

## PERFORMANCE OF ESG FUNDS IN EMERGING ASIAN COUNTRIES: A COMPARATIVE ANALYSIS

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### Abstract

*The study has primarily been undertaken to examine the performance of ethical funds in comparison to the mutual funds that have been serving the investors with the profit motive. It focuses on evaluating the select emerging Asian countries on the basis of their performance which is measured by certain parameters.*

*The primary purpose of this study is to provide a detailed analysis of the increasingly evolving socially responsible asset management market and go beyond aggregate financial comparisons in developed countries between SRI and traditional mutual funds. To do so, we have studied 137 socially conscious mutual funds and 137 traditional funds which are closely matched based on age, objective and size. The key feature of this paper involves an empirical analysis of mutual fund performance measured by Sharpe ratio, Treynor ratio and Jensen alpha. For the purpose of this study the mutual funds are distinguished on the basis of their investment objective and were named as ESG funds and conventional mutual funds.*

*A comparison was drawn between the ESG funds and matched conventional mutual funds of the five emerging Asian countries namely, China, India, Thailand, South Korea, and Taiwan using five parameters. The Sharpe ratio, Jensen's Alpha, excess return of funds over the index, Treynor ratio and last 5 years Returns. The results shows that for China, the last 5 years returns are significantly higher for the ESG funds. The other four parameters are not significantly different for the matched conventional funds. In India, ESG funds have performed better in terms of generating returns versus the index whereas for the other four parameters the difference in ESG and matched conventional is found to be insignificant. In South Korean markets, the matched conventional funds have performed significantly better in terms of Sharpe ratio and rest of the parameters are insignificantly different. In Thailand also, the matched*

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*conventional funds have outperformed in terms of Sharpe ratio whereas, the other parameters are found to be insignificantly different. In Taiwan there is no significant difference between the performance of ESG funds and the matched funds. The selection of ESG and SRI sustainability stocks by the investors will provide them with the additional opportunity to diversify their portfolio without sacrificing on the financial grounds. Moreover, these options also provide them a set of safer haven during economic downturn. It is demonstrated by the analysis that the ESG funds are less sensitive to the risk factors, so in times of crisis, the ESG funds are expected to sail through the deep waters.*

**Keywords:** SRI, ESG, Ethical funds, Matched pair, Emerging Asian countries, sustainability

**JEL Classification:** D14, G11, G40, O16



## **1. Introduction**

Environment, Social and Governance funds (ESG funds) are vehicles that pool and subsequently channelize the wealth of their clients into funds that are classified as socially responsible. Haigh and Hazelton (2004) provides “it is the practice of directing investment funds in a way that investors’ financial objectives are combined with their commitment to social concern. This concern can be justice, economic development, peace and/or a healthy environment.” The aim of mutual funds dedicated to socially responsible investment is to provide the investor with better risk-adjusted returns by engaging in companies with corporate social responsibility excellence. Especially after witnessing the pandemic which ceases the life in different context from economy to human mobility, socially responsible behavior while investing is least we can do to ensure survival in future, before jeopardizing the nature completely.

During the last couple of decades, this new form of investing strategy has emerged. This new kind of investing focus on integrating non-financial criteria into the investment process; these criteria are usually related to ethical, “Environmental, social and governance” matters. It has been shown that funds that incorporate these kinds of criteria have increased tremendously and the inflows into these funds have also grown a lot (Sandberg, 2009). The reason for this according to Dijk de Groot and Nijhof (2015) is that investors have shown an increased interest in what impact their investments have on the environment and therefore a demand for funds that fulfill investors’ preferences has emerged. Although socially responsible investments are a relatively recent sector, interest in this area is rapidly growing. Nonetheless, it is popular to use many terms interchangeably due to the shortage of qualified practitioners in this field as well as the weak regulatory and legal structure. In addition, investing where not just profit maximization is sought reflects investments that are also in line with the personal values of the investor. The foremost promoter of socially responsible investment is presently the PRI (Principles for Responsible Investment) alliance group of the United Nations. This investor effort sets the global outlook for prudent investment and most scholars follow the terminology of PRI. PRI defines Responsible Investing as “an approach to investing that aims to incorporate ESG factors into investment decisions, to better manage risk and generate sustainable, long term returns.”

This study brings out the nuances between the performances of the ESG funds with the Non ESG matched funds in five Emerging Asian Countries on the basis of certain ratios computed. The chapter instigates with Table 1 which displays the number of ESG funds examined in each country and their matched conventional portfolios. The matching of conventional counterparts is done on the basis of age (history length in number of days) and size (assets under management in US \$ million) of the funds. The Sharpe ratio, Treynor ratio, Jensen alpha, last five year's returns and return versus index were then computed for these ESG funds and their matched conventional counterparts. These ratios were compared using the independent sample T Test for equality of means using SPSS.

The conventional mutual fund that matches these attributes of the ESG fund is herein referred as its Matched conventional counterpart. To find out the matched conventional counterpart of every ESG fund, methodology of Matching pair Technique (Mallin et al. 1995) has been followed. The matched conventional counterparts have been found to bring both ESG and non-ESG funds on similar platform of comparison. This was done with a view to rule out the difference in financial performance of ESG and non-ESG funds on account of the difference in their age and size.

**Table 1: The Number of ESG Funds and the Matched Conventional Funds in 5 Emerging Asian Countries**

Country	ESG Funds	Matched Conventional Funds	Total Number of Funds
India	15	15	30
China	39	39	78
Taiwan	5	5	10
South Korea	51	51	102
Thailand	27	27	54
<b>Total</b>			<b>274</b>

Source: Research compilations

### 1.1 Country Selection Criteria

With a view to draw a comparative analysis between ESG funds and their match conventional funds on the basis of performance which is measured by using certain parameters is done for emerging Asian countries which are selected according to MSCI. MSCI Inc. (formerly Morgan

Stanley Capital International and MSCI Barra), is a global provider of equity, fixed income, hedge fund stock market indices, and multi asset portfolio analysis tools. It publishes the MSCI BRIC, MSCI World and MSCI EAFE Indices. For this part of analysis five emerging Asian countries were considered namely India, China, Thailand, South Korea and Taiwan.

## **2. Comparative Analysis of Performance of ESG Funds and Conventional Funds of Emerging Asian Countries on The Basis of Certain Parameters**

With a view to achieve the objective to compare and analyse the financial performance of ESG funds with their matched conventional counterparts for emerging Asian countries on the basis of the total risk adjusted return, systematic risk adjusted return, return on a portfolio in excess of its theoretical expected return, excess of fund return over the benchmark return and last 5 years return the following hypotheses have been drafted for convenience of interpretation on the basis of each parameter.

- H<sub>01</sub>:** There is no significant difference in the Sharpe ratio of ESG funds with their matched conventional counterparts for China/ India/ Thailand/ South Korea/ Taiwan.
- H<sub>11</sub>:** There is significant difference in the Sharpe ratio of ESG funds with their matched conventional counterparts for China/ India/ Thailand/ South Korea/ Taiwan.
- H<sub>02</sub>:** There is no significant difference in the Treynor ratio of ESG funds with their matched conventional counterparts for China/ India/ Thailand/ South Korea/ Taiwan.
- H<sub>12</sub>:** There is significant difference in the Treynor ratio of ESG funds with their matched conventional counterparts for China/ India/ Thailand/ South Korea/ Taiwan.
- H<sub>03</sub>:** There is no significant difference in the Jensen's Alpha of ESG funds with their matched conventional counterparts for China/ India/ Thailand/ South Korea/ Taiwan.
- H<sub>13</sub>:** There is significant difference in the Jensen's Alpha of ESG funds with their matched conventional counterparts for China/ India/ Thailand/ South Korea/ Taiwan.
- H<sub>04</sub>:** There is no significant difference in the return versus index of ESG funds with their matched conventional counterparts for China/ India/ Thailand/ South Korea/ Taiwan.
- H<sub>14</sub>:** There is significant difference in the return versus index of ESG funds with their matched conventional counterparts for China/ India/ Thailand/ South Korea/ Taiwan.

**H<sub>05</sub>:** There is no significant difference in the last 5 year’s return of ESG funds with their matched conventional counterparts for China/ India/ Thailand/ South Korea / Taiwan.

**H<sub>15</sub>:** There is significant difference in the last 5 year’s return of ESG funds with their matched conventional counterparts for China/ India/ Thailand/ South Korea / Taiwan.

## 2.1 Comparative Performance Analysis of ESG Funds and Conventional Funds of China

Sharpe Ratio: Measures like standard deviation and beta are used as a proxy for risk in calculating risk adjusted measures of return. One of the most common measures is the Sharpe Ratio, which is a portfolio’s return in excess of the risk free rate divided by the standard deviation of the portfolio. This measure tells us the ratio of reward per unit of risk: the higher the number the better. It can be witnessed from the table 2 that Chinese Ethical and conventional funds are outperformers by having the highest Sharpe ratio. The average Sharpe ratio is 3.3 for the ESG funds and 4.4 for the conventional funds.

**Table 2: Group Statistics of Ratios of ESG Funds and Matched Conventional Funds in China**

	Ethical or Conventional	N	Mean	Std. Deviation	Std. Error Mean
Sharpe	ESG	39	3.3289	4.77123	.76401
	Conventional (matched)	39	4.4657	6.91196	1.10680
J alpha	ESG	13	9.6172	10.75560	2.98307
	Conventional (matched)	11	10.4634	23.90476	7.20756
Ret vs index	ESG	14	-.4519	.99251	.26526
	Conventional (matched)	11	-.2758	.79095	.23848
Trey nor	ESG	14	.3317	.38888	.10393
	Conventional (matched)	11	.7335	1.82909	.55149
Last 5yrs ret	ESG	13	32.5265	21.47836	5.95702
	Conventional (matched)	12	18.6563	17.25037	4.97975

Source: Research output

Jensen's Alpha lets an investor assess how much extra return a fund has received above the anticipated return, while taking into account the market's non-diversifiable risk. The projected return is determined using the CAPM (Capital Asset Pricing Model). A positive Jensen's alpha means that the fund managers have been able to generate higher returns than the market (which in our case are the underlying indexes) by careful stock selection. Jensen's alpha = (portfolio return – expected return (CAPM)).

As can be comprehended from table 2 the Chinese ESG funds has an alpha of 9.60 and 10.46 for the conventional funds. This means that fund manager has been able to pull out a return 9.60% higher than the expected. For each expected risk function, the Treynor ratio measures how much an investment has received above the risk-free market rate of return. Whereas the Sharpe ratio considers the overall investment risk, the Treynor ratio considers only the systemic risk, ensuring the non-systematic risk is entirely diversified in portfolio growth. Systemic risk or non-diversifiable risk is the risk in the Treynor ratio, expressed by beta. Table 2 displays that the mean treynor ratio is slightly better for conventional funds as it is 0.73 for conventional funds and 0.33 for ethical funds but the difference is statistically insignificant.

Last 5 years' Returns keeps a track of long term returns for ethical and conventional funds. Interestingly, it was found that the long term returns of the Ethical funds are higher than that of the conventional (matched) funds. Which evidently proves that the Ethical funds who invest their money in ESG companies will perform well in long run as it takes time to incorporate ESG practices in an industrial set up and also these strategies will bring returns only after a lag. The last 5 years returns for an ethical fund averages around 32.52% whereas, for a conventional fund it averages around 18.65%.

If we compare the return of the fund versus Index's return then they both come out to be negative which means that the Index returns are higher than the fund's return. The reason for the higher index return can be the level of diversification in the index. For the ethical funds the average negative return versus index is 0.45 and 0.27 negative return versus index for the matched conventional funds. In table 3 the mean difference is calculated by subtracting the mean of the conventional funds from the mean of the ethical funds. The negative *t* value indicates that the mean Sharpe ratio, Jensen's alpha, Treynor's ratio and the fund return versus

index is high for the conventional funds but none of them is statistically significant. So, as opposed to the belief that the conventional funds perform better in terms of these parameters is proven wrong and the Sharpe ratio, Jensen alpha and Treynor ratio is not statistically different for ethical and conventional funds in the Chinese financial markers.

However, the positive t value of the last 5 years returns indicate that it is higher for the ethical funds and the p value is significant at a level of 10% as the  $p < 0.10$ . So, we can encapsulate that the ethical funds are able to generate higher last 5 years average returns as compared to the matched conventional funds in China. Hamilton et al. (1993) and Statman (2000) have contrasted the returns of ethical and standard US funds to each other, as well as S&P 500 and Domini Social Index (DSI), respectively. Their alpha Jensen stated that risk-adjusted returns of ethical mutual funds are no different from traditional funds. The managerial implication of this result could be to align the interest of investors who want to satisfy their conscience by doing good for the environment, society or public at large and have a long term horizon of their return window.





**Table 3: Output of Independent Samples T Test for Equality of Means for ESG Funds and Matched Conventional Funds in China**

Ratios Computed		Levene's Test for Equality of Variances		T Test for Equality of Means						
		F	Sig.	t	df	Sig. (2 tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Sharpe	Equal variances assumed	2.257	.137	-.845	76	.401	-1.13679	1.34488	-3.81536	1.54177
	Equal variances not assumed			-.845	67.513	.401	-1.13679	1.34488	-3.82082	1.54723
J alpha	Equal variances assumed	2.547	.125	-.115	22	.910	-.84613	7.36095	-16.11182	14.41955
	Equal variances not assumed			-.108	13.392	.915	-.84613	7.80049	-17.64806	15.95580
Ret vs index	Equal variances assumed	.043	.837	-.480	23	.636	-.17611	.36680	-.93489	.58267
	Equal variances not assumed			-.494	22.986	.626	-.17611	.35670	-.91403	.56181
Trey nor	Equal variances assumed	4.704	<b>.041**</b>	-.804	23	.430	-.40183	.50001	-1.43618	.63252
	Equal variances not assumed			-.716	10.713	.489	-.40183	.56120	-1.64108	.83741
Last 5yrs ret	Equal variances assumed	2.057	.165	1.770	23	<b>.090*</b>	13.87013	7.83450	-2.33677	30.07702
	Equal variances not assumed			1.786	22.595	.087	13.87013	7.76428	-2.20747	29.94773

\*\*\* significant at 1% level, \*\*significant at 5% level, \* significant at 10% level

Source: Research output

## 2.2 Comparative Performance Analysis of ESG Funds And Conventional Funds of India

**Table 4: Group Statistics of Ratios of ESG Funds and Matched Conventional Funds in India**

	ESG or Conventional	N	Mean	Std. Deviation	Std. Error Mean
Last 5 years return	ESG	10	43.2751	7.76414	2.45524
	Conventional (matched)	10	35.5372	11.92687	3.77161
Sharpe ratio	ESG	13	-1.8633	1.11847	.31021
	Conventional (matched)	14	-2.4752	1.53572	.41044
J alpha	ESG	11	-5.4793	4.09669	1.23520
	Conventional (matched)	9	-6.3003	10.06573	3.35524
Ret vs index	ESG	12	.1146	.19992	.05771
	Conventional (matched)	10	-.0549	.16937	.05356
Trenyor	ESG	10	-.6699	1.40835	.44536
	Conventional (matched)	9	-.0262	.81380	.27127

Source: Research output

The table 4 confirms that for Indian markets, Sharpe ratio, Jensen's alpha, Treynor ratio are all negative for both ethical as well as conventional (matched) portfolios. It indicates that Indian mutual funds markets are not working in the best possible way in terms of reaping returns for the unitholders, may it be the excess return over market, or the risk adjusted returns. Only the last 5 years returns are positive 43.27% for ethical funds and positive 35.53% for conventional funds. So, the Indian ethical funds have performed better than the conventional matched funds. Some have historically argued that taking an ESG approach could mean sacrificing returns. Work however indicates otherwise. There is no lack of ways to adopt an ESG model, but maybe the simplest method is to buy ESG-focused funds that have shown to deliver comparable returns to their benchmarks.

From the output table 5 it is apparent that although the positive signs of the values in the mean difference column indicates that the Sharpe ratio, Jensen alpha etc. are higher for the ethical funds in the Indian markets but are found to be insignificant. So we cannot reject the null hypotheses and can say that the Sharpe ratio, Jensen alpha, treynor ratio and last 5 years returns

are not statistically different for ethical and matched conventional funds but return versus index has been significantly higher for ESG funds in India. These findings are in consonance with Bauer et al. (2005) who reviewed 103 German, US and UK ethical mutual funds over the period 1990-2001. Using Carhart multi factor model to evaluate the performance of ethical and conventional mutual funds, they found no evidence of significant differences in risk adjusted returns between ethical and conventional funds. The inference that can be drawn is that the investors who want to invest passively can earn higher returns by investing in the ESG funds to satisfy twin objectives of doing good while doing well, which is a win-win solution for investors as well as the society, environment and other stakeholders and also for the companies who are trying to follow the difficult path of ethics, keeping the society at large in mind.

### **2.3 Comparative Performance Analysis of ESG Funds And Conventional Funds of South Korea**

The table 6 illustrates that for South Korean markets, Sharpe ratio, Jensen's alpha, treynor ratio are all negative for both ethical as well as conventional (matched) portfolios. That indicates that South Korean mutual funds markets are not able to generate a fair amount of returns may it be the excess return over market, or the risk adjusted returns. Only the returns versus the index are positive 0.4932% for ethical funds and positive 0.3139% for conventional funds. So, the Korean ethical funds have performed better than the conventional matched funds. The output of the independent sample T Test in Table 7 exhibits that the negative sign of mean difference of Sharpe ratio, Jensen alpha and last 5 years returns indicate that these ratios are higher for the conventional matched funds but the p values were found to be significantly higher Sharpe ratio for conventional funds. The positive signs of the values in the mean difference column indicates that the treynor ratio and return versus index are higher for the ethical funds in the Korean markets but are found to be insignificant.

**Table 5: Output of Independent Samples T Test for Equality of Means for ESG funds and Matched Conventional Funds in India**

Ratios Computed		Levene's Test for Equality of Variances		T Test for Equality of Means						
		F	Sig.	t	df	Sig. (2 tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Last5years return	Equal variances assumed	6.289	.022**	1.719	18	.103	7.73790	4.50036	-1.71700	17.19280
	Equal variances not assumed			1.719	15.467	.105	7.73790	4.50036	-1.82924	17.30504
Sharpe ratio	Equal variances assumed	.824	.373	1.175	25	.251	.61191	.52059	-.46027	1.68409
	Equal variances not assumed			1.189	23.712	.246	.61191	.51448	-.45061	1.67442
J alpha	Equal variances assumed	3.016	.100	.248	18	.807	.82106	3.31371	-6.14080	7.78292
	Equal variances not assumed			.230	10.166	.823	.82106	3.57539	-7.12780	8.76992
Ret vs index	Equal variances assumed	.695	.414	2.119	20	.047**	.16948	.07998	.00265	.33631
	Equal variances not assumed			2.153	19.987	.044	.16948	.07873	.00524	.33373
Trey nor	Equal variances assumed	.571	.460	-1.201	17	.246	-.64368	.53617	-1.77489	.48753
	Equal variances not assumed			-1.234	14.649	.237	-.64368	.52147	-1.75749	.47013

\*\*\* significant at 1% level, \*\*significant at 5% level, \* significant at 10% level

Source: Research output

**Table 6: Group Statistics of Ratios of ESG Funds and Matched Conventional Funds in South Korea**

	ESG or Conventional	N	Mean	Std. Deviation	Std. Error Mean
Sharpe	ESG	51	-2.5203	1.76565	.24724
	Conventional (matched)	51	-.2111	5.24155	.73396
J alpha	ESG	16	-7.2631	10.59307	2.64827
	Conventional (matched)	21	-4.3371	10.16819	2.21888
Trey nor	ESG	17	-.8305	1.12282	.27232
	Conventional (matched)	26	-.9190	1.78121	.34932
Ret vs index	ESG	18	.4932	.56956	.13425
	Conventional (matched)	26	.3139	.84169	.16507
Last 5yrs ret	ESG	34	-5.5676	12.78813	2.19315
	Conventional (matched)	34	-1.7751	11.46307	1.96590

Source: Research output

So, we cannot reject the null hypotheses and can say that the Jensen alpha, treynor ratio, return versus index and last 5 years returns are not statistically different for ethical and matched conventional funds. We can conclude that the Sharpe ratio is higher for the conventional funds by almost 2.3% in South Korea. As Kreander et al. (2005) found out of all 18 foreign pairs the ethical funds perform better on average according to all the indicators. However, only the ethical funds have higher Jensen and size-adjusted measures for the domestic category of 24 funds while the non-ethical funds have marginally better Sharpe and Treynor measures on average. It can be concluded that the total risk adjusted returns are better for conventional portfolios as compared to ESG funds that could be because the level of compensation investors are receiving for the additional level of risk they are taking with the investment is good. Although, the risk measured by Sharpe ratio is both the downward variability and upward variability. So, the risk in ESG funds could also be because of high upward variability in returns also. The managerial implication of this outcome could be used for the risk lovers that if they invest in conventional mutual funds they will be adequately compensated for bearing the risk. However, the mean Sharpe ratio of ESG funds as well as matched conventional funds are negative.

**Table 7: Output of Independent Samples T Test for Equality of Means for ESG Funds and Matched Conventional Funds in South Korea**

Ratios Computed		Levene's Test for Equality of Variances		T Test for Equality of Means						
		F	Sig.	t	df	Sig. (2 tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Sharpe	Equal variances assumed	25.240	.000***	-2.982	100	.004***	-2.30924	.77449	-3.84580	-.77267
	Equal variances not assumed			-2.982	61.203	.004	-2.30924	.77449	-3.85781	-.76066
J alpha	Equal variances assumed	.369	.547	-.852	35	.400	-2.92592	3.43537	-9.90008	4.04824
	Equal variances not assumed			-.847	31.726	.403	-2.92592	3.45496	-9.96583	4.11399
Treynor	Equal variances assumed	1.476	.231	.182	41	.856	.08853	.48587	-.89271	1.06976
	Equal variances not assumed			.200	40.974	.843	.08853	.44293	-.80601	.98306
Ret vs index	Equal variances assumed	.856	.360	.787	42	.436	.17934	.22802	-.28082	.63949
	Equal variances not assumed			.843	41.992	.404	.17934	.21277	-.25005	.60872
Last 5yrs ret	Equal variances assumed	.391	.534	-1.288	66	.202	-3.79247	2.94528	-9.67291	2.08796
	Equal variances not assumed			-1.288	65.226	.202	-3.79247	2.94528	-9.67421	2.08927

\*\*\* significant at 1% level, \*\*significant at 5% level, \* significant at 10% level

Source: Research Output

## 2.4 Comparative Performance Analysis of ESG Funds And Conventional Funds of Thailand

**Table 8: Group Statistics of Ratios of ESG Funds and Matched Conventional Funds in Thailand**

	ESG or Conventional	N	Mean	Std. Deviation	Std. Error Mean
Sharpe	ESG	27	-3.7786	1.29968	.25012
	Conventional (matched)	27	-3.1495	.76870	.14794
J alpha	ESG	17	.9134	6.67463	1.61883
	Conventional (matched)	24	2.8999	8.66525	1.76879
Ret vs index	ESG	17	-.1373	.28729	.06968
	Conventional (matched)	24	-.3389	.55734	.11377
Trey nor	ESG	17	-.5771	.21205	.05143
	Conventional (matched)	24	-.5675	.21899	.04470
Last 5 yrs ret	ESG	10	8.8067	11.21456	3.54635
	Conventional (matched)	9	5.4867	12.12078	4.04026

Source: Research Output

The table 8 displays that for the markets of Thailand, the Sharpe ratio, treynor ratio and return versus index are all negative for both ethical as well as conventional (matched) portfolios. It indicates Thailand mutual funds markets are not able to generate fair amount of returns, only the last 5 years returns are positive 8.806% for ethical funds and positive 5.486% for conventional funds. So, in Thailand ethical funds have performed better than the conventional matched funds in terms of last 5 years returns. Output of the independent sample T Test in table 9 depicts the negative sign of mean difference of Sharpe ratio, Jensen alpha and treynor ratio indicating that these ratios are higher for the conventional matched funds but only Sharpe ratio is statistically significantly higher for conventional funds whereas other parameters are not. The positive signs of the values in the mean difference column indicates that the last 5 years returns and return versus index are higher for the ethical funds in the Thailand markets but are found to be insignificant.

**Table 9: Output of Independent Samples T Test for Equality of Means for ESG Funds and Matched Conventional Funds in Thailand**

Ratios Computed		Levene's Test for Equality of Variances		T Test for Equality of Means						
		F	Sig.	t	df	Sig. (2 tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Sharpe	Equal variances assumed	.164	.688	-2.165	52	.035**	-.62911	.29060	-1.21224	-.04599
	Equal variances not assumed			-2.165	42.207	.036	-.62911	.29060	-1.21547	-.04275
J alpha	Equal variances assumed	1.180	.284	-.792	39	.433	-1.98656	2.50730	-7.05806	3.08494
	Equal variances not assumed			-.829	38.668	.412	-1.98656	2.39776	-6.83781	2.86469
Ret vs index	Equal variances assumed	9.019	.005***	1.365	39	.180	.20162	.14769	-.09710	.50035
	Equal variances not assumed			1.511	36.175	.139	.20162	.13341	-.06890	.47214
Treydor	Equal variances assumed	2.438	.126	-.139	39	.890	-.00956	.06853	-.14817	.12905
	Equal variances not assumed			-.140	35.293	.889	-.00956	.06814	-.14785	.12873
Last 5yrs ret	Equal variances assumed	.913	.353	.620	17	.543	3.32003	5.35271	-7.97320	14.61327
	Equal variances not assumed			.618	16.415	.545	3.32003	5.37590	-8.05301	14.69307

\*\*\* significant at 1% level, \*\*significant at 5% level, \* significant at 10% level

Source: Research Output



So, we can conclude that the Sharpe ratio is higher for the conventional funds by almost 0.629% in Thailand. Findings by Kreander et al. (2005) indicate that the performance metrics do not reflect a major difference between ethical and non-ethical funds. These were similar to those reached by Mallin et al. (1995).

## 2.5 Comparative Performance Analysis of ESG Funds And Conventional Funds of Taiwan

The table 10 establishes that for the markets of Taiwan, the Sharpe ratio, treynor ratio and return versus index are all negative for both ethical as well as conventional (matched) portfolios. The Jensen alpha is positive 5.34% for the ethical funds and 1.366% for matched funds and last 5 years returns are positive 1.782% for ethical funds and positive 7.267% for conventional funds. So, the Thailand ethical funds have performed better than the conventional matched funds in terms of last 5 years returns and Jensen alpha.

**Table 10: Group Statistics of Ratios of ESG Funds and Matched Conventional Funds in Taiwan**

	<b>Ethical or Conventional</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Std. Error Mean</b>
Sharpe	ESG	5	-1.9828	1.03451	.46265
	Conventional (matched)	5	-1.4890	5.66671	2.53423
J alpha	ESG	3	5.3457	8.87988	5.12680
	Conventional (matched)	5	1.3660	9.46737	4.23394
Ret Vs index	ESG	3	-.0637	.36777	.21233
	Conventional (matched)	5	-.1920	.07835	.03504
Treynor	ESG	3	-.2507	.15674	.09049
	Conventional (matched)	5	.2178	1.53679	.68727
Last 5yrs ret	ESG	3	1.7820	6.41164	3.70176
	Conventional (matched)	3	7.2670	2.56176	1.47903

Source: Research output

Table 11 exhibits the negative sign of mean difference of Sharpe ratio, Treynor ratio and last 5 years returns which indicates that these ratios are higher for the conventional matched funds but it was found that none of them is statistically significantly different. The positive signs of the values in the mean difference column indicates that the Jensen alpha and return versus index are higher for the ethical funds in the Taiwan n markets but are found to be insignificant. Findings by Kreander et al. (2005) indicate that the performance metrics do not reflect a major difference between ethical and non-ethical funds. These were similar to those reached by Mallin et al. (1995).

### 3. Conclusion

A comparison was drawn between the ESG funds and matched conventional mutual funds of the five emerging Asian countries namely, China, India, Thailand, South Korea, and Taiwan using five parameters The Sharpe ratio, Jensen's Alpha, excess return of funds over the index, Treynor ratio and last 5 years Returns

The results show that for China, the last 5 years returns are significantly higher for the ESG funds. The other four parameters are not significantly different for the matched conventional funds. This finding is in line with the fact that ESG is a quality criterion for mutual funds. In long term, the ESG funds are able to generate higher returns because it takes time for them to reap benefits. Bauer et al (2005) suggested that ethical funds are less vulnerable to price volatility than traditional funds as the investment's primary emphasis is more on growth than on current valuation. In their intricate work Nofsinger and Varma (2014) indicated that ethical companies in turbulent times are better managed and thus more stable. The meaning of their recommendation is that in a volatile environment, ethical funds may be better and they found that U.S. ethical funds are asymmetric because they outperform traditional funds in times of crisis but underperform in times of non-crisis due to their investments in stable companies.

In India, ESG funds have performed better in terms of generating returns versus the index whereas for the other four parameters the difference in ESG and matched conventional is found to be insignificant. This finding tells us that these ESG funds have outperformed the benchmark index which itself is a well-diversified set of portfolios in a country. So, we can say that the ESG funds in India have very bright future. The other parameters are also higher for ethical funds but have not been able to prove their statistical significance, nevertheless, we should keep faith in these special purpose vehicles for investment and let them prove their fertility.

**Table 11: Output of Independent Samples T Test for Equality of Means for ESG Funds and Matched Conventional Funds in Taiwan**

Ratios Computed		Levene's Test for Equality of Variances		T Test for Equality of Means						
		F	Sig.	t	df	Sig. (2 tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Sharpe	Equal variances assumed	23.181	<b>.001*</b>	-.192	8	.853	-.49380	2.57611	-6.43433	5.44673
	Equal variances not assumed			-.192	4.266	.857	-.49380	2.57611	-7.47354	6.48594
J alpha	Equal variances assumed	.004	.950	.587	6	.578	3.97967	6.77400	-12.59571	20.55504
	Equal variances not assumed			.599	4.591	.578	3.97967	6.64908	-13.58104	21.54037
Ret vs index	Equal variances assumed	9.417	<b>.022*</b>	.792	6	.458	.12833	.16195	-.26795	.52461
	Equal variances not assumed			.596	2.110	.609	.12833	.21520	-.75301	1.00967
Trey nor	Equal variances assumed	6.681	<b>.042*</b>	-.510	6	.628	-.46847	.91874	-2.71655	1.77962
	Equal variances not assumed			-.676	4.137	.535	-.46847	.69321	-2.36817	1.43123
Last 5yrs ret	Equal variances assumed	4.664	<b>.097**</b>	-1.376	4	.241	-5.48500	3.98630	-16.55273	5.58273
	Equal variances not assumed			-1.376	2.623	.275	-5.48500	3.98630	-19.26886	8.29886

\*\*\* significant at 1% level, \*\*significant at 5% level, \* significant at 10% level

Source: Research Output

In South Korean markets, the matched conventional funds have performed significantly better in terms of Sharpe ratio and rest of the parameters are insignificantly different. By virtue of its meaning, the non ESG funds have been able to deliver higher risk adjusted returns in South Korean markets. In Thailand also, the matched conventional funds have outperformed in terms of Sharpe ratio whereas, the other parameters are found to be insignificantly different. In Taiwan there is no significant difference between the performance of ESG funds and the matched funds.

As opposed to the belief that the conventional funds perform better in terms of these parameters is proven wrong and the Sharpe ratio, Jensen alpha and treynor ratio is not statistically different for ethical and conventional funds in the Chinese financial markers. However, as summarized in table 12 the positive mean difference of 13.87 in the last 5 years returns indicate that it is higher for the ethical funds. Having a look at the p value we can say it is significant at a level of 10% as the  $p < 0.10$ . So, we can say that the ethical funds are able to generate higher last 5 years average returns as compared to the matched conventional funds. Oh, Park, Pervez and Gahuri (2013) claim that ethical funds are considerably better in the long term than traditional funds, for example in retail markets where consumer preferences for sustainable products inevitably add value to the ethical fund (Haigh & Hazelton, 2004). Also Cummings (2000) argued that ethical investments are better in the long run since they "...pursues a joint financial /social utilitarian perspective, whereby both financial and social goals are achieved through long term commitment to social behavior, which minimizes externalities to the firm"(p. 80).

**Table 12: Conclusions Drawn from Comparative Analysis of Performance of ESG Funds and Conventional Funds of Emerging Asian Countries on the basis of Certain Parameters**

Country	Tested Parameter	Mean Difference (ESG Funds – Matched Conventional Funds)	p value	Accept/ Reject
China	Sharpe ratio	-1.13679	.401	Fail to reject H0
	Jensen Alpha	-.84613	.910	Fail to reject H0
	Treynor ratio	-.40183	.489	Fail to reject H0
	Return versus index	-.17611	.636	Fail to reject H0
	Last 5 years returns	13.87013	<b>.090*</b>	<b>Reject H0</b>
India	Sharpe ratio	.61191	.251	Fail to reject H0
	Jensen Alpha	.82106	.807	Fail to reject H0
	Treynor ratio	-.64368	.246	Fail to reject H0

	Return versus index	.16948	<b>.047**</b>	<b>Reject H0</b>
	Last 5 years returns	7.73790	.105	Fail to reject H0
South Korea	Sharpe ratio	-2.30924	<b>.004***</b>	<b>Reject H0</b>
	Jensen Alpha	-2.92592	.400	Fail to reject H0
	Treynor ratio	.08853	.856	Fail to reject H0
	Return versus index	.17934	.436	Fail to reject H0
	Last 5 years returns	-3.79247	.202	Fail to reject H0
Thailand	Sharpe ratio	-.62911	<b>.035**</b>	<b>Reject H0</b>
	Jensen Alpha	-1.98656	.433	Fail to reject H0
	Treynor ratio	-.00956	.890	Fail to reject H0
	Return versus index	.20162	.139	Fail to reject H0
	Last 5 years returns	3.32003	.543	Fail to reject H0
Taiwan	Sharpe ratio	-.49380	.857	Fail to reject H0
	Jensen Alpha	3.97967	.578	Fail to reject H0
	Treynor ratio	-.46847	.535	Fail to reject H0
	Return versus index	.12833	.609	Fail to reject H0
	Last 5 years returns	-5.48500	.275	Fail to reject H0

\*\*\*significant at 1% level, \*\*significant at 5% level, \* significant at 10% level

Source: Research output

It is ostensible from table 12 that although the positive signs of the values in the mean difference column indicates that the Sharpe ratio, Jensen alpha etc. are higher for the ethical funds in the Indian markets but are found to be insignificant. So we cannot reject the null hypotheses and can say that the Sharpe ratio, Jensen alpha, treynor ratio and last 5 years returns are not statistically different for ethical and matched conventional funds but return versus index has been significantly higher for ESG funds in India at 5% level of significance.

Table 12 throws light on the negative sign of mean difference of Sharpe ratio, Jensen alpha and last 5 years returns which designates that these ratios are higher for the conventional matched funds but observing their p values we establish that only Sharpe ratio is statistically significantly higher for conventional funds. The positive signs of the values in the mean difference column indicates that the treynor ratio and return versus index are higher for the ethical funds in the Korean markets but are found to be insignificant. So we cannot reject the null hypotheses and can say that the Jensen alpha, treynor ratio, return versus index and last 5

years returns are not statistically different for ethical and matched conventional funds. But we will reject the null hypotheses that the Sharpe ratio is not significantly different for ethical and matched funds. So, we can conclude that the Sharpe ratio is higher for the conventional funds by almost 2.3% in South Korea. The same holds true for the markets in Thailand, where the Sharpe ratio is higher for the conventional funds by almost 0.629%. Differences of all the portfolios analyzed in terms of the Sharpe ratios are not statistically significant. This finding confirms preceding papers such as Hassan and Girard (2010), Miniaoui et al. (2015), and Rana and Akhter (2015). Investors are thus neutral between traditional, Islamic, and hybrid diversification approaches for portfolios.

The positive signs of the values in the mean difference column indicates that the Jensen alpha and return versus index are higher for the ethical funds in the Taiwan markets but are found to be insignificant. So we fail to reject the null hypotheses and can say that the Sharpe ratio, Jensen alpha, treynor ratio, return versus index and last 5 years returns are not statistically different for ethical and matched conventional funds in Taiwan. Over the years, the research findings have been mixed and Revelli and Viviani's recent study (2014) suggests that there is no disparity in yield between ethical and conventional funds.

The selection of ESG and SRI sustainability stocks by the investors will provide them with the additional opportunity to diversify their portfolio without sacrificing on the financial grounds. Moreover, these options also provide them a set of safer haven during economic downturn. It is demonstrated by the analysis that the ESG funds are less sensitive to the risk factors, so in times of crisis, the ESG funds are expected to sail through the deep waters.

As it is observed from the conclusions that there is no detriment in adopting ESG principles and practices in terms of return generating capability of ESG compliant firms, the Individual financial institutions should consider adopting globally recognized principles such as the United Nations Principles for Responsible Investment (UN PRI) and corporate sustainability reporting and participate in United Nations Environment Programme (UNEP) Financial Initiative in order to show their support and intent to safeguard the environment, society and public at large.

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