase of approximately 0.0479 percentage points in Jensen's Alpha, significant at the 1% level. However, this positive effect diminishes with higher levels of experience and eventually turns negative, as indicated by

the negative and statistically significant squared term. The results from the four-factor model are qualitatively similar, though the estimated coefficients are slightly smaller in magnitude

The interaction term between experience and crisis is statistically significant only in the regression with performance metrics as Return (column 1). The coefficient of 0.0655 suggests that the positive effect of experience on returns is amplified during Recession, possibly reflecting the greater value of managerial judgment under uncertainty when risk is not adjusted for fund performance. However, this interaction is not statistically significant for the Sharpe ratio or either measure of Jensen's Alpha, indicating that the crisis amplification effect may not hold when risk-adjusted returns are considered. The expense ratio does not have a significant effect in any specification, suggesting limited explanatory power once fixed effects are included. Total net assets, however, are positively associated with performance in all specifications with risk-adjusted performance measures and are statistically significant.

5 Robustness and Endogeneity

The concave relationship between experience and performance is robust across all model specifications. The turning point beyond which experience negatively affects performance remains stable across metrics.

However, potential endogeneity concerns remain. First, reverse causality may arise if more successful funds tend to retain managers longer. Second, measurement error in the experience variable may bias the estimates, as career breaks or switches across firms are not fully captured. Third, survivorship bias could distort the relationship, as only managers who remain active are observed in later years.

A logistic regression reveals that the missingness of the experience variable is not random, and is systematically associated with other fund characteristics. While this suggests a potential sample selection issue, future work may consider Heckman selection correction. Additionally, using tenure (Table 2) in a particular mutual fund instead of total industry experience does not yield consistent results, affirming the importance of capturing cumulative industry experience.

6 Theoretical Framework

6.1 Principal-Agent Setup

We model the relationship between a mutual fund firm (principal) and a fund manager (agent) using a principal-agent framework. The manager exerts a costly and unobservable effort e to manage the fund. The agent is characterised by a type θ (representing skill) and years of industry experience T.

- Fund performance is determined by:

$$P = \theta e + \epsilon, \quad \epsilon \sim \mathcal{N}(0, 1)$$

- Assets under management (AUM) depend on both type and experience:

$$AUM = A(\theta, T), \quad A_T > 0, \quad A_{TT} < 0$$

  That is, AUM increases with experience but at a decreasing rate.

6.2 Effort Cost and Compensation Structure

Effort is costly, and the cost function depends on experience T:

$$C(e, T) = \frac{1}{2}K(T)e^2$$

where $K(T)$ is Wherevex function of experience. We assume:

$$K'(0) < 0, \quad K'' > 0, \quad \lim_{T\to\infty} K'(T) > 0, \quad K'(T^*) = 0$$

Indicating that initially, experience reduces the marginal cost of effort, but beyond a threshold T^*, the marginal cost begins to increase.

The manager receives a wage that includes a fixed component, a performance-based bonus, and a component that increases with experience:

$$w = \alpha + \beta P + \gamma T = \alpha + \beta(\theta e + \epsilon) + \gamma T$$

6.3 Manager's Optimization Problem

The manager maximises expected utility, which is given by:

$$E(U) = \alpha + \beta\theta e + \gamma T - \frac{1}{2}K(T)e^2$$

The first-order condition with respect to effort yields:

$$\frac{\partial U}{\partial e} = \beta\theta - K(T)e = 0 \quad \Rightarrow \quad e^* = \frac{\beta\theta}{K(T)}$$

The participation constraint ensures that the manager's utility is at least as large as a reservation utility π:

$$\alpha + \gamma T + \frac{\beta^2\theta^2}{2K(T)} \geq \pi$$

6.4 Firm's Profit Maximisation Problem

The mutual fund firm earns two types of revenue:

- Performance-based revenue: $R_{\text{perf}} = \phi P A(\theta, T)$
- Management fee revenue: $R_{\text{mgmt}} = \mu A(\theta, T)$

Expected profit is therefore:

$$\Pi = \left(\mu + \frac{\phi\beta\theta^2}{K(T)}\right) A(\theta, T) - \alpha - \frac{\beta^2\theta^2}{K(T)} - \gamma T$$

The firm maximises profit subject to the manager's participation constraint. The Lagrangian is:

$$\mathcal{L} = \Pi + \lambda\left(\alpha + \gamma T + \frac{\beta^2\theta^2}{2K(T)} - \pi\right)$$

6.5 Optimal Contract

The first-order conditions from the Lagrangian are:

$$\frac{\partial \mathcal{L}}{\partial \alpha} = -1 + \lambda = 0 \Rightarrow \lambda = 1$$

$$\frac{\partial \mathcal{L}}{\partial \gamma} = -T + \lambda T = 0 \Rightarrow \lambda = 1$$

$$\frac{\partial \mathcal{L}}{\partial \beta} = \frac{\phi\theta^2}{K(T)} A(\theta, T) - 2\beta \frac{\theta^2}{K(T)} + \beta \frac{\theta^2}{K(T)} = 0 \Rightarrow \beta = \phi A(\theta, T)$$

Substituting the optimal β into the manager's optimal effort, we obtain:

$$e^*(T) = \frac{\phi\theta A(\theta, T)}{K(T)}$$

6.6 Equilibrium Performance

Substituting optimal effort into the performance equation:

$$\text{Performance}(T) = \theta e^*(T) + \epsilon = \frac{\phi\theta^2 A(\theta, T)}{K(T)} + \epsilon$$

6.7 Comparative Statics and Interpretation

We analyse how optimal effort changes with experience:

$$\frac{de^*}{dT} = \frac{\phi\theta \left[A_T K(T) - A(T)K'(T)\right]}{K(T)^2}$$

Interpretation:

- At $T = 0$: $A'(\theta, 0) > 0$, $K'(0) < 0 \Rightarrow \frac{de^*}{dT} > 0$
- For $T < T^*$: $A'(\theta, T) > 0$, $K'(T) < 0 \Rightarrow \frac{de^*}{dT} > 0$
- As $T \to \infty$: $A'(\theta, T) \to 0$, $K'(T) > 0 \Rightarrow \frac{de^*}{dT} < 0$

Thus, effort increases with experience up to a certain threshold, leading to a corresponding improvement in fund performance. However, at very high levels of experience, the relationship turns negative. This theoretical model explains the empirically observed positive relationship at lower levels of experience and the negative relationship at higher levels, under standard assumptions. However, the current framework does not fully capture the concavity of the experience-performance relationship. To model this more precisely, additional or more restrictive assumptions may be required.

7 Conclusion

This study demonstrates a concave relationship between managerial experience and fund performance. While experience initially improves outcomes, at higher level experience leads to diminishing returns. During Recession, experienced managers deliver higher raw returns compared to normal times, though this effect is not statistically significant for risk-adjusted measures. This suggests that experience doesn't have an extra effect on fund performance during Recession.

References

Jensen, Michael C. (1968). "The performance of mutual funds in the period 1945–1964". In: *The Journal of Finance* 23(2), pp. 389–416.

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Appendix

Table 1: Effect of Managerial Experience on Fund Performance

	(1) Return	(2) Sharpe Ratio	(3) Jensen Alpha (1F)	(4) Jensen Alpha (4F)
Experience	0.0693***	0.00404***	0.0479***	0.0406***
	(0.0193)	(0.00105)	(0.00917)	(0.00908)
Experience^2	-0.00231***	-0.000126***	-0.00132***	-0.00118***
	(0.000482)	(0.0000247)	(0.000238)	(0.000235)
Experience × Crisis	0.0655***	0.000451	-0.00513	-0.000605
	(0.0103)	(0.000579)	(0.00363)	(0.00360)
Expense Ratio	0.00167	0.000302	0.00210	0.00206
	(0.00772)	(0.000440)	(0.00274)	(0.00266)
Total Net Assets	0.000031	0.00000424*	0.000050***	0.000047***
	(0.000035)	(0.00000245)	(0.000012)	(0.000011)
Fixed Effects	Fund + Year	Fund + Year	Year	Year
Adjusted R^2	0.496	0.999	0.018	0.011
Within R^2	0.0007	0.0004	0.0019	0.0016
Observations	169,926	156,679	169,926	169,926

Notes: Robust standard errors are clustered at the fund level and reported in parentheses. All regressions include year fixed effects; specifications (1) and (2) also include fund fixed effects. *Significance levels*: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

Table 2: Effect of Manager Tenure on Fund Performance

	(1) Return	**(2) Sharpe Ratio**	**(3) Jensen Alpha (1F)**	**(4) Jensen Alpha (4F)**
Tenure	-0.1116***	-0.00769***	0.2999***	0.2435***
	(0.0286)	(0.00169)	(0.0161)	(0.0157)
Tenure^2	-0.00237.	-0.000036	-0.00744***	-0.00655***
	(0.00138)	(0.000082)	(0.00078)	(0.00077)
Tenure × Crisis	0.2433***	0.00606***	-0.0489***	-0.00582
	(0.0187)	(0.00106)	(0.00653)	(0.00633)
Expense Ratio	0.00159	0.00025	0.00346	0.00323
	(0.00756)	(0.00043)	(0.00327)	(0.00323)
Total Net Assets	0.000051	0.00000564*	0.000039***	0.000039***
	(0.000035)	(0.00000255)	(0.000011)	(0.000011)
Fixed Effects	Fund + Year	Fund + Year	Year	Year
Adj. R^2	0.496	0.9998	0.0320	0.0193
Within R^2	0.0016	0.00084	0.0130	0.0086
RMSE	11.60	0.654	6.077	6.062
Observations	169,495	156,133	169,495	169,495

Notes: Robust standard errors are clustered at the fund level and reported in parentheses. All regressions include year fixed effects; specifications (1) and (2) also include fund fixed effects. *Significance levels*: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.