

EFFECT OF FUND ATTRIBUTES ON EFFICIENCY: CROSS-SECTIONAL EVIDENCE FROM INDIAN EQUITY MUTUAL FUNDS

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Abstract *The purpose of this paper is to analyse the effect of size, age, ownership, and load on the efficiency of equity mutual funds in India. Using secondary data on sample of 105 equity mutual fund schemes in India for the period 2011-12, two-stage methodology is applied wherein Data Envelopment Approach (DEA) efficiency scores are assessed in first stage and in the second stage, categorical variable on efficiency is regressed on age, size, ownership, and load of the scheme by applying cross-sectional logistic regression. The results of the analysis suggest that increase in size increases the probability of being efficient by 26-43 percent in various estimates. The more aged funds are more efficient. Load funds are less efficient and foreign funds are more efficient but joint-venture foreign funds are less efficient. Thus results show that in country like India, there exists increasing returns to scale and experience in the market increases the efficiency.*

Keyword: *Data Envelopment Analysis Approach, Mutual Funds, Size Effect, Ownership Effect, Age Effect*

JEL Code: *C14, C61, G21, G23*

INTRODUCTION

The issue of performance determinants of mutual funds has received considerable attention in the academic literature since last three decades. It has relevance in the light of fact that assets under management have grown to the level of USD 11 trillion in USA and USD 23 trillion worldwide for the year 2011 (Investment Company Institute, 2012). The number of schemes launched by mutual funds also has shown phenomenal growth and there are 72,611 mutual funds all over world. The funds mobilised by Indian mutual funds also reached at the level of USD 87 billion with share of 7.84% in household portfolio compared to 5.5% in 2000. According to Investment Company Institute (2012), equity funds constitute 40% of the total mutual fund mobilisation. Mutual funds provide an opportunity to small investor to invest in equity market and get benefitted from the professional acumen. But with large number of funds, the considerable question is how to select fund and whether fund attributes have any predictability of fund performance.

This issue is also relevant in the light of research findings on performance evaluation of mutual funds, where it has been found that there is presence of 'true alpha' and fund managers do possess selectivity skill but it is largely hidden under the aggregations of underperformers (Daniel *et al.*, 1997; Kosowki *et al.*, 2006; Fama and French, 2010). This raises the issue that what are the differentiating fund factors which generate positive outperformance among few. In the literature, fund size (Murthi *et al.*, 1998; Choi and Murthi, 2001; Zera and Madura, 2001; Otten and Bams, 2002; Ching

and Wei, 2003; Chang, 2004; Chen *et al.*, 2004; Babalos *et al.*, 2009; Babalos *et al.*, 2012), fund family size (Chen *et al.*, 2004), past performance (Hendricks *et al.*, 1993; Grinblatt and Titman, 1994, Carhart, 1997), expense ratio (Otten and Bams, 2002; Ching and Wei, 2003; Babalos *et al.*, 2009; Babalos *et al.*, 2012), load (Carhart, 1997, Pollet and Wilson, 2008, Ferreira *et al.*, 2012), age (Otten and Bams, 2002; Chen *et al.*, 2004; Babalos *et al.*, 2009), ownership (Kang and Stulz, 1995; Brennan and Cao, 1997; Lewis, 1999; Coval and Moskowitz, 2001; Otten and Bams, 2007), turnover ratio (Murthi *et al.*, 1998; Choi and Murthi, 2001; Ching and Wei, 2003; Babalos *et al.*, 2012) are reported to have effect on the performance of fund.

The findings of the research on these issues are mainly applicable to USA. Otten and Bams (2002) studied five European countries UK, France, Italy, Germany, and Netherlands and found presence of positive alpha in these countries. Similarly Cuthbertson *et al.* (2008) in UK, Besslet *et al.* (2009) in Germany, Jagric *et al.* (2007) in Czech Republic and Babalos *et al.* (2009) in Greece found positive alpha in the performance of mutual funds. In Australia (Hallahan and Faff, 1999; Drew and Stanford, 2003), China (Li, Chen and Mao, 2007; Su *et al.*, 2012), Pakistan (Shah and Hijazi, 2005), Taiwan (Chen, Chiu and Li, 2011), Turkey (Tarim and Karan, 2001) found different results specific to country.

The empirical investigation on mutual funds in India is mainly confined to performance measurement issue (Yadav and Mishra, 1996; Gupta and Sehgal, 1998; Chander, 2002; Deb, 2008; Santhi and Gurunathan, 2012). There has been

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finding that Indian mutual funds out perform mutual funds vis-a-vis selected index. But, there is a vacuum in literature on the effect of fund characteristics on the performance of funds. This study aims to fill this gap by understanding the effect of fund characteristics on fund performance for Indian equity mutual funds at the scheme level for the period 2011-12.

Four fund related attributes size of the scheme, age, load and ownership have been taken as the potential characteristics known to affect the performance. The study applies two-stage methodology proposed by Coeli *et al.* (1998), wherein the performance is measured in the first stage and effect of fund-attributes is investigated in the second stage. In the first stage, we apply Data Envelopment Approach (DEA) as proposed by Charnes *et al.* (1978) and first applied to evaluate the performance of mutual funds by Murthi *et al.* (1998). This approach has been applied by Murthi and Choi (2001), Basso and Funari (2003), Daraio and Simar (2005) and Babalos *et al.* (2009) to evaluate the performance of mutual funds. During the slowdown period of the business cycle, the returns from the mutual funds are generally negative and traditional measure of portfolio evaluation cannot provide true rankings and in that period, adjusted DEA provides better results (for details, see Basso and Funari, 2005). For the year 2011-12, due to recessionary phase of Indian economy, the returns of mutual funds are negative. Thus non-parametric DEA method will be most suitable. In the second stage, DEA efficiency score are regressed on the fund attributes using logistic model. The results show that size and age are significant determinants of fund performance whereas load and ownership does not have effect on performance.

The rest of the paper is organized as follows. In the Section 2, related literature has been reviewed. The empirical hypothesis and model is specified in Section 3. In the Section 4, data and methodology have been discussed and results are discussed in Section 5. Finally, Section 6 concludes the study.

Review of Literature

The literature on mutual funds is largely oriented towards performance measurement of mutual funds and comparatively less towards the performance determinants. Nevertheless, there have been theoretical and empirical evidences on the effect of fund and fund manager related characteristics on fund performance. It had been found that mutual funds at best provide the cost adjusted returns equal to market return. Grossman and Stiglitz (1980) opined that in an efficient market, it is difficult to obtain free information and management fee covers up the cost of generating such superior information. The mutual funds earn sufficient risk adjusted return net of expenses has been well documented in the literature (Ippolito, 1989; Droms and Walker, 1996; Wermers, 2000; Shukla, 2004). The findings of this net positive return has been criticized on the basis of selection of index (Elton *et al.*, 1993), survivorship bias (Malkiel, 1995)

and the negative effect of expense ratio (Elton *et al.*, 1993; Malkiel, 1995; Grinblatt and Titman, 1994; Gruber, 1996; Carhart, 1997; Otten and Bams, 2000; Ching and Wei, 2003; Babalos *et al.*, 2009) has been found. Whether the high expense ratio is justifiable or not is still a debatable issue. Indro *et al.* (1999) also argued that considering only expense ratio and turnover ratio ignoring size will provide dubious results as funds with same expense ratio and turnover ratio different size will provide different returns. They argued that though there is initial cost advantage with growth in fund size, but later it diminishes due to increased transaction cost, inability to trade without signaling, and due to administrative stress. They found that actively managed funds need to attain minimum fund size before they achieve sufficient returns to cover the cost of acquiring and trading on information but there are diminishing marginal return to scale. Brennan and Hughes (1991), Ciccotello and Grant (1996) found positive relation between fund size and performance but once they become large, the relation cease to exist and advised the investors to choose small funds with growth objective. Latzko (1999) tested economies of scale hypothesis and found though initially growth in size results in economies which diminish at \$3.5 Bn asset size.

Grinblatt and Titman (1989) found mixed results on the relation between fund size and fund return. Chen *et al.* (2004) found inverse relationship between fund size and fund return but positive relation between fund family size and fund return. They further tested the hypothesis that fund size erodes performance due to trading costs associated with liquidity and price impact and found that liquidity plays important role in diseconomies of scale. Elton *et al.* (1996) reported positive relation between size and performance has been due to survivorship bias, after accounting this, there is no difference in performance of large and small size funds. Blake and Timmermann (1998), Ackermann *et al.* (1999), Otten and Bams (2002), Chen *et al.* (2004) studied the effect of age on the performance. Otten and Bams (2002) found low positive effect of age but Chen *et al.* (2004) found negative effect of age on performance.

Other factor like ownership had been studied by Kang and Stulz (1997), Brennan and Cao (1997), Lewis (1999), Coval and Moskowitz (2001), Otten and Bams (2007). Kang and Stulz (1997) and Otten and Bams (2007) found no domestic performance bias but others found that domestic funds performed better concluding that there is information access and flow bias towards domestic funds.

In the light of above discussion, it can be said that despite of plenty of research on the investigation of performance determinants in developed countries; the research on these issues in developing countries is still in its infancy. It is therefore relevant to explore these issues as to what fund characteristics affect the performance of funds in context to developing countries like India.

THE EMPIRICAL HYPOTHESIS AND SPECIFICATION OF MODELS

In this section, theoretical underpinnings for the performance determinants of mutual funds will be discussed based on which model will be built for empirical testing. There are numerous factors that can affect the performance of fund, but we have focused on fund related variables. Some of the important fund variables have been discussed below.

Size of the Fund

Size of the fund is the assets under management of fund. Size is related to performance persistence and the value of active management (Grinblatt and Titman, 1992). The large size funds can take advantage of the profitable opportunities and can make sufficient investment. The large size funds can also have advantage economies of scale and thus can lower their trading cost (Khorana and Servaes, 1999). The positive effect of size on the performance has been documented by Grinblatt and Titman (1992), Otten and Bams (2002), Jan and Hung (2003). Contrary to them, it can also be argued that small funds are more efficient as large funds develop diseconomies of scale. Further, small funds can trade without affecting the price of security and thus are more advantageous. Also, the effect of size is positive only when there are enough profitable opportunities in the market. Large funds generally scale up their existing investments and in turn are losers (Pollet and Wilson, 2008). Chen *et al.* (2004), Babalos *et al.* (2009, 2012) found that small funds are more efficient. Murthi *et al.* (1998) and Choi and Murthi (2001) found no relation between size and performance. The effect of size on performance depends on investment opportunities in the capital market, size of capital market, and stage of development of economy (Babalos *et al.*, 2009; Ferreira *et al.*, 2012). Therefore we intend to test the following hypothesis:

H1: Increase in fund size increases the probability of better performance of fund.

Age of the Fund

Age is the number of years for which fund has been in operation since its inception. The old funds due to their experience provide better performance and also have developed economies of scale. On the contrary young funds can be more committed. Chen *et al.* (2004) found no relation between age and performance in US but Ferreira *et al.* (2012) found that new funds perform better than old funds. Otten and Bams (2002) found positive but very low relationship between age and performance. Babalos *et al.* (2009, 2012) also found positive effect of age on performance in Greece.

Based on these findings, we derive the following hypothesis:

H2: An increase in age results in increase in probability of better performance of fund.

Load

Load is charge paid by investors when they buy or sell units from funds in addition to expense ratio. The objective is to discourage redemptions so that there is commitment of funds at long run. The funds charging load should provide better performance than no load funds. Chen *et al.* (2004) and Ferreira *et al.* (2012) found no statistically significant relationship between load and performance. Carhart (1997), Murthi *et al.* (1998), Choi and Murthi (2001), Jan and Hung (2003), and Pollet and Wilson (2008) found negative effect of loads on performance. It is being observed that load funds provide no better performance rather load affects performance in negative manner. In this concern we seek to investigate the following hypothesis:

H3: No load funds are more efficient.

Foreign Ownership

Foreign ownership means that sponsors of the fund do not belong to same country in which they are investing. The investors intuitively prefer domestic and government owned funds for safety and better performance. This results in 'home bias' and domestic funds are able to generate more funds (Lewis, 1999). The domestic funds should generate better returns due to better access of information and experience which leads to 'information bias' (Brennan and Cao, 1997; Coval and Moskowitz, 2001). Empirical evidences show that domestic funds perform better than foreign funds (Shukla and Inwegen, 1997; Fletcher, 1997). But Kang and Stultz (1997) and Otten and Bams (2007) found no difference in the performance of foreign owned and domestic mutual funds. In this context, we derive the following hypothesis to test:

H4: Foreign ownership causes decrease in probability of better performance of fund.

DATA AND EMPIRICAL METHODOLOGIES

The Data

The efficient frontier technique for performance evaluation requires various inputs and outputs. We have collected data on the sample of 16 mutual funds with 105 open ended equity-growth schemes for the period April 2011-March 2012 from AMFI (Association of Mutual Funds in India). The purpose

is to rank the mutual fund schemes using Data Envelopment Analysis (DEA) technique. The basic DEA model postulates the non-negative input and output. The presence of negative output in our case violates this assumption. We transformed the output as proposed by Basso and Funari (2001) and there by applied additive model of DEA to rank the funds. Annual mutual fund data at scheme level on expense ratio, year of inception, load, ownership type and total assets under management (in INR crore) have been collected from the website of AMFI. We utilised Net Asset Value (NAV) of growth-equity schemes, CNX Nifty index from National Stock Exchange (NSE) return as proxy for index return and risk free rate proxy with 3-month T-bill return. The data on NAV has been collected from website of AMFI while other data is collected from website of NSE. Table 1 provides the descriptive statistics of all employed variables.

Table 1: Descriptive Statistics of All Fund Variables

Variable	No. of observations	Mean	Std. Dev.	Min	Max
Annual raw ret	105	-0.07	0.07	-0.24	0.13
Alpha	105	0.00	0.00	0.00	0.00
Std Deviation	105	0.01	0.00	0.01	0.02
Beta	105	0.80	0.12	0.51	1.12
Expense ratio	105	2.19	0.29	1.32	2.50
AUM (Rs Crores)	105	50814.52	115728.10	3.97	771521.80
Age (in years)	105	7.76	4.83	1	18

Methodology

We employ two-stage methodology as proposed by Coeli *et al.* (1998) for our purpose to investigate the effect of selected fund variables on the efficiency of mutual fund schemes. In the first stage, we utilise DEA method to obtain DEA efficiency scores of mutual fund schemes. The DEA method was first proposed by Charnes *et al.* (1978) and further developed by Charnes *et al.* (1994) as fractional linear programming problem. In the basic DEA approach, DEA efficiency measure for each decision making unit (DMU) 'j' is the ratio of weighted sum of outputs to weighted sum of inputs.

$$h = \frac{\sum_{r=1}^t u_r y_{rj}}{\sum_{i=1}^m v_i x_{ij}}$$

where, $j = 1, 2, \dots, n$ are the no. of DMUs, $r = 1, 2, \dots, t$ are the no. of outputs, and $i = 1, 2, \dots, m$ are the no. of inputs. The

most efficient units are characterized by efficiency measure equal to one, that is, efficient units lie on efficient frontier. The corresponding linear programming problem to this is,

$$h = \frac{\sum_{r=1}^t u_r y_{rj0}}{\sum_{i=1}^m v_i x_{ij0}}$$

such that

$$h = \frac{\sum_{r=1}^t u_r y_{rj}}{\sum_{i=1}^m v_i x_{ij}} \leq j = 1, 2, \dots, n$$

$$u_r \geq \epsilon \quad r = 1, 2, \dots, t$$

$$v_j \geq \epsilon \quad i = 1, 2, \dots, m$$

where, ϵ is sufficiently small positive number so that weights do not take negative values.

In the second stage, we investigate the potential effect of fund variables responsible for fund's efficiency. For this we employ cross-sectional conditional logistic model where dependent variable is binary efficiency variable. Based on the above proposed theoretical considerations, we test following empirical model,

$$\text{Eff}_i = f(\text{size}, \text{age}, \text{ownership}, \text{load})$$

$$\text{Eff}_i = \beta_0 + \beta_1 \log(\text{aum})_i + \beta_2 \text{q.age}_i + \beta_3 \text{d.ownership}_i + \beta_4 \text{d.load}_i + \epsilon_i$$

where, $\log(\text{aum})$ is the proxy for size, that is assets under management in INR crores, q.age is the quantile variable for age, d.ownership is the dummy variable for ownership type and d.load is the dummy variable for load. The dependent variable eff_i is the binary efficiency variable based on DEA efficiency score.

EMPIRICAL RESULTS

DEA Efficiency of Mutual Fund Schemes

The DEA efficiency scores, a relative performance measure for mutual fund schemes have been computed with the above described procedure. We employed additive input-output oriented DEA model for calculating the efficiency scores. The input-output DEA efficiency measure simultaneously considers reduction in inputs and addition in outputs. The efficient fund will have efficiency score equal to '1' and will lie on the efficiency frontier and all other funds not having efficiency score equal to one will be considered as 'inefficient'. Fig. 1 shows the DEA efficiency scores for all mutual fund schemes for the period 2011-12. Only 8.57% (9/105) fund schemes are efficient. The equity-growth schemes in India are highly inefficient. Relaxing the criteria for inefficiency (DEA efficiency score > 0.90) shows that 75.23% of the schemes are highly inefficient.

Table 2: Rank Correlation between Different Ranking Criteria

	DEA_rank	Alpha_rank	Sharpe_rank
DEA_rank**	1		
	1		
Alpha_rank	0.3408*	1	
	0.2270*	1	
Sharpe_rank	0.5237*	0.8779*	1
	0.3785*	0.7199*	1

* significant at 5% level of significance

** first row provide Spearman rank correlation and second row provide Kendall's tau-b

Table 3: Mean-Variance Efficiency of Mutual Funds Schemes-Slack Analysis

Panel A: Highly Efficient Funds					
Fund	Raw_return	Jensen_alpha	Std. dev.	Beta	Expense_ratio
Birla Sun Life Dividend Yield Plus (G)	0.00	0.00	0.00	0.00	0.00
DSP BR Equity Fund - Inst (G)	0.00	0.00	0.00	0.00	0.00
Franklin Build India Fund (G)	0.00	0.00	0.00	0.00	0.00
IDFC Premier Equity Fund - Plan A (G)	0.00	0.00	0.00	0.00	0.00
Panel B: Less efficient Funds					
Birla Sun Life Pure Value Fund (G)	0.08	0.00	0.00	0.00	-0.28
DSP BR India T.I.G.E.R. Fund - Inst (G)	0.06	0.00	0.00	0.00	0.00
ICICI Pru Indo Asia Equity Fund (G)	0.00	0.00	0.00	-0.01	-0.06
Franklin India Prima Fund - (G)	0.04	0.00	0.00	0.00	-0.04
Panel C: Inefficient Funds					
IDFC Equity Fund - A (G)	0.12	0.00	0.00	-0.07	0.00
JM Basic Fund (G)	0.12	0.00	0.00	-0.02	0.00
LIC NOMURA MF India Vision Fund (G)	0.16	0.00	0.00	-0.07	0.00
HSBC Progressive Themes Fund (G)	0.04	0.00	0.00	0.00	0.00

Fig. 1: DEA Efficiency Score of Mutual Fund Schemes

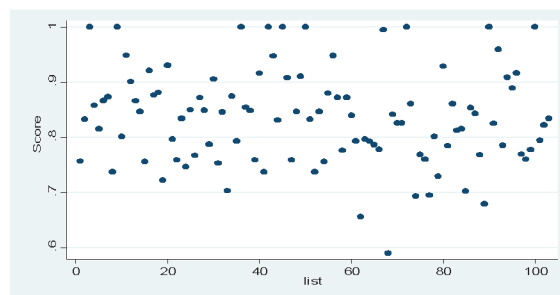
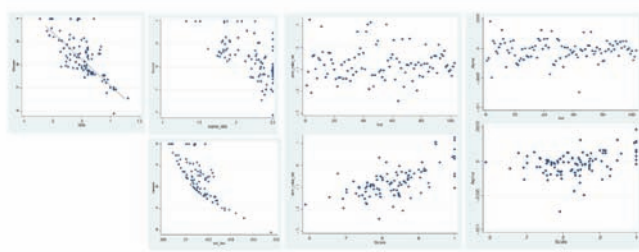


Table 4: Mean Slack in Inputs and Outputs

	Raw_return	Jensen_alpha	Std. deviation	Beta	Expense_ratio
Absolute Slack	0.11	0.00	0.00	-0.03	-0.01
Relative Slack	0.12	0.00	0.00	-0.04	-0.01

Fig. 2: DEA Efficiency Score Vs. Inputs and Outputs



The analysis of slack variable for the funds enables to know the key factors responsible for such inefficiency. The slack measure is the difference between the target input and output values and the DMU’s actual values. A sample of slack variable for efficient-less efficient-highly inefficient schemes is shown in Table 3. The low beta portfolio is desirable during the time of negative return period of stock market. This also shows the market timing ability of the fund manager. The Indian stock market has given negative return

during the period 2011-12. This shows that mutual fund schemes with high beta are mainly inefficient, which shows lower return for the portfolio and poor market timing skill of the fund manager.

The expense ratio shows the cost efficiency of the fund. The Indian stock market regulator SEBI (Securities and Exchange Board of India) has applied restriction on the maximum value of expense ratio that can be charged by Indian mutual funds in 2009, which kept the maximum expense ratio to be 2.5%. The comparative higher expense ratio and less raw returns are source of inefficiency in less-efficient funds. This shows that inefficient funds either have poor stock selection skill and/or poor timing skill, which further needs investigation.

We further examine the relative mean slack of input and output variables. The relative mean slack is defined as the absolute mean slack of the variable divided by mean value of input. It is a measure of marginal impact of each input and output variable on fund’s efficiency. The slack in expense ratio confirms that high cost erodes the performance which

Fig. 3: DEA Efficiency Score Vs. Potential Fund Variables

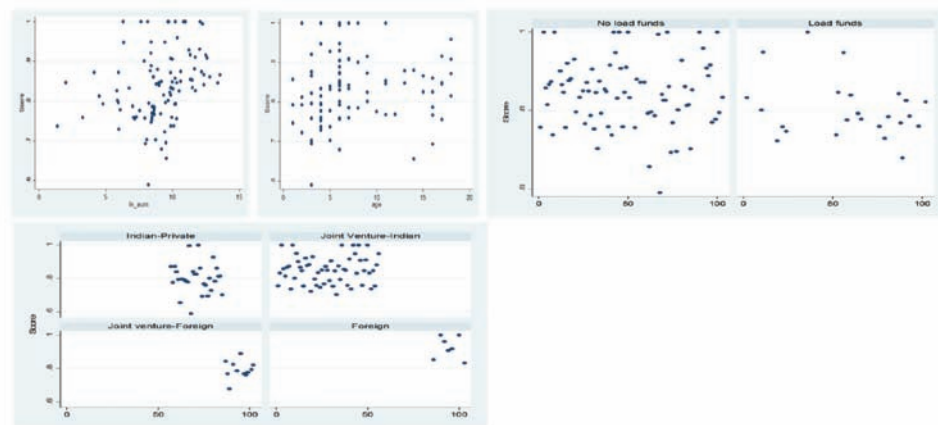


Table 5: Results of Logistic Regression

Variable	I	II	III	IV	V
aum_log	1.43* (2.74)				1.26** (1.64)
age_qt		4.29* (2.44)			4.64* (1.98)
2		1.77 (0.90)			0.87 (-0.17)
3			0.37 (-1.47)		0.61 (-0.61)
load					
Ownership				5.84* (2.25)	5.23* (1.98)
2				32.49* (3.13)	37.59* (3.00)
4					
LR Chi ²	9.17*	6.77*	2.52	13.63*	26.14*

*, ** means significant at 5% and 10% level of significance. t-stat in parenthesis.

is in confirmation with earlier findings (Carhart, 1997; Chen *et al.*, 2004). On average, the inefficient funds need to reduce 0.004 units in risk (proxy by standard deviation), 0.042 units in beta and 0.006 units in expense ratio and further need to increase their return by 0.115 units.

Determinants of Efficiency

In the next stage, we investigate the effect of potential factors responsible for fund's efficiency and in turn test our hypothesis. We apply step-wise regression method to investigate the effect of fund attributes on fund performance measured with DEA efficiency scores.

We first measure the impact of each variable on the probability of being efficient and apply log-likelihood ratio to test the explanatory power of the model. The joint-venture foreign funds have not been taken for analysis due to less number. The results show that individually size, age, and ownership have an effect on the efficiency of the fund and load factor is insignificant. We apply conditional logistic model for all variable as explanatory variable on the binary variable of efficiency. The results show that effect of size decreases with introduction of other variables in the model. The increase in size increases the probability of fund being efficient. This shows that Indian capital market still has opportunities of economies of scale which are to the level of US capital market in the period 1980-2000 for which positive effect of size was found by Grinblatt and Titman (1992), Jan and Hung (2003) and Chen *et al.* (2004). We have taken age as quantile variable with three groups. As compared to new funds middle age funds have high probability of being efficient. The oldest fund though has higher probability of being efficient but is statistically insignificant. This is in confirmation with the earlier findings in European countries by Otten and Bams (2002), and Babalos *et al.* (2009). Load though has positive effect but is insignificant variable on the efficiency of the fund. The Indian-private funds are sponsored mainly by the industry houses and joint-venture Indian funds are joint venture between domestic financial institutions. Foreign funds are solely owned by foreign financial institutions. The results show that both joint-venture and foreign ownership increases the probability of fund being efficient. This is contrary to the earlier findings of Brennan and Cao (1997), Shukla and Inwegen (1999), Coval and Moskowitz (2001), and Otten and Bams (2007). Based on the above findings, H1 and H2 are accepted while H3 and H4 are not accepted. Results of the present study are more in conformity with developing countries findings, where increase in size creates economies of scale. The learning by experience evidence proxy with age is also present and foreign funds are more efficient.

CONCLUSION

Using the daily data on the mutual fund schemes, this study attempts to analyse the four factors that plausibly can affect the performance of as measured with DEA efficiency score for the sample period April 2011- March 2012. This analysis is mainly focused on the growth funds and above said sample period so as to control the effect of various macroeconomic factors and regulatory changes. We mainly tested the effect of size, age, load, and ownership as information regarding these variables is readily available to even common investor. Results of the analysis in this study are mixed, some expected on the lines of theoretical underpinnings and some not. The performance evaluation with non-parametric technique DEA utilizes raw as well as risk adjusted return as outputs and standard deviation, beta and expense ratio as inputs. The performance evaluation results show that majority of funds are inefficient and need to reduce their risk and expense ratio. Also growth mutual funds have poor market timing skill. The empirical investigation on the effect of fund characteristics show that increase in size and age results in increase in efficiency. The most interesting finding is that Joint-Venture and foreign institution funds are more efficient. The future research can further explore this aspect as to the reasons of this efficiency. From the investor perspective, the investor should consider these factors into consideration while selecting a fund for investment.

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APPENDIX

Table A: Details of Mutual fund Schemes

DMU	DEA score	ann_raw_ret	jen-alpha	std_dev	beta	expnse_ratio	aum
LIC NOMURA MF Opportunities Fund (G)	0.76	-0.17	0.00	0.01	0.96	2.20	2803.70
IDFC Imperial Equity Fund - Plan A (G)	0.83	-0.11	0.00	0.01	0.78	2.31	19866.90
SBI Magnum SFU - Emerging Businesses Fund (G)	1.00	0.13	0.00	0.01	0.60	2.26	26998.20
SBI PSU Fund (G)	0.86	-0.21	0.00	0.01	0.66	2.28	26413.20
SBI Magnum Equity Fund (G)	0.82	-0.04	0.00	0.01	0.82	2.26	19219.00
ICICI Pru Focused Bluechip Equity Fund (G)	0.87	-0.03	0.00	0.01	0.85	1.83	231346.00
Birla Sun Life Frontline Equity Fund - Plan A (G)	0.87	-0.10	0.00	0.01	0.84	1.86	192569.00
LIC NOMURA MF Top 100 Fund (G)	0.74	-0.14	0.00	0.01	0.96	2.34	19430.90
DSP BR Equity Fund - Inst (G)	1.00	-0.05	0.00	0.01	0.79	1.45	15582.20
Birla Sun Life Top 100 Fund (G)	0.80	-0.06	0.00	0.01	0.84	2.34	15916.90
Birla Sun Life India GenNext Fund (G)	0.95	0.10	0.00	0.01	0.65	2.50	4452.90
DSP BR Top 100 Equity Fund (G)	0.90	-0.02	0.00	0.01	0.84	1.85	2629.23
HDFC Top 200 Fund (G)	0.87	-0.08	0.00	0.01	0.93	1.77	771522.00
IDFC Classic Equity Fund - Plan B (G)	0.85	-0.14	0.00	0.01	0.72	2.40	7.41
ICICI Pru Top 200 Fund - (G)	0.76	-0.12	0.00	0.01	0.95	2.23	30202.30
Birla Sun Life Pure Value Fund (G)	0.92	-0.02	0.00	0.01	0.61	2.50	4372.99
ICICI Pru Focused Bluechip Equity Fund-Inst-I (G)	0.88	-0.03	0.00	0.01	0.85	1.83	4215.30
DSP BR Equity Fund (G)	0.88	-0.05	0.00	0.01	0.79	1.88	116624.00
ICICI Pru Target Returns Fund (G)	0.72	-0.07	0.00	0.01	0.97	2.42	12335.30
SBI Magnum SFU - Contra Fund (G)	0.93	-0.10	0.00	0.01	0.72	1.86	171094.00
Birla Sun Life Special Situations Fund (G)	0.80	-0.14	0.00	0.01	0.82	2.38	13078.00
IDFC Strategic Sector (50-50) Equity - Plan A (G)	0.76	-0.18	0.00	0.01	0.84	2.50	1208.86
DSP BR India T.I.G.E.R. Fund (G)	0.83	-0.14	0.00	0.01	0.84	1.91	98101.80
Birla Sun Life India Reforms Fund (G)	0.75	-0.14	0.00	0.01	0.82	2.50	4419.94
SBI BlueChip Fund (G)	0.85	-0.08	0.00	0.01	0.79	2.17	40633.70
Birla Sun Life Advantage Fund (G)	0.77	-0.14	0.00	0.01	0.88	2.33	5641.18
HDFC Capital Builder -(G)	0.87	-0.07	0.00	0.01	0.72	2.26	18972.50
LIC NOMURA MF Growth Fund (G)	0.85	-0.14	0.00	0.01	0.92	1.75	9573.08
Birla Sun Life India Opportunities Fund - B (G)	0.79	-0.11	0.00	0.01	0.74	2.50	1101.56
HDFC Premier Multi-Cap Fund (G)	0.91	-0.06	0.00	0.01	0.66	2.30	21427.20
LIC NOMURA MF Systematic Asset Allocation Fund (G)	0.75	-0.15	0.00	0.01	0.96	2.23	4660.26
HDFC Equity Fund - (G)	0.85	-0.09	0.00	0.01	0.87	1.78	650063.00
LIC NOMURA MF India Vision Fund (G)	0.70	-0.12	0.00	0.01	1.00	2.48	3200.13
SBI Magnum Multiplier Plus 93 (G)	0.87	-0.05	0.00	0.01	0.75	2.03	41112.80
DSP BR Focus 25 Fund (G)	0.79	-0.11	0.00	0.01	0.83	2.21	28236.30
IDFC Premier Equity Fund - Plan A (G)	1.00	0.07	0.00	0.01	0.58	1.88	174482.00
HDFC Growth Fund (G)	0.85	-0.03	0.00	0.01	0.83	1.99	84392.30
ICICI Pru Top 100 Fund - (G)	0.85	0.00	0.00	0.01	0.93	2.27	21661.60
SBI Magnum Multicap Fund (G)	0.76	-0.09	0.00	0.01	0.89	2.31	21034.80

DMU	DEA score	ann_raw_ret	jen-alpha	std_dev	beta	expnse_ratio	aum
ICICI Pru Dynamic Plan (G)	0.92	-0.02	0.00	0.01	0.82	1.82	266662.00
IDFC Equity Fund - B (G)	0.74	-0.10	0.00	0.01	0.98	2.30	3.97
IDFC Premier Equity Fund - Plan B (G)	1.00	0.07	0.00	0.01	0.58	1.88	2073.63
ICICI Pru Indo Asia Equity Fund - Inst (G)	0.95	0.11	0.00	0.01	0.56	2.25	568.99
SBI Magnum Comma Fund (G)	0.83	-0.19	0.00	0.01	0.70	2.28	22909.80
SBI Magnum Global Fund (G)	1.00	0.12	0.00	0.01	0.51	2.08	50784.10
HDFC Core & Satellite Fund (G)	0.91	-0.13	0.00	0.01	0.64	2.32	19322.50
IDFC Strategic Sector (50-50) Equity - Plan B (G)	0.76	-0.18	0.00	0.01	0.85	2.50	26.16
DSP BR Opportunities Fund (G)	0.85	-0.13	0.00	0.01	0.78	2.18	30420.80
ICICI Pru Discovery Fund (G)	0.91	0.01	0.00	0.01	0.72	1.92	122165.00
Birla Sun Life Dividend Yield Plus (G)	1.00	0.03	0.00	0.01	0.59	2.02	57898.30
IDFC Imperial Equity Fund - Plan B (G)	0.83	-0.11	0.00	0.01	0.78	2.31	848.03
IDFC Equity Fund - A (G)	0.74	-0.10	0.00	0.01	0.98	2.30	24654.10
IDFC Classic Equity Fund - Plan A (G)	0.85	-0.13	0.00	0.01	0.72	2.40	7958.30
ICICI Pru Top 200 Fund - Inst Option - 1 (G)	0.76	-0.10	0.00	0.01	0.95	2.23	1280.76
LIC NOMURA MF Equity Fund - (G)	0.88	-0.15	0.00	0.01	0.93	1.62	7235.21
ICICI Pru Indo Asia Equity Fund (G)	0.95	0.11	0.00	0.01	0.56	2.25	12472.70
Sahara Wealth Plus - Fixed Pricing (G)	0.87	-0.06	0.00	0.01	0.68	2.50	61.59
L&T Growth Fund (G)	0.78	-0.09	0.00	0.01	0.85	2.50	1892.49
Sahara Wealth Plus - Variable Pricing (G)	0.87	-0.05	0.00	0.01	0.68	2.50	389.16
Sundaram Rural India Fund (G)	0.84	-0.03	0.00	0.01	0.69	2.39	8119.45
Sahara Star Value Fund (G)	0.79	0.04	0.00	0.01	0.66	2.50	121.57
JM Basic Fund (G)	0.66	-0.15	0.00	0.02	1.12	2.35	14062.00
Sahara R.E.A.L Fund (G)	0.80	-0.05	0.00	0.01	0.69	2.50	381.17
Sundaram CAPEX Opportunities Fund (G)	0.79	-0.24	0.00	0.01	0.71	2.33	25941.80
Reliance NRI Equity Fund (G)	0.79	-0.07	0.00	0.01	0.80	2.50	4909.38
L&T Contra Fund (G)	0.78	-0.09	0.00	0.01	0.81	2.50	436.94
Reliance Equity Opportunities Fund (G)	0.99	0.04	0.00	0.01	0.77	1.84	209191.00
JM Core 11 Fund (G)	0.59	-0.18	0.00	0.02	1.02	2.50	3628.75
Reliance Regular Savings Fund - Equity (G)	0.84	-0.11	0.00	0.01	0.85	1.85	232196.00
Reliance Vision Fund - Inst (G)	0.83	-0.08	0.00	0.01	0.87	1.88	345.89
Reliance Vision Fund - (G)	0.83	-0.08	0.00	0.01	0.87	1.88	124224.00
Reliance Equity Opportunities Fund - Inst (G)	1.00	0.04	0.00	0.01	0.77	1.84	548.80
Reliance Growth Fund - Inst (G)	0.86	-0.07	0.00	0.01	0.83	1.80	5186.20
JM Equity Fund - (G)	0.69	-0.15	0.00	0.01	1.02	2.50	2952.91
Sundaram Growth Fund - (G)	0.77	-0.10	0.00	0.01	0.87	2.39	5467.43
Sundaram India Leadership - (G)	0.76	-0.08	0.00	0.01	0.88	2.44	4772.45
JM Multi Strategy Fund (G)	0.70	-0.20	0.00	0.01	1.04	2.36	13666.50
Sahara Growth Fund (G)	0.80	-0.07	0.00	0.01	0.78	2.50	355.19
L&T Hedged Equity Fund (G)	0.73	-0.13	0.00	0.01	0.94	2.50	399.30
Reliance Long-Term Equity Fund (G)	0.93	-0.08	0.00	0.01	0.58	2.03	75211.00
L&T Opportunities Fund - (Cumulative)	0.78	-0.13	0.00	0.01	0.83	2.50	5696.38
Reliance Growth Fund - (G)	0.86	-0.07	0.00	0.01	0.83	1.80	364583.00
Sahara Super 20 Fund (G)	0.81	0.01	0.00	0.01	0.76	2.50	90.08
Sundaram Equity Multiplier Fund (G)	0.82	-0.07	0.00	0.01	0.69	2.36	11507.10

DMU	DEA score	ann_raw_ret	jen-alpha	std_dev	beta	expnse_ratio	aum
Reliance Quant Plus Fund (G)	0.70	-0.11	0.00	0.01	1.02	2.41	6170.99
Franklin India Flexi Cap Fund (G)	0.85	-0.09	0.00	0.01	0.83	1.92	97600.20
HSBC India Opportunities Fund (G)	0.84	-0.04	0.00	0.01	0.75	2.40	6483.66
Principal Growth Fund - (G)	0.77	-0.09	0.00	0.01	0.87	2.37	9051.79
HSBC Progressive Themes Fund (G)	0.68	-0.04	0.00	0.01	0.97	2.39	9660.81
Franklin Build India Fund (G)	1.00	-0.04	0.00	0.01	0.73	1.51	3445.50
HSBC Equity Fund (G)	0.83	-0.12	0.00	0.01	0.85	2.13	36339.10
Franklin India Prima Fund - (G)	0.96	0.01	0.00	0.01	0.59	2.15	31472.60
Principal Dividend Yield Fund (G)	0.79	-0.05	0.00	0.01	0.77	2.49	5494.49
Franklin India Bluechip Fund - (G)	0.91	-0.03	0.00	0.01	0.80	1.81	295322.00
ING Dividend Yield Fund (G)	0.89	-0.04	0.00	0.01	0.70	2.50	4437.83
Franklin India Prima Plus - (G)	0.92	-0.01	0.00	0.01	0.75	1.91	82926.70
ING Core Equity Fund (G)	0.77	-0.09	0.00	0.01	0.85	2.50	4747.07
ING Multi Manager Equity Fund - Opt A (G)	0.76	-0.08	0.00	0.01	0.87	2.50	1474.56
HSBC Dynamic Fund (G)	0.78	-0.11	0.00	0.01	0.84	2.50	5471.55
Franklin India Opportunities Fund - (G)	1.00	-0.10	0.00	0.01	0.89	1.32	16611.80
HSBC Unique Opportunities Fund (G)	0.79	-0.13	0.00	0.01	0.80	2.50	3733.42
Principal Emerging Bluechip Fund (G)	0.82	-0.09	0.00	0.01	0.72	2.34	18029.10
Franklin India High Growth Companies Fund (G)	0.83	-0.07	0.00	0.01	0.77	2.21	19535.60