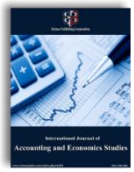
International Journal of Accounting and Economics Studies, 12 (4) (2025) 105-112

International Journal of Accounting and Economics Studies

Website: www.sciencepubco.com/index.php/IJAES
https://doi.org/10.14419/0crq9565
Research paper



The Influence of Mutual Fund and Fund Management Characteristics on Financial Inefficiency: An Empirical Study of Equity Mutual Funds in Thailand

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Received: July 19, 2025, Accepted: July 25, 2025, Published: August 4, 2025

Abstract

Even though equity mutual funds offer an attractive investment alternative, the inefficient funds lead to suffering for all stakeholders. Therefore, this research was conducted to investigate how mutual fund and management characteristics influence on inefficiency of equity mutual funds in Thailand. The samples included 254 equity mutual funds, and the study period was from 2019 to 2021. Data were analyzed through logistic regression (Logit). The results revealed that both fund age and management tenure had a statistically significant negative influence on financial distress. The GDP growth rate and interest rate had statistically significant negative and positive influences, respectively. This research contributes to the literature by highlighting the counterintuitive role of fund age and manager tenure in driving mutual fund inefficiency within the Thai capital market context.

Keywords: *Mutual Fund Inefficiency; Mutual Fund Characteristics; Management Characteristics.*

1. Introduction

Mutual funds serve as collective investment vehicles that pool capital from many individual investors to be professionally managed per the fund's stated investment policy (Bank of Ayudhya, 2021). Mutual funds have become increasingly attention due to the presence of highly skilled and experienced fund managers who provide professional management. This has positioned mutual funds as a well-structured and efficiently managed investment vehicle (Pichamon Ruengsingha, Surang Hensawang, & Nikom Chiarajinda, 2022). As such, they offer an attractive investment alternative, particularly for retail investors, individuals with limited investment experience, or those with time constraints.

Moreover, mutual funds offer several advantages, including diversification, a variety of investment policies to meet different investor objectives (customizability), a small amount of investment capital, and incurring low expenses enhances investment liquidity (Claire Boyte-White, 2022).

Investors can choose to invest in various types of mutual funds that align with their investment objectives, each offering different levels of return and risk (The Stock Exchange of Thailand, 2021). Among the different categories, equity mutual funds are the most popular and widely selected by investors. This is evidenced by the largest proportion among all mutual fund types, representing a proportion of 52.24% (Securities and Exchange Commission, Thailand, 2022).

Despite their popularity, equity mutual funds are characterized by high levels of volatility and risk due to investment policy, which mandates that no less than 65% of the fund's net asset value (NAV) be invested in equity instruments—specifically common stocks and preferred stocks—on average throughout the fiscal year (Association of Investment Management Companies, 2022). This investment results in high volatility, largely driven by the rapid price fluctuations in the equity markets, particularly in common stocks. Therefore, efficiency should be considered. A mutual fund that underperforms its benchmark is classified as a low-performing fund (underperformance). This indicates that such a fund is in a state of financial failure or inefficiency (Pichamon Ruengsingha, Surang Hensawang, & Nikom Chiarachinda, 2022) or in a considerable risk of encountering financial distress (Soraya Maklap et al., 2021).

Mutual fund inefficiency is more prevalent compared to mutual fund efficiency. For instance, the study by Pichamon Ruengsingha (2021) found that during the period from 2016 to 2020, there were 1,009 inefficient mutual funds based on the Sharpe ratio, whereas only 361 funds were classified as efficient. This empirical evidence highlights the widespread occurrence of inefficiency in mutual funds. Therefore, understanding mutual funds' financial inefficiency is important and should be further researched.

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In addition, mutual fund characteristics—such as age, size, and management fees—have also been identified as influential variables (Bialkowski and Otten (2011), Cuthbertson et al. (2012), Angelidis et al. (2013), Wangwongwit (2016), Ahmad et al. (2017), and Alvi and Rehan (2020)). As for fund management-related factors, international studies have examined them. These factors include educational qualifications in finance, management, and other related fields (Bedard and Gendron, 2010; Rickling, 2014; Tanyi and Smith, 2014), tenure or length of time in position (Sharma and Iselin, 2012; Rickling, 2014; Xiong, 2016), and team size (Platt, 2012; Rickling, 2014; Alqatamin, 2018).

Despite their importance, research related to mutual funds and management characteristics remains limited. To date, no studies on mutual fund features and management characteristics have been found in the Thai context based on the reviewed literature. In addition, few studies on mutual funds' financial inefficiency are indicated. Thus, there exists a research gap on mutual funds and management characteristics relating to mutual funds' financial inefficiency in the Thai capital market. Consequently, this leads to the research question specified as "What are the key factors relating to mutual fund and management characteristics that significantly influence on financial inefficiency of Thai equity mutual funds?"

Furthermore, the research results are expected to contribute to the body of knowledge in this field. Specifically, this study contributes to the literature on mutual fund performance by distinguishing between mutual fund inefficiency and efficiency. Furthermore, it investigates the role of the fund itself, along with the characteristics of fund management, in explaining mutual funds' financial inefficiency. Additionally, the results may help relevant stakeholders to prevent or mitigate mutual fund inefficiency

2. Research objective

The main objective of this research is to investigate the influence of mutual fund and management characteristics on equity mutual funds' financial inefficiency using an empirical study in the Thai capital market.

3. Literature reviews

3.1. Theoretical background and previous study

Mutual fund financial performance is commonly measured as follows:

Sharpe Ratio (Sharpe, 1966): This measure evaluates the financial performance by adjusting the excess return relative to the risk measured by standard deviation.

$$\text{Sharpe} = \frac{(\bar{R}_p - \bar{R}_f)}{\sigma_p}$$

Sharpe Ratio demonstrates the excess return per unit of total risk, including systematic and unsystematic risk. The higher one shows better performance.

Jensen's Alpha (Jensen, 1968): This measure evaluates the financial performance by comparing realized returns to required returns based on the Capital Asset Pricing Model (CAPM). The difference resulting from this comparison is called Jensen's Alpha (α).

If (α_p) is positive, it indicates that the realized return exceeds the required return, demonstrating outperformance. Conversely, if (α_p) is negative, it means the realized return falls below the required return, indicating underperformance.

$$\alpha_p = \bar{R}_p - \left[\bar{R}_f + (\bar{R}_m - \bar{R}_f)\beta_p\right]$$

Where:

$\bar{R}_p$ = Mutual fund average return
$\bar{R}_f$ = Risk-free rate
σ_p = Mutual fund total risk measured by standard deviation
$\bar{R}_m$ = Market index average return
β_p = Mutual fund Beta

Management characteristics and behavior are based on Agency Theory (Jensen & Meckling, 1976). Agency theory explains the relationship between principals (business owners or shareholders) and agents are executives appointed to manage the business on behalf of the owners. Both parties often have different objectives leading to agency problems, particularly the misuse of organizational resources for management's gain. Regarding management tenure, even though it demonstrates extensive experience, negative impacts of long tenure may occur. These include excessive power accumulation, the difficulty of monitoring agent behavior, decreased transparency in decision-making, resistance to change, prioritizing position over organizational interests, and a lack of incentive to maximize shareholder value. Similarly, larger team size is widely recognized as beneficial for diversity and division of labor, but agency theory offers a contrasting viewpoint. The size of the top management team also influences agency dynamics. Larger teams may dilute individual accountability, increasing the risk of free-riding and coordination problems. (Eisenhardt, 1989, Aluchna, 2023, Pfeffer, 1983)

Empirical research and study on mutual fund performance, its characteristics, and management characteristics are also limited. However, there exist previous related studies as follows:

The performance of equity funds in Thailand, using Sharpe and Jensen's alpha was conducted by Hensawang (2022). Additionally, the efficiency of such performance was analyzed by winners (W) and losers (L) as higher and lower than their median returns. The persistence performance was reported. Regarding mutual fund characteristics, Kiymaz (2015) found that fund age and size, with older and smaller funds demonstrating superior financial performance. Conversely, Rehman and Baloch (2016) indicated that fund size positively impacted fund performance (measured by the Sharpe ratio). Furthermore, Nguyen and Dung (2019) showed that fund age and board size had no significant impact. This study also added the macro level as external factors, including financial development, economic performance, and legal quality positively influenced fund performance. Moreover, Alvi and Rehan (2020) found the positive effect of fund age on fund returns. Additionally, Sukkasem et al. (2021) reported that both the fund's age and external factors as GDP growth rate exerted a positive impact on equity mutual funds. The positive effect of the Consumer Price Index (CPI) and the negative effect of the Private Investment Index and interest rates were also investigated by Kladcharoen and Yodying (2021). Also, Hensawang (2022) reported that fund age and

CPI negatively impacted the performance using Sharpe ratio, Treynor ratio, and Jensen's alpha. While GDP and money supply had positive effects. However, fund size showed no significant impact.

As for mutual fund management characteristics, Golec (1996) explored fund manager characteristics and their impact on mutual fund performance. The study concluded that managers with an MBA and longer tenure in their position managed funds more effectively. Chevalier and Ellison (1999) also focused on fund manager characteristics and showed that those with higher age, MBA degrees, longer tenures, and higher Scholastic Assessment Test (SAT) scores delivered better fund performance. In addition, Prather and Middleton (2002) suggested that team-based fund management led to better performance than individual management. Moreover, Rickling (2014) reported that the tenure and educational background in business administration of audit committee members significantly influenced the quality of financial reporting. Another management characteristic is team size. Patel and Sarkissian (2017) described that team-based management offers advantages, but the benefits may vary depending on team size. Furthermore, Clare et al. (2022), using the Carhart four-factor model, demonstrated that positive influences on mutual fund performance consistency included manager tenure, work experience, post-graduate degree in finance or quantitative fields. Larger management teams had negative influences. Next, Banchaa Chengkham and Danai Likhitritcharoen (2022) found that size, busy fund managers, and team-managed funds were negatively related to excess returns and fund performance. Another related study was done by Sakulpolphaisan and Hensawang (2023). They investigated the impact of audit committee characteristics on the financial distress of the MAI in Thailand, using logistic regression. Such a study found that audit committee size positively influenced financial distress. On the other hand, expertise in accounting, tenure, and directorships in other companies were negatively associated. While managerial experience may enhance fund performance, extended tenure may reduce adaptability and oversight, potentially increasing inefficiency (Golec, 1996; Clare et al., 2022).

The above literature review suggested that Sharpe and Jensen's alpha was an appropriate measurement for mutual fund performance. In addition, mutual fund characteristics, including fund size and age, influenced performance. Management characteristics were also crucial factors impacted. Furthermore, economic factors, especially GDP growth and interest rate, influenced performance as control variables.

3.2. Research hypotheses

Based on the conceptual theoretical background and previous related studies, this research proposes the following eight hypotheses:

H1: Fund age has a positive influence on financial inefficiency.

Older mutual funds tend to have higher operating costs and inefficient investments that may not align with current market conditions. This increases the likelihood of financial inefficiency.

H2: Fund size has a negative influence on financial inefficiency.

Larger funds reflect greater investor confidence and benefit from economies of scale. They also tend to reduce risk. This decreases the likelihood of financial inefficiency.

H3: Education in finance, business administration, or related fields has a negative influence on financial inefficiency.

Managers without finance or related fields backgrounds may rely solely on experience and lack deep financial understanding, increasing the risk of inefficiency. This increases the likelihood of financial inefficiency

H4: Professional qualifications in finance and investment have a negative influence on financial inefficiency.

Professional certifications demonstrate that fund managers have an in-depth understanding of fund management, which reduces the likelihood of financial inefficiency

H5: Fund manager tenure has a positive influence on financial inefficiency.

Based on agency theory, longer tenure may lead to excessive power accumulation and the difficulty of monitoring agent behavior. This increases the likelihood of financial inefficiency

H6: The number of team members has a negative influence on financial inefficiency.

A larger fund management team allows for better task delegation and more effective decision-making, which contributes to improved efficiency and reduces the likelihood of financial inefficiency.

H7: Economic growth has a negative influence on financial inefficiency.

Higher GDP growth reflects a strong economy, which supports better fund performance and reduces the likelihood of financial inefficiency.

H8: Interest rates have a positive influence on financial inefficiency.

Higher policy interest rates lead to capital outflows from equity markets to bond markets, reducing liquidity in the equity market. This increases the likelihood of financial inefficiency in equity mutual funds (Shefrin, 2000).

4. Research methodology

4.1. Samples and data collection

The target population was defined as equity mutual funds listed on the Stock Exchange of Thailand that maintained continuous operations during the period from 2019 to 2022, totaling 569 funds. The sample size was determined using Yamane's formula for a known population with a large size at a 0.05 level of significance (Yamane, 1970), resulting in a required sample size of 232 funds. However, this study selected a total of 254 mutual funds, equally distributed between large and small funds, and between those with active and passive investment strategies. Secondary data was used for the study, collected from Mutual Fund Report and Prospectus: (MRAP), publicly available online sources, primarily the official website of The Securities and Exchange Commission, Thailand (https:// market.sec.or.th/public/mrap/MRAPDefault.aspx) and other relevant data platforms, covering the period from 2019 to 2022.

4.2. Data analysis

This study employed Logistic Regression Analysis (Logit) as the primary analytical method, as detailed below (Khorana, Servaes, & Tufano, 2005). The software used for data analysis is Jamovi version 2.6.44

4.2.1. Independent variables

Independent variables included mutual fund characteristics, Management characteristics, and economic factors (control variables) as shown in Table 1.

Table 1: Independent Variables Used in the Research

Variable	Measurement
Mutual Fund Characteristics	
1. Fund Age (AGE: years)	The operating period of the fund, measured from the fund's inception date to the financial statement closing date each year.
2. Fund Size (SIZ: Thai Baht)	The net asset value of the fund, measured by the natural logarithm of total assets.
Fund Management Characteristics	
3. Education in Finance, Business Administration, or Related Fields (MFB)	A dummy variable where: - Fund manager with a degree in finance, business administration, or related fields is assigned a value of 1. - Fund managers with a degree in other unrelated fields is assigned a value of 0.
4. Professional Qualification in Finance or Investment (CFA)	A dummy variable where: - Fund manager with a professional qualification license in finance or investment is assigned a value of 1. - Fund manager without a professional qualification in finance or investment is assigned a value of 0.
5. Tenure of Fund Manager (MTC: years)	The duration a fund manager has held the position, measured from the start date of their position in each fund until the end of the year.
6. Team Size (TSZ: persons)	The number of members who are fund management team each year.
Mutual Fund Characteristics	
7. Economic Growth (GDP: %)	Economic growth measured by the growth of gross domestic product.
8. Interest Rate (INT: %)	Average domestic interest rate from the Bank of Thailand.

4.2.2. Dependent variables

The financial efficiency of mutual funds was measured using Sharpe and Jensen's Alpha, compared against a benchmark index as the SETTRI Index. The efficiency was then converted into a dummy variable, with values assigned as 1 and 0;

$$Ep = Fp - Im$$

Where:
Ep= Mutual fund Efficiency Measured by Sharpe and Jensen's alpha compared against a benchmark index
Fp= Mutual fund Performance Measured by Sharpe and Jensen's alpha
Im= Market Index Performance Proxied by The SETTRI Index
Fp < Im = Financially inefficient mutual fund (underperformance) assigned as 1
Fp > Im = Financially efficient mutual fund (outperformance) assigned as 0

4.3. Model construction

$$P(SI=1) = \alpha + \beta_1 AGE + \beta_2 SIZ + \beta_3 MFB + \beta_4 CFA + \beta_5 MTP + \beta_6 TSZ + \beta_7 GDP + \beta_8 INT + \varepsilon$$

Where:
P (SI=1) = The dependent variable represents the probability that a mutual fund is financially inefficient measured by Sharpe Index.
α= Constant
β_i= Coefficient of each independent variable
ε= Error term
Robustness check is performed using alternative measures of financial inefficiency as Jensen's alpha

$$P(JA=1) = \alpha + \beta_1 AGE + \beta_2 SIZ + \beta_3 MFB + \beta_4 CFA + \beta_5 MTP + \beta_6 TSZ + \beta_7 GDP + \beta_8 INT + \varepsilon$$

Where:
P (JA=1) = The dependent variable represents the probability that a mutual fund is financially inefficient measured by Jensen's alpha

5. Research results

5.1. Descriptive statistics

This research included three types of independent variables: mutual fund characteristics, management characteristics, and control variables. The research findings, summarized in Table 2, indicated the following averages during the study period: mutual fund age (AGE) averaged 10.60 years, and mutual fund size (SIZ) averaged 1,223.93 million baht, with SIZ transformed to its natural logarithm (Ln SIZ) for logistic regression analysis. Regarding fund manager characteristics, 96.90% of managers graduated in finance, business administration, or related fields (MFB), and 58.70% hold professional qualifications license in finance or investment (CFA). The average tenure of fund managers (MTC) was 6.50 years, with an average team size (TSZ) of 7.19 members. Control variables included economic growth (GDP), which averaged -0.71% per year, and interest rates (INT), which averaged 0.75% per year. The dependent variable was mutual fund efficiency, assessed the Sharpe ratio and Jensen's alpha relative to the benchmark market. It was found that 62.90% and 52.10% of the funds had Sharpe ratios and Jensen's alpha, respectively, below those of the benchmark, representing inefficiency. Standard deviations, minimum, and maximum values were also presented in Table 2.

Table 2: Descriptive Statistics of Variables in the Research

Variable	Mean	Standard Deviation	Minimum	Maximum
Mutual Fund Characteristics				
AGE (years)	10.60	7.22	1.92	30.10
SIZE (million Thai Baht)	1,223.93	4,020.95	3.52	56,647.47
Ln SIZ	19.60	1.65	15.10	24.80
Fund Management Characteristics				
MFB (%)	96.90%[1]	n.a.	n.a.	n.a.
CFA (%)	58.70%[2]	n.a.	n.a.	n.a.
MTC (years)	6.50	3.84	0.94	21.00
TSZ (individuals)	7.19	4.65	1.00	26.00
Control Variables: Economic Factors				
INT (%)	0.75	0.35	0.50	1.25
GDP (%)	-0.71	3.86	-6.14	2.51
Mutual Fund Inefficiency: Measured by performance lower than the benchmark				
Sharpe	62.90%[3]	n.a.	n.a.	n.a.
Jensen's alpha	52.10%[4]	n.a.	n.a.	n.a.

Notes:
Percentage of fund managers with qualifications in finance and related fields.
Percentage of fund managers with financial professional licenses.
Percentage of inefficient mutual funds based on the Sharpe measure.
Percentage of inefficient mutual funds based on Jensen's alpha measure.

5.2. Results of examination on conditions and assumptions underlying logistic regression analysis

The study found that the conditions and assumptions for logistic regression analysis were met as follows:

1) The dependent variable was a qualitative variable measured on a nominal scale with two categories: 1 and 0. An inefficient mutual fund was assigned as 1, financial efficiency fund was assigned as 0.
2) The independent variables were quantitative discrete variables measured on a ratio scale and include dichotomous (dummy) variables with values of 0 and 1, as described in Table 1.
3) The independent variables did not exhibit multicollinearity, as indicated by the Variance Inflation Factor (VIF) values, all of which are below 10, and tolerance values greater than 0.10. This confirmed the absence of multicollinearity among the predictors (Hair, Black, Babin, Anderson, & Tatham, 1998) as shown in Table 3.
4) Logistic regression analysis requires a sample size greater than 30 times the number of independent variables ($n > 30p$), where p represents the number of predictors (Kanya Vanichbuncha, 2016). Given that there were 8 independent variables in this study, the minimum sample size should exceed 240. This study included a sample of 254 mutual funds observed over 3 years, totaling 762 analytical units, thereby satisfying this condition.

Table 3: Results of Multicollinearity Test of Independent Variables

Variable	Model Sharpe		Model Jensen's alpha	
	VIF	Tolerance	VIF	Tolerance
Mutual Fund Specific Characteristics				
AGE	1.52	0.657	1.56	0.639
SIZ	1.15	0.872	1.15	0.871
Fund Manager Characteristics				
MFB	1.03	0.969	1.04	0.966
CFA	1.22	0.822	1.22	0.820
MTC	1.64	0.608	1.71	0.586
TSZ	1.17	0.858	1.15	0.867
Control Variables: Economic Factors				
INT	1.36	0.737	1.54	0.649
GDP	1.36	0.733	1.57	0.638

5.3. Influence of mutual fund and fund management characteristics on financial inefficiency

The results of the logistic regression analysis measuring financial inefficiency are presented in Table 4. According to the Sharpe ratio, both mutual fund characteristics and fund management attributes influenced financial inefficiency. From Table 4, it was found that Fund Age (AGE, $p < 0.05$) and Management Tenure (MTC) had a statistically significant negative influence, implying that they contributed to the fund performing worse than the benchmark. In other words, funds that have operated for a longer period and those with managers who hold their positions for a long time tend to exhibit lower efficiency.

Additionally, Fund Size (SIZ, $p > 0.10$), professional financial qualifications (CFA), and Team Size (TSZ) showed no significant influence on financial inefficiency. Macroeconomic factors, namely Economic Growth (GDP) and Interest Rate (INT), had a statistically significant positive influence on financial inefficiency. That was, increases in GDP and interest rates were associated with a higher likelihood of the fund underperforming the market benchmark.

When considering the level of influence on fund inefficiency, the factors with statistically significant influence, ranked from highest to lowest, were INT, MTC, GDP, and AGE, with logistic coefficients of 1.7349, 0.07084, 0.03141, and 0.02585, respectively. Such estimates can be interpreted in terms of the likelihood or log-odds of financial inefficiency. For practical interpretation, such logistic coefficients should be transformed into absolute probability. The probability is under consideration that other factors are controlled as zero. According to the logistic model, the estimated coefficients of 1.7349, 0.07084, 0.0341, and 0.02585 can be transformed to the probability as 0.8500, 0.5177, 0.5079, and 0.5065, respectively. The interpretation is that one present increases in interest rate and GDP affect the increase in the probability of a fund being inefficient. The probabilities are 0.8500 and 0.5079, respectively. Additionally, considering a management characteristic, a one-year increase in a fund manager's tender affects the increase in the probability of a fund being inefficient. The probability is 0.5177. As for a fund characteristic, a one-year increases in fund age affect the increase in the probability that a fund is inefficient. The probability is 0.5065.

Considering an alternative measure of financial inefficiency, using Jensen's alpha measure for a robustness check. Findings were consistent with those based on the Sharpe ratio, except that Economic Growth (GDP) showed a negative influence. Additional significant factors influencing fund inefficiency were Fund Size (SIZ), which exhibited a statistically significant negative effect (see Table 4). Almost all findings showed consistency, implying the reliability of the model.

Table 4: Influence of Mutual Fund Characteristics and Fund Manager Characteristics on Financial Inefficiency

	Sharpe			Jensen's alpha		
Independent Variable	Coefficient	Z	p	Coefficient	Z	p
Intercept	0.28046	0.241	0.4045	-1.8273	-1.541	0.0615
Mutual Fund Specific Characteristics						
AGE	0.02585	1.778	0.0375*	0.0329	2.264	0.012**
SIZ	-0.06407	-1.213	0.1125	-0.1161	-2.173	0.015**
Fund Manager Characteristics						
MFB	-0.32494	-0.686	0.2465	0.8997	0.842	0.730
CFA	-0.07398	-0.41	0.341	0.0279	0.152	0.4395
MTC	0.07084	2.413	0.008***	0.0437	1.523	0.064*
TSZ	-0.0063	-0.337	0.368	0.0141	0.749	0.227
Control Variables: Economic Factors						
INT	1.7349	5.741	<.001***	3.3334	10.907	<.001***
GDP	0.03141	1.311	0.095*	-0.1422	-5.53	<.001***

Notes: ***, **, * Statistically significant at 0.01, 0.05, 0.10, respectively.

6. Summary and discussion of research results

The dataset comprises years affected by the COVID-19 pandemic (2019–2021), during which Thailand experienced negative GDP growth and heightened financial market uncertainty. These macroeconomic shocks may have temporarily influenced fund performance and investor behavior. The research findings indicated that mutual fund characteristics, specifically Fund Age (AGE), and management characteristics, particularly Manager Tenure (MTC), had a positive influence on the financial inefficiency, as measured by Sharpe and Jensen's alpha being lower than the benchmark market. This can be explained that older funds tend to have higher management fees and operating costs, which increases the likelihood of financial inefficiency. This result aligns with the studies of Berk et al. (2004), as cited in Hensawang (2022), Hoa and Dung (2019), Raden and Augustina (2021), Sakulpolphaisan and Hensawang (2023), and Wannawalee Sukgasem et al. (2021). However, it contradicts the findings of Ahmad et al. (2017) and Alvi and Rehan (2020), who argued that older funds or those with longer operation performed better due to greater management experience, thereby reducing the chance of financial inefficiency. Regarding Manager Tenure (MTC), which was found to have a positive impact on financial inefficiency, it can be explained that tenure—reflecting the manager's experience and investment skills—would ideally have a negative effect, reducing the likelihood of inefficiency. The study found a positive effect on financial inefficiency. This is consistent with agency theory that extended tenure may lead to entrenchment, as excessive power and decreased transparency.

6.1. Limitations and implications

This study only measured tenure within a single fund and did not account for continuous managerial experience across other funds. Therefore, the measured tenure might not fully reflect the manager's true accumulated experience and skills. Nonetheless, this study's findings are inconsistent with the results of Golec (1996), Rickling (2014), Chevalier and Ellison (1999), Clare et al. (2022), and Ekapol Sakulpolphaisan and Surang Hensawang (2023), who found that longer manager tenure negatively influences the financial inefficiency of mutual funds (Barberis & Thaler, 2003).

Regarding fund manager qualifications, the study found that having a degree in finance, business administration, or related fields (MFB) did not significantly affect financial inefficiency, likely because 96.90% of fund managers already hold such degrees. Thus, there is no differentiation in this attribute between efficient and inefficient funds. This result contrasts with Golec (1996), Chevalier and Ellison (1999), Rickling (2014), Clare et al. (2022), and Sakulpolphaisan and Hensawang (2023), who reported that financial or related academic qualifications reflect knowledge that enhances fund management capabilities and efficiency. However, prior research was conducted in international stock markets and the MAI market, whereas this study focuses on the Thai stock market. Moreover, professional financial or investment qualification licenses (CFA) were found to have no significant influence on financial inefficiency. Observations on raw data revealed that many fund managers without professional qualifications possessed extensive management experience, allowing them to manage funds effectively despite lacking formal certifications. This finding is consistent with Clare et al. (2022).

External factors included economic growth factors. Generally, a higher economic growth rate creates opportunities to achieve efficiency or to reduce inefficiency. However, this study found that the growth of Gross Domestic Product (GDP) increased the likelihood of financial inefficiency. This may be because, during economic growth, the market benchmark shows a higher growth rate than the equity mutual funds. When performance is compared, mutual funds appear less than the benchmark market, despite mutual funds themselves also experiencing growth consistent with the overall economic growth. Nevertheless, this finding contradicts Pacini et al. (2017), Nguyen and Dung (2019), Hensawang (2022), and Wannawalee Sukgasem et al. (2021).

Another economic variable is the interest rate. This study found that an increase in the interest rate significantly increases the financial inefficiency of mutual funds and that this variable has the greatest influence (highest coefficient value). Higher interest rates encourage investors to move their funds into debt instruments, reducing liquidity in the equity market. Equity mutual funds, which predominantly invest in stocks or equity securities, consequently earn lower returns, leading to increased inefficiency. This finding aligns with financial theory and is consistent with empirical research by Thanyanan Sripattanapiboon (2015), Marut Kladchareon, and Sukanya Yodying (2021). The inefficiency of mutual funds may undermine retail investor confidence, particularly in developing economies where institutional trust is still maturing. As retail investors form the backbone of Thailand's domestic capital market participation, persistent inefficiencies could deter long-term engagement and hinder market deepening. Policymakers should consider implementing governance reforms and transparency mechanisms to address this issue.

6.2. Suggestions

6.2.1. Expanded concept: financial performance and inefficiency

Empirical evidence supports the notion that financial performance can be explained through indicators of financial inefficiency. One such indicator is the expense-to-income ratio. A higher expense-to-income ratio reflects a fund's ability to generate sufficient income relative to its operating costs. Contrary to what might be expected, this ratio can reduce the likelihood of financial inefficiency. This is because:

1) It indicates effective cost management and revenue generation capacity.
2) Funds with higher income relative to expenses are better positioned to absorb market fluctuations and maintain stable operations.
3) It reflects operational discipline, which contributes to long-term sustainability and investor confidence.

Therefore, a high expense-to-income ratio may serve as a positive signal of financial health and lower the probability of inefficiency in mutual fund management.

6.2.2. Additional factors influencing financial inefficiency in Thai equity mutual funds

Beyond financial performance, fund-specific characteristics also play a significant role in influencing the financial inefficiency of equity mutual funds in Thailand. These characteristics include:

1) Fund age: Older funds may carry legacy costs and outdated investment strategies.
2) Fund size: Larger funds often benefit from economies of scale and greater investor trust.
3) Managerial attributes: The education, experience, and professional qualifications of fund managers can impact fund efficiency.
4) Team structure: The number of team members and how responsibilities are distributed can affect decision-making quality and operational effectiveness.

These non-financial attributes provide important context for understanding why some funds may operate more efficiently than others, even when financial performance metrics appear similar. Therefore, incorporating fund characteristics into the analysis offers a more comprehensive view of the factors contributing to financial inefficiency in mutual fund management.

6.2.3. From financial capability to financial efficiency in mutual funds

The development of knowledge in mutual fund evaluation has evolved from measuring financial capability to assessing financial efficiency. Financial capability refers to a fund's ability to generate returns, manage risks, and maintain operational stability. It focuses on the fund's potential and resources to perform well under various market conditions. However, modern evaluation frameworks emphasize financial efficiency, which reflects how effectively a fund utilizes its resources to achieve optimal performance. This includes:

1) Minimizing unnecessary costs
2) Aligning investment strategies with current market dynamics
3) Maximizing returns relative to risk and expenses

By shifting the focus from capability to efficiency, analysts and investors gain a more accurate understanding of a fund's true performance. This approach allows for better benchmarking, improved fund selection, and more informed decision-making in portfolio management.

6.2.4. Suggestions from research findings

Investors, analysts, fund managers, and related stakeholders should consider adapting investment strategies or adjusting management strategies to reduce financial inefficiency as follows:

1) The research found that both mutual fund characteristics and fund manager characteristics had statistically significant influences on financial inefficiency. Therefore, these characteristics should be considered not just financial data when selecting investments, to avoid inefficient funds.
2) Older funds were found to be more prone to inefficiency due to higher management costs. Therefore, diversification into newer funds is recommended, as long-standing funds may carry hidden inefficiencies.
3) Larger funds demonstrated better financial efficiency (especially in terms of Jensen's alpha) due to economies of scale. Therefore, investors should diversify a higher proportion of their investment towards larger funds. Regulators should closely monitor the financial efficiency of smaller funds, as they are more likely to be inefficient than larger ones.
4) Besides internal factors, external economic factors also had statistically significant effects on financial inefficiency. Special attention should be paid to external influences, especially closely monitoring interest rate trends, since interest rate changes have had the greatest impact on inefficiency. Investors should be cautious about short-term investments during rising interest rate periods, as this increases the likelihood of financial inefficiency.

6.2.5. Suggestions for further study

To expand knowledge on factors truly affecting mutual fund financial efficiency, further research should explore in-depth studies on mutual fund and fund management characteristics. In addition, other attributes to cover a broader range of variables, such as investment style (active vs. passive) and overall career experience across multiple funds, should be expanded. Alternative benchmarks (e.g., average performance rather than market indices) should also be tested. Expanding the scope to include other fund types—such as bond funds, alternative funds, or real estate funds—and even different asset classes like common stocks or digital assets, could provide broader insights into financial performance drivers. Importantly, potential moderating or mediating effects that could influence the relationships between independent variables and financial inefficiency should be expanded to examine for an in-depth understanding of potential endogeneity.

It is suggested that further research should consider total managerial tenure across multiple funds rather than only one, since experienced fund managers may move between funds and do not necessarily manage the same fund throughout their career.

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