

The Relationship Between Alpha and Value Creation in Equity Funds: Evidence from the Indonesian Market

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Abstract. This paper investigates the relationship between equity fund performance, as measured by alpha, and value creation in the context of an emerging economy, Indonesia. Using an improved empirical strategy that incorporates investable assets such as Traditional Index Funds (TIFs) and Exchange Traded Funds (ETFs) as alternative benchmarks to the market, we find a significant positive correlation between fund alpha and value creation over various time spans (1, 3, 5, and 10 years). However, our analysis also reveals that the majority of equity funds fail to deliver positive value-added, suggesting that investors could consider investing in alternative investable assets that offer average market return performance at a lower cost. Our findings highlight the complementary nature of alpha and value-added as performance measures and provide valuable insights for fund managers and investors in emerging markets.

Keywords: Alpha, Equity fund, Fund skill, and Value-added.

1. Introduction

The assessment of mutual fund performance is a crucial topic that has been widely investigated. Hundreds of papers have evaluated the performance of actively managed mutual funds. Various metrics and models have been commonly employed to evaluate fund performance such as Jensen's Alpha, Sharpe Ratio, Treynor Ratio, and various asset pricing models (Carhart, 1997; Fama et al., 1992; Fama & French, 2012, 2015, 2018; Lintner, 1965; Mossin, 1969; Sharpe, 1964)

Sha & Gao (2019) compared different Capital Asset Pricing Models (CAPM) to evaluate the performance of the Chinese mutual fund industry. Their study found that various evaluation models produced different outcomes when identifying risk-adjusted returns. Recent studies involving Alpha to measure fund performance revolve around augmenting alternative factors to the standard model or modifying them to account for nonzero alphas in the fund benchmarks (Mateus et al., 2019). Despite extensive research on Alpha, researchers still have no consensus on a suitable metric for assessing manager performance. Even though academic research has explored alternative metrics, Alpha remains the dominant measure used in practice. Alpha, being a ratio rather than a value, also has limitations as it does not provide information about a fund's size and profitability. For the same risk-adjusted return, a fund with small assets under management is indistinguishable from a fund with large assets under management.

The value creation or value-added concept has emerged as a significant contender to alpha in measuring fund manager skills. Value-added refers to the dollar value a fund extracts from capital markets. Value-added accounts for the difference between a mutual fund's actual return and a certain benchmark's expected return relative to its size (commonly stated in Net Asset Value). According to Berk & van Binsbergen (2015) the only proper measure in the equity fund industry is the value-added. They argued that neither net nor gross fund alpha measures managerial skill as the return to fund scale decreases. In agreement with Berk, Zhu (2018) provided extensive empirical evidence to demonstrate fund performance is negatively correlated to fund size. Hence, fund alpha and fund size are not independent entities. She argued that skill should be evaluated based on the value a fund is able to extract from capital markets.

There is a wealth of empirical evidence in the existing literature concerning alpha and value creation of equity funds originating from developed markets. However, research on value creation in emerging markets is scarce and open to further investigation. Investors' literacy level, fund manager expertise, and market efficiency in the emerging market may result in alpha and value delivered by equity funds that differ from those observed in developed markets. More important is the empirical evidence that a fund manager can generate value across diverse investment time horizons. Whether an equity fund's alpha and beta can serve as value-added predictors will also help bridge the gap in the ongoing debate on measuring fund performance.

The objective of this study is to provide empirical evidence on the relation between alpha and value creation in measuring fund performance from one of the emerging market, Indonesia. Firstly, we investigate equity fund manager skills, as measured by alpha and value creation. Secondly, we examine the relation of alpha on value-added, considering both short and long-term investment periods. The empirical evidence suggests that fund manager with positive alpha tend to deliver positive value-added. Perhaps both metrics are not entirely independent entities; instead, they are complementary measures that can be used to evaluate a fund's performance. Through our research, we aim to contribute to the ongoing debate on the effectiveness of measuring fund manager skills using both alpha and value-added.

Our analysis of alpha and value-added on various periods contributes significantly to the literature in several ways. Firstly, we provide a quantifiable measure of the number of funds that create value, shedding light on the effectiveness of their investment strategies. Secondly, we analyze whether funds create more value over different time spans as investors become more familiar with their skills. Thirdly, we investigate

whether alpha and beta can be reliable predictors of value-added on the fund level. Lastly, we examine whether the equity fund industry delivers value to investors and whether it is dominated by skilled or unskilled funds.

The study will also have practical implications for fund managers and investors. The study will give fund managers valuable insights that will enable them to reassess the efficacy of active management strategies. They may employ various strategies to exploit higher value creation. Over time, the fund manager may liquidate lower value-added funds and consolidate them with a higher value-added fund. The insight could also assist investors in assessing the appropriateness of their portfolio allocation. While risk tolerance investor might be benefited from short-term return by investing in an active performance fund, the allocation to a benchmark portfolio is more advantageous for long term investment.

The remainder of this paper is organized as follows: Section 2 provides a review on the existing literature, Section 3 discusses the applied methodology and selection of observation periods, Section 4 contains a description of the data samples, and Section 5 empirically investigates the fund level relationship between alpha and value creation over various investment periods. Lastly, Section 6 concludes the paper.

2. Literature Review

The financial industry commonly uses Alpha as a barometer for mutual fund adjusted risk. Alpha is an elegant indicator that condenses a large amount of fund information into a single number with the ability of explaining fund performance. Research on fund alpha originated on the work of Jensen (1967). An Alpha above zero indicates that the mutual fund earns more than the benchmark, while an alpha less than zero suggests that the fund underperforms the benchmark. However, the use of Alpha as a sole measure for mutual fund performance has been criticized for its limitations, such as its inability to differentiate between skill and luck in generating returns.

According to Fama & French (2010), the majority of funds are merely lucky and cannot generate returns that compensate for costs when compared to the expected benchmark. Using multifactor models, Tapver, (2023) investigated global equity funds in Central and Eastern Europe (CEE) and discovered that a majority of the individual funds also fail to deliver alpha. He argued that inadequate skills are responsible for most of the negative alphas. In line with Fama and French's findings, he found that approximately only 5% of the sample demonstrates skill gross of fees, suggesting that fund management fees absorb this skill.

At the aggregate industry level, Pástor & Stambaugh (2012) and Pástor et al. (2015) found strong evidence of decreasing returns. As the size of the active mutual fund industry increases, a fund's ability to outperform passive benchmarks declines. Perhaps due to the manager's finite investment idea and opportunity (Barras et al., 2022), such as major stocks are listed in the benchmark index. Hence, the net alpha decreases in opposite to fund size (Zhu, 2018). Pástor et al., (2020) further emphasized the trade-offs between fund size, expense ratio, turnover, and portfolio liquidity as main challenges of actively managed equity funds.

Hoberg et al., (2018) build on the classical theory of industrial organization by Baumol et al. (1982) to assert that competition between fund restricts alpha. Competition also limits the capacity of outperforming funds to generate future alpha. The study suggests that competition in the funds industry is fierce due to easy entry and exit. The description matches mutual fund industry which characterizes contestable markets with less differentiated products and few barriers to entry. Consequently, funds are less likely to generate sustained alpha due to vigorous competition between them.

Mateus et al. (2019) conducted a review on fund performance measurement involving alpha and identified two primary themes which are augmenting alternative missing factors to the standard model or modifying them to account for nonzero alphas in the fund benchmarks. They observed that none of the proposed missing factors could be universally applied to account for explaining anomalies or the price of the asset. Even though in later study Mateus et al. (2024) suggested a two-stage procedure to evaluate winning fund. Elton & Gruber (2020) also emphasize several issues that can impact performance measurement such as data sources and bias, missing factors, and improvements to benchmarks, in their review of major models of mutual fund performance. They anticipated that pursuing the most desirable performance measure would persist by either searching a more appropriate CAPM factors or evaluation using tradable index models.

Berk et al. (2020) suggested a departure from using alpha as a means of measuring overall fund performance. They argued that while net alpha can measure the abnormal returns of a fund, it cannot identify the skill level of mutual fund managers. They proposed using the product of gross alpha and the size of the fund value-added to measure skill. Berk & Green (2004) argued that in a competitive market, where the market reaches equilibrium, the marginal return on the last dollar invested must be zero. Consequently, the net alpha of funds decreases, making it difficult to differentiate between well-performing and poorly-performing funds. Building on these works, Han et al. (2021) introduced the accumulated value-added process, which allows for the dynamic measurement of fund performance over time.

In this study, other factors that may be contributed to the performance is assumed already factored to the value-added being delivered by the fund. For instance, performance can vary depending on timing skill and stock selection (Shin et al., 2021) (Cheong et al., 2020), or because some funds are benefited from a high speed of information dissemination within their family (Cici et al., 2016). Similarly, fund performance can vary because they trade more efficiently or follow specific strategies to manage liquidity and turnover (Pastor et al., 2017; Pástor et al., 2020). Performance also related to cash management (de Mingo-López et al., (2020), marketing (Roussanov et al., 2021), market timing ability (Zouaoui, 2019) turnover (Ghalke & Kulkarni, 2022) or other various factors as modeled by (Rosidin et al., 2024).

Most empirical evidence related to equity fund performance, particularly regarding alpha and value creation, is derived from developed markets. Conversely, research exploring value creation in emerging markets is limited and requires further investigation. Conducting such a study may allow for identifying differences in value delivery by equity funds in emerging markets compared to their counterparts in developed markets. This study would be of particular interest in examining empirical evidence on the ability of fund managers to generate value over various investment time horizons. Additionally, research examining whether the alpha and beta of equity funds can serve as reliable predictors of value-added performance would provide valuable contribution into the literature.

3. Research Methods

The Fig. 1 outline the research design to investigate the relation between alpha and value-added. Where data of equity fund will be collected along with the associated benchmark. Following Berk et al. (2015) value-added will be calculated as per equation (1)

$$Va_t = NAV_{t-1}(Ri_t - Rb_t) \quad (1)$$

where Va_t is the value-added of a fund at time t , NAV_{t-1} represents the total net asset value of the fund at time $t-1$, Ri_t and Rb_t indicate the return of the fund and the return of the benchmark at time t , respectively.

$R_i - R_b$, indicates the excess return of Equity Fund to the benchmark (gross alpha). Considering the investor investment horizon, we calculate the accumulative value-added over the observed time span (1, 3, 5, and 10 years). This approach allows for comparison that capture the possible adjustment period due to investors' learning.

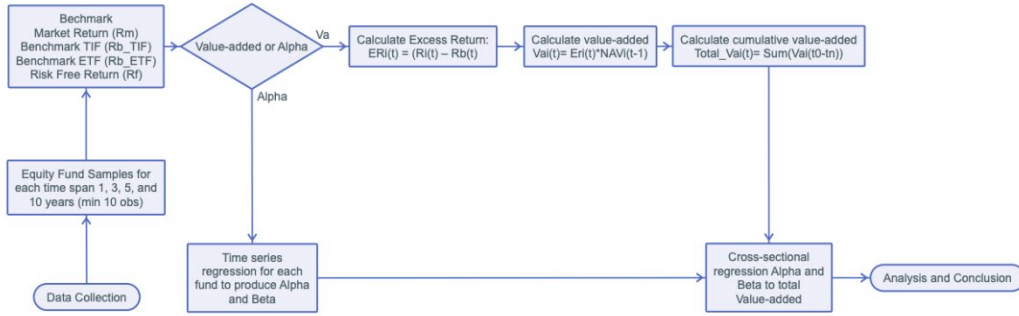


Fig. 1: Research design.

Common benchmark used to calculate the excess return is market return. Elton et al., (2019) argued that the use of market return as a benchmark to calculate the excess return is not an accurate representation of an investable strategy. While certain fund managers may be able to outperform the benchmark, the costs associated with actively managed funds must be offset by a higher value delivered. However, passive instruments such as Traditional Index Funds (TIFs) and Exchange Traded Funds (ETFs) offer a cost-effective alternative for investors. Therefore, we suggest utilizing benchmarks that represent investable instruments with similar characteristics to the equity market, such as TIFs and ETFs. This approach provides a more accurate representation of the performance of actively managed funds. In this study the benchmark return will comprise of Market Return (R_m), Index Fund Return, (R_{b_tif}) and ETF return (R_{b_etf}). Equation 1 will then be modified as follows:

$$Va_t = NAV_{t-1}(Ri_t - Rm_t) \quad (2)$$

$$Va_t = NAV_{t-1}(Ri_t - Rb_tif_t) \quad (3)$$

$$Va_t = NAV_{t-1}(Ri_t - Rb_etf_t) \quad (4)$$

We will utilize a time series regression of fund level data to obtain both alpha and beta values simultaneously. This approach follows the Capital Asset Pricing Model (CAPM) and utilizes Equation 5 to calculate the values. Alpha represents the intercept of the time series regression, which is a measure of the fund's risk-adjusted returns beyond what would be expected from the market. Beta, on the other hand, represents the coefficient of the regression, which is a measure of the fund's volatility relative to the market. A beta value of 1 indicates that the fund's volatility matches that of the market, while values greater than 1 suggest higher volatility and values less than 1 indicate lower volatility.

$$Ri_t - Rf_t = \beta(Rm_t - Rf_t) + \alpha + \varepsilon \quad (5)$$

Finally, the relation between alpha and value-added will be obtained from multi variate cross sectional regression for all available equity fund within each time span (1-, 3-, 5-, and 10-years) as per equation 6.

$$Va_{i,t} = \gamma(\alpha) + \delta(\beta) + \eta + \varepsilon \quad (6)$$

where γ and δ is the coefficient for alpha and beta respectively and η represent the intercept of the regression.

4. Data Samples and Benchmarks

We collect monthly data on open-end equity mutual funds in Indonesia from the Financial Service Authority (OJK, 2023). The study encompasses various observation periods (last 1, 3, 5, and 10 years ending in December 2023). Data for the previous 15 years are available at different detail levels, which is incompatible with this study. All available equity funds from January 2014 to December 2023 are collected regardless of whether they ceased to exist or merged with other funds to avoid survivorship bias. Resulting in 316 funds for one year, 354 funds for three years, 414 funds for five years, and 462 funds for ten years. We have considered different series of fund products as a separate portfolio.

A minimum of ten observations is necessary for single-factor regression analysis involving alpha and beta to ensure statistical rigor, as Harrell (2016) suggested. As a result, the total number of funds decreased to 253 funds for one year, 319 funds for three years, 367 funds for five years, and 425 funds for ten years. Despite excluding certain equity funds, the sample represents 80%, 90%, 90%, and 92% of the total equity fund population, for 1, 3, 5, and 10 years observation periods respectively. Equity fund age less than a year is expected to have smaller NAV or does not gain enough investor interest which lead to liquidation. Table 1 provides a summary of the equity fund sample for each observation period under this study.

Table 1. Summary statistics of equity funds.

	Fund-Month	Mean	Sd	Percentiles				
				1%	25%	50%	75%	99%
1 year								
NAV (IDR Billion)	3,020	367.00	769.00	2.05	23.40	83.00	280.00	3,500.00
Unit (million)		281.00	442.00	2.16	19.80	80.50	333.00	1,930.00
Fund Monthly Return (%)		(0.32)	2.98	(11.10)	(1.38)	(0.00)	1.39	5.18
Obs (month)		11.95	0.29	10	12	12	12	12
3 years								
NAV (IDR Billion)	10,029	400.00	887.00	0.62	23.40	90.90	304.00	4,410.00
Unit (million)		295.00	478.00	0.77	19.40	83.90	353.00	1,990.00
Fund Monthly Return (%)		0.01	10.46	(11.12)	(1.92)	(0.05)	2.12	9.52
Obs (month)		33.36	5.84	11	36	36	36	36
5 years								
NAV (IDR Billion)	17,303	407.00	948.00	0.60	24.20	96.60	330.00	4,560.00
Unit (million)		301.00	494.00	0.73	21.20	86.50	351.00	2,160.00
Fund Monthly Return (%)		(0.31)	9.91	(21.89)	(2.77)	(0.01)	2.66	13.55
Obs (month)		53.78	12.30	12	54	60	60	60
10 years								
NAV (IDR Billion)	30,064	472.00	1,130.00	0.33	29.60	110.00	421.00	5,470.00
Unit (million)		288.00	515.00	0.29	25.00	86.20	313.00	2,410.00
Fund Monthly Return (%)		(0.00)	9.13	(18.88)	(2.20)	0.23	2.65	13.00
Obs (month)		89.49	29.64	14	71	95	120	120

In addition to the equity fund data, we collected market data by utilizing the composite index provided on the Indonesia Stock Exchange website (IDX, 2023). This data was intended to serve as a benchmark for the equity funds. Market data can be utilized for regression analysis in conjunction with a risk-free rate. Indonesia's 10-year Bonds (10YT) yield was utilized as the risk-free rate. A third-party data provider supplied the information (Investing, 2023). According to Berk et al. (2020) non-investable benchmarks (such as market or composite index per se) do not provide a realistic benchmark. Therefore, we include tradable TIF and ETF as well. A summary of the benchmark is listed in Table 2.

Table 2. Summary statistics of benchmarks.

	1 year		3 years		5 years		10 years	
	Mean	Sd	Mean	Sd	Mean	Sd	Mean	Sd
Market Return (%)	0.52	2.44	0.57	2.50	0.33	4.07	0.45	3.66
ETF Benchmark Return (%)	0.44	2.63	0.27	3.58	0.13	5.05	0.36	4.58
TIF Benchmark Return (%)	0.61	2.65	0.33	3.45	0.23	5.04	0.37	4.51
Risk Free Rate (%)	0.55	0.02	0.56	0.03	0.57	0.04	0.60	0.06

TIF represents a long-term portfolio. ETF is used as a proxy of tradable passive portfolios, which could be held long or short. One TIF and one ETF portfolio are selected from the available index funds population to represent a tradable benchmark. They were elected purely based on the highest net asset value (NAV) and availability within the same observation period. Indeed, the selected TIF and ETF will not represent the overall performance of the passive portfolio, and the result might be biased toward high performance. The highest NAV could be a result of fund flow to past performance (Ben-David et al., 2022). The methodology to use a single investable benchmark might also be biased toward large stocks in opposition to the broader spectrum of fund manager asset allocation. However, the selected TIF and ETF tracked major indices, which are LQ45 and IDX30 (representing 49% and 41% of the IDX market cap as of December 2023), where large funds might be leaning into. They are also accessible and popular among investors in Indonesia. Further study might follow Elton et al. (2019) to use various investable assets to represent fund manager investment choices. For this study, we have included the overall market benchmark as per standard CAPM.

5. Result and Discussion

5.1. Value-Added

The monthly value-added of the sample equity funds in real dollar value (Indonesia Rupiah/IDR) is summarized Table 3. On average, equity funds exhibited monthly negative value-added for a one-year observation period. The average value-added remains unchanged, with more fund-month data added by increasing observation periods. Average value-added to investable assets (TIF and ETF) exhibits a lower variation than the market benchmark. The average return is skewed by larger funds, with portfolios leaning more into the benchmark index. Although a few fund-months exhibit positive value-added, almost 75% remain in the negative territory. Positive value-added is also minimal except for a minority of fund-month, which are extremely large for either side of the percentile. Approximately 1% of the funds delivered either large negative or positive values. Perhaps the wide swing is due to large funds with higher NAV when they experience positive or negative abnormal gross return.

Table 3. Value creation of equity funds.

	Fund-month	Mean	Sd	Percentiles				
				1%	25%	50%	75%	99%
1 Year								
Value-added to Market Benchmark (IDR Billion)	3,020	-1.70	18.30	-69.90	-2.02	-0.21	0.46	49.00

Value-added to TIF Benchmark (IDR Billion)	3,020	-2.15	15.80	-69.20	-2.13	-0.25	0.32	37.20
Value-added to ETF Benchmark (IDR Billion)	3,020	-1.58	15.10	-64.70	-1.96	-0.22	0.36	39.70
3 Years								
Value-added to Market Benchmark (IDR Billion)	10,029	-1.66	23.60	-72.20	-2.17	-0.18	0.66	55.80
Value-added to TIF Benchmark (IDR Billion)	10,029	-0.67	21.50	-69.20	-1.77	-0.11	0.88	58.00
Value-added to ETF Benchmark (IDR Billion)	10,029	-0.50	22.10	-69.50	-1.75	-0.09	1.01	61.20
5 Years								
Value-added to Market Benchmark (IDR Billion)	17,303	-2.25	25.60	-92.00	-2.22	-0.13	0.83	54.30
Value-added to TIF Benchmark (IDR Billion)	17,303	-1.82	25.20	-86.20	-2.16	-0.14	0.79	54.90
Value-added to ETF Benchmark (IDR Billion)	17,303	-1.48	25.70	-86.40	-2.05	-0.11	0.96	59.20
10 Years								
Value-added to Market Benchmark (IDR Billion)	30,064	-1.64	25.60	-86.30	-2.08	-0.13	0.83	63.90
Value-added to TIF Benchmark (IDR Billion)	30,064	-1.29	26.00	-83.60	-1.92	-0.10	0.91	65.00
Value-added to ETF Benchmark (IDR Billion)	30,064	-1.35	26.70	-85.80	-2.10	-0.13	0.89	70.20

We calculate the cumulative value-added for each observation period to account for the effect of value-added on portfolio holding on the fund level. The cumulative value-added will also be used for comparative evaluation to alpha within the same period. The cumulative value-added of the sampled equity funds is summarized in Table 4. It appears that only minority funds have been successful in delivering positive value-added, and more than 75% of the funds exhibit negative value. Most funds suffer more negative cumulative value-added as the holding period increases. It is important to note that the number of funds samples increases with the observation period. The industry may not be able to deliver positive cumulative value-added to investors because the majority of fund managers within the industry lack skill, which justifies that some funds were discontinued or liquidated. There were 425 in the 10 years observation period which than reduced to 253 in the 1 year observation period (a dramatic 40% decrease).

Table 4. Cumulative value creation of equity Funds for 1, 3, 5 and 10 years observation periods.

	Fund #	Mean	Sd	Percentiles				
				1%	25%	50%	75%	99%
1 Year								
Cum. VA to Rm (IDR Billion)	253	-20.33	54.49	-329.43	-20.22	-4.84	-0.81	62.16
Cum. VA to Rb TIF (IDR Billion)	253	-25.70	63.65	-374.50	-24.48	-6.24	-1.41	44.97
Cum. VA to Rb ETF (IDR Billion)	253	-18.85	54.96	-312.16	-19.45	-4.00	-0.66	66.87
3 Years								
Cum. VA to Rm (IDR Billion)	319	-52.26	147.76	-642.70	-53.94	-11.51	-2.57	91.80
Cum. VA to Rb TIF (IDR Billion)	319	-21.06	114.03	-451.97	-31.06	-4.21	0.23	219.47
Cum. VA to Rb ETF (IDR Billion)	319	-15.79	115.28	-435.15	-28.85	-3.44	0.41	279.64
5 Years								
Cum. VA to Rm (IDR Billion)	367	-106.02	266.14	-1387.27	-75.22	-12.68	-2.41	257.16

Cum. VA to Rb TIF (IDR Billion)	367	-85.65	248.57	-1337.74	-60.23	-8.74	-0.29	305.84
Cum. VA to Rb ETF (IDR Billion)	367	-69.72	243.09	-1308.53	-44.06	-5.15	0.28	339.26
10 Years								
Cum. VA to Rm (IDR Billion)	425	-116.15	269.35	-1382.60	-99.11	-18.32	-2.85	195.75
Cum. VA to Rb TIF (IDR Billion)	425	-91.53	244.11	-1291.38	-80.33	-12.83	-1.14	283.63
Cum. VA to Rb ETF (IDR Billion)	425	-95.75	251.72	-1280.59	-76.25	-13.05	-0.99	281.75

In Fig. 2, the scatter points represent the total value added by all funds for each month. The value-added relative to the market, TIF, and ETF benchmarks fluctuate randomly around zero. Equity funds, as a group, are able to deliver positive value in certain months, while in other months, they generate negative value. This pattern is consistent over both short- and long-term periods. Relative to the market benchmark (Rm) tends to fluctuate more wildly, the value-added to TIF (Rb_TIF) and ETF (Rb ETF) graph is close one to another and sometimes overlaps. It's possible that the selected tradable assets benchmark is based on indices that are close in composition. LQ45 and IDX30 represent 49% and 41% of the IDX market cap as of December 2023, consisting of overlapping equities.

Even though funds can extract economic rents from capital markets as a group, the result contradicts the finding of (Barras et al., 2022). When studying US equity funds available between 1975 and 2019, they found that the value added is positive for most funds. However, we found similar findings on skill and scalability, which vary substantially across funds. In our study, some larger funds (less than 1%) seem to be able to have an edge in exploiting the market to deliver positive value and grow their asset. This finding is consistent with Tapver (2023) that the value delivered as a group is largely driven by large funds. The performance of large funds will determine the swing of value-added, either positive or negative, of the industry.

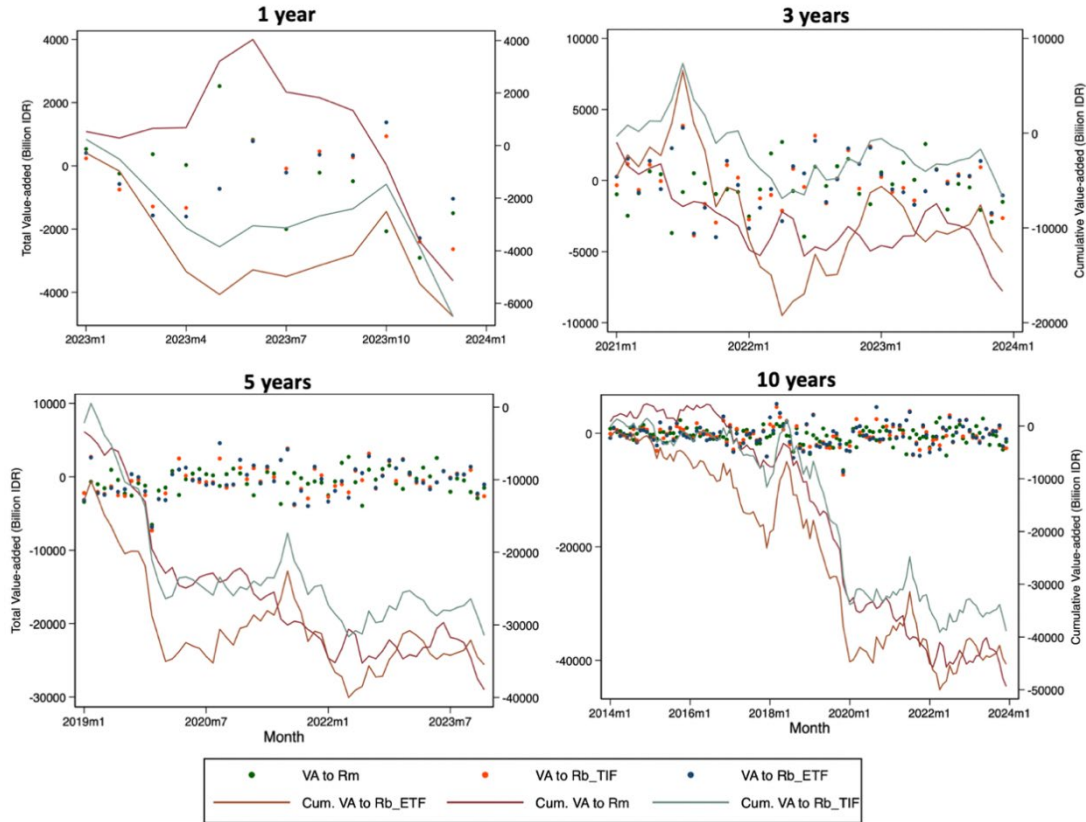


Fig. 2: Value-added for group of equity funds.

The line graphs in Fig. 2 represent the overall equity funds cumulative value-added obtained by rolling up the value-added for each month. At the beginning of the period, the funds recorded positive cumulative value-added in all observation periods. Over time, cumulative value-added decreases and end up in negative value-added. Even though they might deliver positive returns at the fund level, as a group, equity funds fail to deliver positive cumulative value. In theory, investors are better off with investable indexing assets if funds generate less value than the benchmark for the same investment fees. This is especially true when the investable asset's cost is only a fraction of the equity funds, which may lead to a more rewarding return. However, this is not intended to undermine fund manager's efforts in company-specific fundamental research. Booth (2022) argued that indexing creates trading opportunities for others as a symbiotic relationship between them makes the market more efficient. Both active and passive investment have important economic roles (Pedersen, 2018). The choice ultimately depends on an investor's goals, investment time horizon, and risk tolerance.

5.2. Alpha and Beta

Following the CAPM model, we have calculated the alpha and beta from the time series regression result, as indicated in Table 5. On average, the funds showed a significant negative alpha. More than 75 percentiles of funds have negative alpha, with only 1% of the funds able to generate positive alpha. On the other hand, most funds positively correlated with the benchmark, with only 1% having negative results. The results for alpha and beta are consistent over each observation period.

Table 5. Summary of time-series regression results for equity funds' alpha and beta.

	Fund #	Mean	SD	Percentiles				
				p1	p25	p50	p75	p99
1 year								
alpha	253	-0.009684	0.009593	-0.039229	-0.011679	-0.006798	-0.004532	0.005883
betha	253	0.570593	0.412663	-0.691486	0.479836	0.692784	0.811208	1.137093
_adjR2	253	0.349878	0.222791	-0.088592	0.162421	0.419611	0.528175	0.685457
_R2	253	0.404321	0.204177	0.003661	0.232219	0.468685	0.567494	0.711669
3 years								
alpha	319	-0.005187	0.019022	-0.026446	-0.009067	-0.004944	-0.002027	0.012784
betha	319	0.85983	0.545946	-0.229636	0.808449	0.953073	1.058967	1.859328
_adjR2	319	0.442954	0.236733	-0.02845	0.286309	0.539479	0.61778	0.759722
_R2	319	0.460411	0.229834	0.000174	0.309025	0.554176	0.629149	0.767633
5 years								
alpha	367	-0.006412	0.014966	-0.050378	-0.009594	-0.003557	-0.001341	0.015750
betha	367	0.931969	0.447712	-0.232842	0.824149	1.080842	1.176088	1.530947
_adjR2	367	0.593037	0.335726	-0.019684	0.269521	0.784386	0.848901	0.937829
_R2	367	0.601735	0.328713	0.000090	0.281758	0.787979	0.852414	0.941230
10 years								
alpha	425	-0.004642	0.011656	-0.035399	-0.006415	-0.002994	-0.001048	0.018230
betha	425	0.952751	0.408768	-0.228123	0.89784	1.075987	1.162249	1.440490
_adjR2	425	0.599431	0.329997	-0.016279	0.294697	0.772018	0.852089	0.934428
_R2	425	0.605674	0.324350	0.000113	0.326779	0.773918	0.854186	0.939893

Fig. 3 illustrates the relationship between alpha and NAV, where alpha appears scattered around zero. On average, the funds showed a significant negative alpha, with short-term indicating more negative alpha (1 year and 3 years) than the long-term (5 years and 10 years). This finding is consistent with results from other emerging markets like Pakistan (Aqeeq & Chamadia, 2023). Firstly, significant alpha, either negative or positive, could be explained by the momentum in the stock market. Božović (2022) studied US-based emerging market mutual funds returns and found out that significant alpha, in the short-term, can be explained by momentum in emerging market stocks. Even though, in the long-term, the observed funds exhibit behavior similar to their developed-market counterparts.

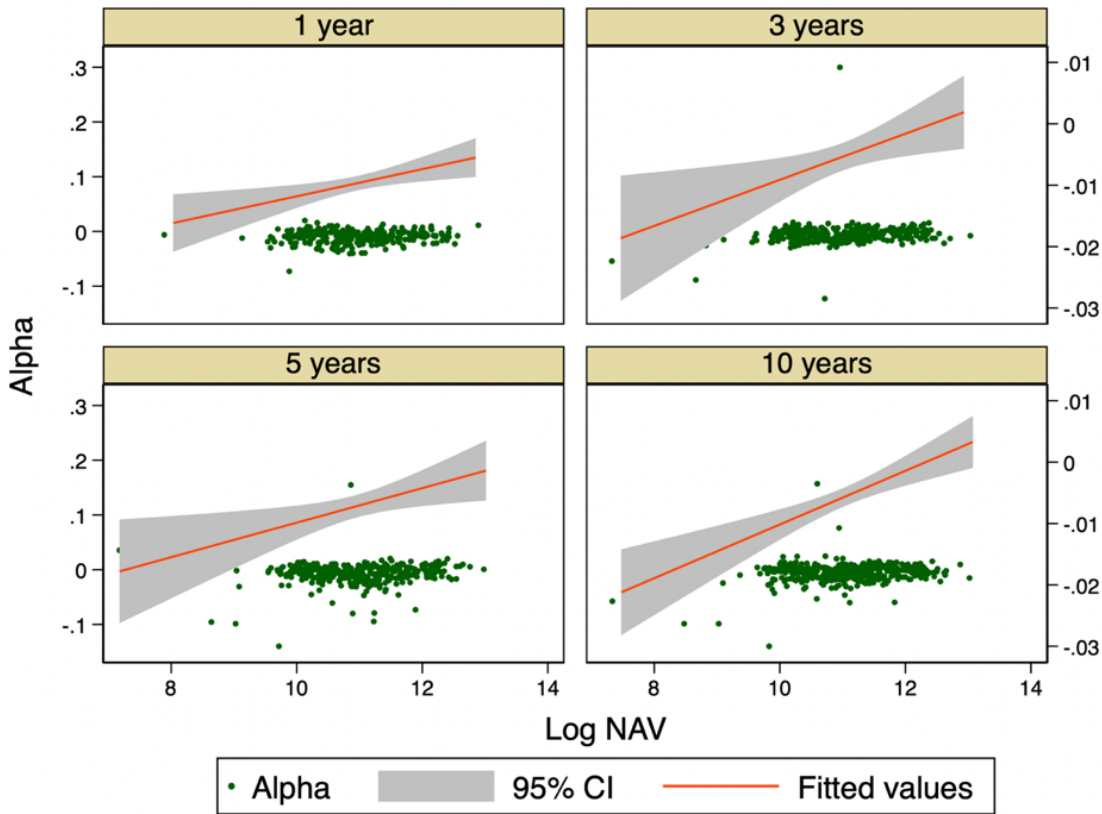


Fig. 3: Plot indicating alpha (using jitter) vs log average NAV including linear fitted value.

Secondly, it is possible that the fund manager may be able to optimize higher expenses as NAV grows to get an edge to exploit the slight inefficiency of the emerging markets which can result in positive alpha even though very low. Perhaps this finding is resonance to study by Pandey & Sharma (2024). They argued that emerging market funds’ investors tend to behave differently. Investors allocate money for alpha and avoid giving distorted income for other factor-related returns to fund managers. Despite the absence of persistence, Chauhan (2019) discovered that winner funds continue to earn significantly higher alphas than loser funds for an extended period.

Table 6. Alpha as function of lag NAV.

	Alpha (rec)	Alpha (rec)
NAV	1.30e-15***	2.37e-15***
	(15.37)	(4.07)
L.NAV		-7.75e-18
		(-0.01)
L2.NAV		-1.90e-16
		(-0.23)
L3.NAV		3.70e-16
		(0.45)

	L4.NAV	2.76e-16
		(0.33)
	L5.NAV	-1.55e-15**
		(-2.69)
	cons	-0.00559***
		-0.00453***
		(-7.73)
		(-60.73)
	N	26663
		24531

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

To further investigate the association between alpha and NAV, we have calculated alpha of each fund available from Jan 2014 to December 2023 using recursive rolling windows with minimum prior 10 months observation. A panel regression results of NAV with the associated Alpha is indicated in Table 6. We found that NAV has significant positive correlation with alpha, however the impact is very low. For a billion IDR increase in NAV will likely result in 0.0013 alpha. We also found from the dynamic model that even though current NAV has positive correlation, the NAV from the previous months (L1, L2, L3 and L4) shows no significant correlation to with the recent alpha, with the exception of NAV from previous 5 months (L5).

5.3. Alpha and Beta as Predictors for Value-added

We developed a cross-sectional regression model to calculate alpha against the value-added. In this first model we use the value-added of equity funds from the market return. (refer to Table 7). We found a significant correlation between alpha and value creation at a 0.01 significance level, which remains consistent across various time spans (1, 3, 5, and 10 years). Interestingly, we discovered that beta is an insignificant predictor for value-added, with the exception of the 1-year time span, which indicates a 0.05 significance level. Therefore, funds with higher volatility does not a necessary deliver higher value-added.

Table 7. Value-added to market return as a function of alpha and beta.

	1-year (2023)	3-years (2021-2023)	5-years (2019-2023)	10-years (2014-2023)
	Value-added to Rm	Value-added to Rm	Value-added to Rm	Value-added to Rm
alpha	2.07391e+12***	1.80270e+12***	4.95829e+12***	3.72565e+12***
	(4.36)	(3.97)	(6.66)	(4.39)
beta	-2.56102e+10*	-3.23462e+10*	-1.74663e+10	-2.94207e+10
	(-2.32)	(-2.01)	(-0.62)	(-0.97)
_cons	1.43803e+10	-1.44658e+10	-5.41109e+10	-6.73161e+10*
	(1.36)	(-0.97)	(-1.76)	(-2.04)
N	253	319	367	425

Notes: t statistics in parentheses.
Significance level: * p < 0.05, ** p < 0.01, *** p < 0.001

In our second model, we utilized alpha and beta to predict the value-added of equity funds, calculated against the benchmark index fund, and the results are presented in Table 8. Our findings indicate a significant correlation between alpha and value creation at a 0.01 significance level, which remains consistent across various time spans (1, 3, 5, and 10 years). Furthermore, compared to the market model, the regression coefficient for the TIF benchmark is higher, perhaps due to the diversification under the reference index. In addition, we discovered that beta is negatively correlated with value-added in the 1-year time span. This suggests that investors may be rewarded with higher value-added on funds that have a contrarian strategy to the benchmark. However, we did not find any correlation for other time spans.

Table 8. Value-added to TIF return as a function of alpha and beta.

	1-year (2023)	3-years (2021-2023)	5-years (2019-2023)	10-years (2014-2023)
	Value-added to Rb_TIF	Value-added to Rb_TIF	Value-added to Rb_TIF	Value-added to Rb_TIF
alpha	1.98456e+12*** (3.52)	2.19191e+12*** (6.58)	5.23001e+12*** (7.66)	4.04162e+12*** (5.32)
beta	-2.66456e+10* (-2.03)	-1.61957e+10 (-1.37)	-5.28390e+09 (-0.20)	-2.73519e+10 (-1.01)
_cons	8.72920e+09 (0.70)	4.88649e+09 (0.44)	-4.31588e+10 (-1.53)	-4.28359e+10 (-1.44)
N	253	319	367	425

Notes: *t* statistics in parentheses.

Significance level: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

In our third model, we utilized alpha and beta to predict the value-added of equity funds from the benchmark ETF, and the results are presented in Table 9. We discovered a significant positive correlation between alpha and value creation at a 0.01 significance level, which remained consistent across various time spans (1, 3, 5, and 10 years). However, the 5-year time span exhibited a higher correlation, which could be attributed to significant return variation during the bull market in 2020-2021 after the COVID-19 pandemic. Furthermore, we observed that the trend of the regression coefficient for alpha increased with an increased time span. Conversely, beta showed an insignificant negative correlation with value-added, except for the 1-year time span, which indicates a 0.05 significance level.

Table 9. Value-added to ETF return as a function of alpha and beta.

	1-year (2023)	3-years (2021-2023)	5-years (2019-2023)	10-years (2014-2023)
	Value-added to Rb ETF	Value-added to Rb ETF	Value-added to Rb ETF	Value-added to Rb ETF
alpha	2.19178e+12*** (4.59)	2.27979e+12*** (6.77)	5.37814e+12*** (8.13)	3.98864e+12*** (5.07)

beta	-2.56229e+10*	-1.35486e+10	438439315.2	-3.11463e+10
	(-2.31)	(-1.13)	(0.02)	(-1.11)
_cons	1.70020e+10	8.34837e+09	-3.15044e+10	-4.38042e+10
	(1.60)	(0.75)	(-1.15)	(-1.43)
N	253	319	367	425

Notes: *t* statistics in parentheses.

Significance level: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Based on the results, it can be inferred that equity funds with higher alpha tend to provide positive value-added to investors. This is because these funds deliver abnormal returns, which is the excess return to the benchmark. Value-added account for fund's net asset value to measure the abnormal return in dollar value. Alpha and value-added are complementary measures that can be utilized to evaluate fund performance and fund manager skills. The benefit of using value-added is that it provides investors with a more straightforward measure, such as the dollar value being delivered. It supports Ben-David et al. (2022) conclusion that mutual fund investors tend to rely on simple signals. Contrary to popular belief, they do not participate in sophisticated learning about manager's alpha.

The findings of this study have practical implications for fund managers, as they can reassess the effectiveness of their active management strategies. They may employ strategies that deliver higher value creation in the short run. Over time, the fund manager may liquidate lower value-added funds and consolidate them with a higher value-added fund. However, Booth (2022) argued that in order to fulfil their fiduciary duty, fund managers need to ensure that their asset allocation is diversified for optimum returns. Therefore, fund managers need to stick with a portfolio that correlates with the market capitalization. Another crucial implication of this study is that a fund with a higher value-added tends to attract more fund inflows from investors, increasing the fund size. This, in turn, translates into fees being collected, creating opportunities for managing larger funds and securing higher management compensation.

In addition, this insight may prove useful to investors when assessing their portfolio allocation. However, caution should be exercised by investors, even those with a significant risk appetite, when investing in actively managed funds. Taking insight from Tapver's (2023) observations in the CEE market, investors may prefer small actively managed funds during stable or growing market conditions, and they may also favor minority large funds with higher alpha. Nevertheless, as emphasized by Ellis (2012), identifying high-performing managers in advance remains a challenge. Therefore, ordinary investors may benefit more from investing in mutual funds that hold shares in proportion to the market capitalization of all possible portfolio stocks.

6. Conclusion

This study examines the relationship between equity fund performance and value creation in the Indonesian market, an emerging economy. By employing an improved empirical strategy that incorporates investable assets as alternative benchmarks, we find a significant positive correlation between fund alpha and value creation across various time spans. However, our results also reveal that the majority of equity funds in the sample fail to deliver positive value-added to investors. This finding suggests that investors in emerging markets may benefit from considering alternative investable assets that offer average market return performance at a lower cost. Our study highlights the importance of using both alpha and value-added as

complementary measures of fund performance.

The study also provides valuable insights for fund managers and investors in emerging markets. It will enable fund managers to reassess the efficacy of active management strategies. In the short run, they could exploit strategies that deliver higher value creation. Over time, the fund manager may liquidate lower value-added funds and consolidate them with a higher value-added fund. Alternatively, offer a portfolio family that correlates with the benchmark portfolio. The insight could also assist investors in assessing the appropriateness of their portfolio allocation. Future research could explore the factors contributing to the observed negative value added for equity funds for longer observation period with more frequent data, explore further tradable assets to represent more appropriate benchmarks and investigate potential strategies for improving fund performance in emerging economies.

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