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Market Timing Abilities of Hybrid mutual Fund Managers

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ABSTRACT
The paper analyses market timing skills of hybrid equity savings, hybrid arbitrage, hybrid dynamic allocation and hybrid funds managers in India during April 2011 to March 2021. Total of 24 schemes of hybrid funds are considered for study. Treynor-Mazuy model (1966) and Hendrickson -Merton (1981) models are applied for calculating timing skills of fund manager. Above 90% of fund managers were successful in achieving returns excess over market with timing skills in both the models. For analysis of hybrid mutual funds returns, risk, systematic risk (Beta), Sharpe ratio, Treynor ratio and market timing abilities of fund managers are calculated.

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I. INTRODUCTION

The financial markets are helping economic growth of India. They are transferring pooled savings to industries. Thus, they are speeding up and distributing resources across all borrowers in the country. Due to liberalization of trade taxation rules and reforms in policies and foreign investments, all financial institutions have been strengthened. The mutual fund industry has growth tremendously over the last decades. Due to diversified portfolio, there is continuous growth of mutual fund industry. It plays a vital role in regular growth of economy by improving financial institutions which are vital in mobilising savings and investing in money and capital markets. As an intermediary, they are mobilising resources and act as complementary to financial institutions. When investing in mutual fund investor has to face risk along with returns. Here comes the importance of skills of fund managers. A study is needed on evaluation of performance of mutual funds. Therefore study is performed on the timing abilities of fund managers.

II. REVIEW OF LITERATURE

Performance evaluation of mutual funds is important to both investors as well as fund managers. The past researchers provided guidelines, direction and basis for the new research. It will be of immense help if researcher go through details of previous studies. In this chapter an attempt is made to present literature related to present topic.

1. Parmar (2010) evaluated mutual funds 2005-2009 and calculated returns, average, standard deviation, beta, R squared and Sharpe ratio by using secondary data. They found that changes in market had no effect on returns and also stock selecting ability of fund manager.
2. Kumar Gayatriand kartikha (2010) studied performance of mutual fund. Their study emphasises that it is the right time to investing in mutual funds.
3. Rude (2010 analysed open and closed ended schemes using different model. They concluded that during bull and bear, returns were great. They were of the opinion that fund size and market- book has more effect on closed ended compare to open ended schemes. They gave result only with CAPM Model which didn't match with other models. 41. Kumar (2011) concluded that only five funds had outperformed the bench mark index BSE 100 when monthly average returns and risk were analysed. Sharpe Treynor and Jenson models were applied to study the analysis
4. Bello and Deridder (2011) selected funds having variable size of Aum for the study during 1990 – 2010. Results were better compared to stock market (S&P 500 Index). They conclude that funds' performance was proportional to size of the fund.
5. Patel, Lodha and Vadher RN (2011) various mutual funds have been compared in terms of annual growth and arithmetic mean. Sharpe and Treynor ratio were applied for the analysis of mutual funds. Canera reboco balance growth fund are the best performer.
6. Bawa and Brar (2011) mutual funds using Nav's from 2000 -2010. Higher returns were given by private sector assets under management. Due to change of market condition public sector didn't give good returns.
7. Dhanalakshmi and Vimala (2011) evaluation tools are applied to study the performance of mutual funds. T- test was used to know that HSBC equity gave greatest earning compare with all other funds.

8. 46. Muruganandan (2011) evaluation formula like average excess return, Sharpe Ratio and Jensen Alpha were used for the assessment of mutual funds. In bull market, Sharpe ratio shown reverse numbers. All evaluators of the funds shown no consistent significant result.
9. Paul (2012) concluded based on their study that investors expect more returns but they get less returns.
10. Sharma (2012) studied expectations of investors using primary data and analysed with the help of mean standard deviation and correlation. Their study included safety and monetary benefits of schemes. They concluded that investors need full related information with safety and monetary benefits.
11. Radhika and Sreeniasan (2012) studied performance of mutual funds based on primary data. Based on the results they insisted that factors chosen by investors were better portfolio management and previous year performance.
12. Vyas (2012) study was made on by using primary data. They concluded that respondents are unaware of monetary benefits of mutual funds. They usually go to bank and post office FD. Investors depend on agents for investment in mutual funds.
13. Agarwal and Jain (2013) studies mutual funds based on primary data of Mathura investors. Their study confirmed that many investors are investing in mutual funds though there are other investment avenues.
14. Lilly, J: and Anusuya, J. (2014) studied 49 open ended tax saving Elss's from 2008 to 2013. Tools like Sharpe Ratio, Treynor Ratio and Jensen's alpha are used to analyse the fund's performance.
15. Srivastava, N. (2014) timing abilities of fund managers of 31 fund schemes are studied from 1995 to 2004. The studies used Treynor and mazuy model and Hendrickson and Merton model. The results from the above study confirmed that fund managers were not successful in getting good returns though the fund investment.
16. Tan, o. (2015 - International) Studied Sough African equity funds between 2009and 2014.
17. Analysis on the performance of above funds has been done using Sharpe ratio Treynor Mazuy model and Hendrickson -Merton model using regression analysis.
18. Vijayalakshmi, T. et al (2016) studied opinion of customer about schemes of mutual funds i.e., type o schemes, plan of interest, reason behind choosing such funds, apart from other postal schemes such as MIS, Recurring Deposits and shares. The new type of investment came to opinion that people are not aware of new type of investment like mutual funds and are avoiding risk investment preferring safe investments like recurring deposits.
19. Gandhi, R.and Perumal, R. (2016) analysed performance of mutual fund schemes of SBI, Canara bank, ICICI Bank, HDFC bank using tools like Standard Deviation Beta, alpha and ratio analysis like Sharpe ratio Treynor ratio, Jensen alpha and information ratio. Based on their study and analysis they stated that Canara bank gave higher return.
20. Srivastava, S. (2017) studied performance of ELSS and compared with returns come other investment choices like PPF etc which come under income tax act.
21. Samani, R., and Sharma. (2017) studied various investment plans and management techniques for mutual fund schemes. They have chased stocks from Nifty Midcap index during the year 2014.
22. Reddy, KVR., and Sriram, A. (2020) studied performance of equity linked savings schemes (ELSS) from 2014 to 2019 with the help of tools like average return, Standard deviation, coefficient of variance, Beta, Sharpe ratio, Treynor Ratio and Jensen alpha. Their analysis arrived at a conclusion that all ELSS have performed well with respect to market index. Funds earn more return that have great risk.
23. Pratap, S. and Gouwtham, K. (2020) selected ELSS for study because it has tax exemption and give large return and are less risky. Their study focused on funds from 5 best mutual fund companies. Analysis measures like standard deviation, Beta, Sharpe ratio, Treynor ratio and Jensen alpha. Birla sun life Tax Relief fund 96 performance was good compare to other mutual funds under study.

NEED FOR THE STUDY

In recent years performance evaluation of mutual funds in India received attention from both practitioners and academicians. For such evaluation is vital for investors as well as portfolio managers to take further investment decisions. It is generally believed that professional fund managers are better equipped with information processing skills. In India ordinary investors may not be aware of tools to select schemes for investment to get good returns. Indian mutual fund industry has registered remarkable growth in recent decades and emerged as significant financial intermediary. In this back drop it is relevant to analyse Indian mutual fund schemes.

OBJECTIVES OF THE STUDY

1. To analyse the sample schemes in terms of risk and return and systematic risk (Beta)
2. To examine performance of sample schemes in terms of NIFTY

a. Based on risk and return

b. Sharpe ratio
c. Treynor ratio
3. To evaluate market timing abilities of fund managers by applying
i) Treynor and Mazuy Model
ii) Hendrickson -Merton Model

III. RESEARCH METHODOLOGY

a. Sample

In accordance with the objective framed for the research work sample design prepared on convenience sample technique. Both from public and private sector funds have been selected. Hybrid mutual funds selected which launched between 1995 – 2011.

b. Population

Selection of sample based on the basis of open-ended, Regular and growth schemes from population of different fund houses.

c. Secondary data sources

- Annual reports of fund companies
- Offer documents of fund schemes
- Nav's of schemes published by fund companies

d. Websites

- www.amfi.com
- www.bluechipinvestment.com
- www.navindia.com
- www.valueresearchonline.com
- www.nse.com

e. Study period

Present study on Hybrid mutual fund is made during 2011-12 to 2020-2021.

Table No.1 Hybrid Mutual Funds

TYPE-I	HYBRID EQUTIY SAVINGS
1	Hybrid equity savings
2	PGIM IND equity saving
3	Sundaram equity savings
4	Tata equity savings
5	IDFC equity savings
TYPE-II	HYB ARBITRAGE
6	ABSL arbitrage
7	UTI arbitrage
8	Nippon IND arbitrage
9	Kotak equity arbitrage
10	IDFC arbitrage
11	ICICI PRU equity arbitrage
12	Invesco IND arbitrage
TYPE-III	HYBRID DYNAMIC
13	ICICI balance advantage
14	Edelweiss balance advantage
15	Invesco IND dynamic equity
16	L&T balance advantage

17	NIPPON IND balance advantage
18	UTI UNIT link insurance plan-10 yrs
19	UTI UNIT link insurance plan -15 yrs
TYPE-IV	HYBRID MULTI ASSET ALLOCATION
20	Axis triple advantage
21	HDFC multi asset
22	ICICI PRU multi asset
23	Quantum multi asset
24	SBI multi asset

Research tools for analysis

Return of portfolio

Return of mutual fund is calculated by taking NAVs of selected mutual fund. NAV's have been collected for the period April 2011 to march 2021. The return is calculated as follows

Absolute return = (Present NAV – initial NAV) / initial NAV × 100

The average return of the scheme is calculated with a formula

$$RP_t = \frac{NAV_t - NAV_{t-1}}{NAV_{t-1}}$$

Where:

RP_t = absolute return on the fund for time t

NAV_t = average NAV for time t

NAV_{t-1} = average NAV for time t-1

Risk

It is defined as degree of probability of variation in expected returns.

Mutual funds return involve risk because they depend on performance of stock market. Assessment of funds is done with risk included in it. Variability of return is measured in terms of standard deviation.

It is statistical measure of dispersion in returns. The smaller the deviation, the smaller is the spread in the deviation and as result risk is less. It is calculated by

$$\mathbf{SD} = [\sqrt{\Sigma(R_p - AR_p)^2}\ ]_{1/n}$$

SD = σp= standard deviation = total risk

R_m = return of portfolio

AR_m = average return of portfolio

Systematic Risk (β):

Systematic risk is a part of total risk which changes due to changes in overall market. It indicates relationship between return of schemes and return of market, this is caused by external factors which are not under the control of fund manager and it should be borne by fund manager

$Rp = \alpha + \beta p\ (Rm) + ep$

$\beta < 0$: then there is inverse relation between schemes return and market return.

$\beta = 0$: return of scheme is independent of market return

$0 < \beta < 1$: return of scheme is positively associated with market return former is less volatile compared to later

$\beta = 1$: both Rm and Rp vary by same margin

$\beta > 1$: return of market is more volatile.

α-is constant term

e = error term

Performance evaluation of mutual funds

Performance of mutual funds is evaluated by applying Sharpe, Treynor, Treynor-Mazuy model and Hendrickson-Merton model.

Sharpe ratio

It is the ratio which indicates the relationship between portfolio's additional returns over the risk-free return and total risk of portfolio. It is also known as reward to variability ratio

For the purpose of analysis, the Sharpe's ratio is compared with bench mark ratio in which total risk of market is taken in denominator. If Sharpe ratio is higher than the bench mark ratio it implies less variability of portfolio compared to that of market.

$$\textbf{Sharpe ratio} = \frac{R_p - R_f}{\sigma P}$$

Rp = return on port folio
Rf = risk free rate
σp = standard deviation of the portfolio's excess return

Treynor ratio = $\frac{AR_p - AR_f}{\beta P}$

It is another measure of fund performance in terms of return and risk. It measures relationship between funds additional return over risk free return and funds volatility measured in terms of beta, it is also called reward to volatility, and measured as
ARp =average return on portfolio
ARf = average risk free rate
βp = Beta value of portfolio
Market timing ability
Market timing ability- Treynor-Mazuy Model

Treynor and Mazuy model (1966) designed a model to analyse the timing ability of fund managers. In it there is quadratic relationship between fund return and market returns. The equation is
(Rp – Rf) = $\boldsymbol{\alpha + \beta}$ (Rm –Rf) + γ (Rm-Rf) ^2 + ep
α – constant term
Rp – Return of fund
Rm – Return of market portfolio
Rf – Risk free return
Ep – random error
β - selecting ability of fund manager
γ – timing ability of fund manager

Hendrickson – Merton derived a model to study timing abilities of fund managers to predict timing ability, they designed a formula
(Rp – Rf) = α + β (Rm-Rf) + Dγ (Rm-Rf) + ep
D – dummy variables
When Rm > Rf markets are said to take upturn, dummy variable takes '0' value. When Rm < Rf markets are said to be take down turn, dummy variable takes value '-1'.
β – selecting ability of fund manager.
γ – timing ability of fund manager
Risk free rate
10 years interest bond rates by RBI considered as risk free rate for study

IV. Results and analysis

Table No: 2 Distribution of all sample schemes related to average returns (Percentage)

Category of Funds	0 – 0.03	0.03 – 0.04	0.04 - 5	TOTAL
Hybrid Equity savings	1	4	NIL	5
Hybrid Arbitrage	7	NIL	NIL	7
Hybrid Dynamic	1	NIL	6	7
Hybrid Multi Asset Allocation	NIL	4	1	5

Out of schemes considered for present study, hybrid equity savings has five funds. No schemes of hybrid equity savings category have returns above 0.04 %. No schemes of this are near to 0.04 %. All schemes of this category have generated returns in the range less than 0.04 %. All schemes of this category have generated returns around 0.035 %. In hybrid equity savings IDFC hybrid savings regular had highest returns compared to remaining four schemes. Fund managers of hybrid equity savings might have invested in stock market in different selected securities to reduce risk. On the whole this category under performs the market.

In all hybrid mutual funds, 7 schemes are selected for study under hybrid arbitrage category. No schemes of hybrid arbitrage category have returns above 0.03 %. All schemes in this category have returns below 0.03%. All the schemes of this category have generated returns around 0.027%. In hybrid arbitrage, Kotak equity hybrid arbitrage has generated highest returns. All schemes of this category have underperformed

market. Fund managers of this category might have not invested in suitable schemes to generate high returns. They might have concentrated to reduce risk while investing.

Out of hybrid mutual funds selected for study, hybrid dynamic has 7 schemes. 1 (14.26%) scheme of this category have return with less than 0.03 %. Six schemes have generated returns in the range 0.04 - 5. Out of all hybrid dynamic, UTI Linked Insurance plan =10 years had 4.9% return. Returns in this category are wide spread from 0.0199% to 4.9%. Only UTI Linked insurance pan-10 years outperform the market. We conclude that this category had mixed performance.

Out of hybrid mutual funds consider for present study, hybrid multi asset allocation is last category. This category has 5 schemes. Out of all five schemes only one (20%) scheme generate returning range above 0.04%. Quantum multi asset generated 0.054% returns. Remaining 80% schemes generated returns in the less than 0 – 0.04 percentage range. All schemes underperform the market. The fund managers of all mutual funds might have concentrated in investing in securities to reduce risk.UTI Unit Linked insurance plan -10 years has highest returns with 4.9%.

Table No: 3 Distribution of all sample schemes related to average risk (Percentage)

CATEGORY OF FUND	0 – 0.1	0.1-0.5	0.5 – 1.5	TOTAL
Hybrid Equity savings	NIL	04	01	05
Hybrid Arbitrage	07	NIL	NIL	07
Hybrid Dynamic	NIL	NIL	7	07
Hybrid Multi Asset Allocation	NIL	02	03	05

Out of hybrid funds under study,5 hybrid equity savings schemes are considered. No scheme of this category has risk in the range 0 – 0.1%. 4 schemes of this category have risk in the range 0.1 – 0.5%. In this range all schemes have almost same risk. One scheme of this category have risk in the range 0.5 – 1.5%. Sundaram equity savings has highest risk of 0.775%. Fund manager of this fund might have balance return and risk.

Out of hybrid funds under study, 7 hybrid arbitrage schemes are considered. In this category all funds have risk in the range 0 – 0.1%. The fund manager might have taken at most care in reducing the risk. The skills of fund manager is also clearly understood in achieving less risk. The fund manager might have between risk and return. In this category though there are public and private schemes both had balanced between risk and return. It is evident from the result that fund managers have stock selecting skills.

Out of hybrid mutual funds under study 7 schemes are selected under hybrid dynamic allocation funds. This category of funds has average risk in the range 0.5 – 1.5%. No scheme of this category has risk in the range 0 – 0.1% and 0.1 – 0.5%. UTI unit linked insurance plan 10 years has high range of 0.84%, though it is public fund it has high risk, but risk is somewhat compensated by return of 0.49%. It is seem that there is balance between risk and return. Out of hybrid dynamic schemes Nippon IND balanced advantage had high risk. It generated less returns of 0.037%. Fund manager of the scheme had lack of skills. It is evident from more risk and less returns of Nippon IND balanced advantage. In all these Unit linked insurance plan- 15 years generated less returns with less risk. Investors who want returns with less risk can invest in this portfolio.

Out of hybrid funds under the study5 schemes selected under hybrid multi asset allocation. 2 schemes (40%) of these category have risk in the range 0.1 – 0.5% and rest of the schemes 60% of this category have risk in the rang 0.5 1.5%.

Out of all schemes in the range 0.5 –1.5%. High risk is exhibited by Quantum multi asset and least is exhibited by SBI multi asset. As Sbi multi asset is public sector, it had less risk of funds of this category. But return of this scheme are somewhat more compare to least value of return percentage. In hybrid multi asset allocation category less risk and less return are exhibited by SBI multi asset allocation.

Table No.4 Category wise Beta of sample schemes in relation to Nifty

CATEGORY OF FUND	Range	Range	Total
	Up to 0.00	0.001-0.05	
Hybrid Equity savings	03	02	5
Hybrid Arbitrage	06	01	7
Hybrid Dynamic	02	05	7

Hybrid Multi Asset Allocation	02	3	5

5 Hybrid equity savings of hybrid mutual funds are consider for study. Out of 5 schemes of this category 3 schemes have negative beta whereas 2 schemes have positive beta values. From positive beta's, PGIM Ind equity savings has highest beta. Highest value of beta signifies that return of scheme is correlated more with signifies that return of scheme is correlated more with market. Sundaram equity savings has less but positive beta. It means its performance is correlated less with market. Negative beta signifies that return of schemes uncorrelated with benchmark. Beta values of these schemes are neither equal to 0 nor 1. This says that samples have volatility and they are not riskier than market.

7 Hybrid Arbitrage schemes of hybrid funds are selected for study. It has 7 schemes in it six out of seven (85.7%) has negative beta values. Remaining one out of seven (14.3%) has positive beta values. UTI Arbitrage has positive beta. It signifies that return of schemes depend on market, which decides systematic risk. There are no funds with zero beta values. Zero beta mean performance of stock is unrelated with the market. Negative beta indicates that stock moves opposite to direction of market. Some of the schemes have values close to zero beta. In this category all schemes are having beta neither 0 nor 1. This says that sample schemes are volatile. They are not riskier than market.

7 Hybrid Dynamic of the hybrid mutual funds considered for study. Two schemes (28.57%) have negative beta values. These schemes indicate that stock moves opposite to direction of market. Five schemes out of seven (71.43%) have positive beta values. These schemes are correlated with market. These beta values lie in the range 0.001-0.05 out of stock. With positive beta values ICICI balance advantage high beta values. It signifies that, performance of schemes correlated more with market; it results in increase of systematic risk. Some of schemes have values close to zero. In this category no schemes is having beta either equal to 0 or 1.It signifies that sample schemes are volatile. They are not riskier than market.

5 Hybrid multi asset allocation of hybrid mutual funds considered for study. In this category two schemes have beta values in the range up to 0.00. Three schemes have beta value lie in the range 0.001-0.05. In the range 0.05-0.1, there is only one fund ICICI has high beta value. It indicates that performance of ICICI is correlated more with market resulting in increase of systematic risk. In This category no scheme is having beta value either equal to 0 or 1. It signifies that sample schemes are volatile. They are not riskier than the market.

Table No. 5 Sharpe Ratio

CATEGORY OF FUND	Below benchmark	Above bench mark	Total
Hybrid Equity savings	05	NIL	05
Hybrid Arbitrage	07	NIL	07
Hybrid Dynamic	07	NIL	07
Hybrid Multi Asset Allocation	05	NIL	05

Five schemes of hybrid equity savings are consider for study. In these categories 4 funds are underperformers of benchmark. All underperformers belong to private sector. Only one has Sharpe value above benchmark. This is outperforming the market. PGIM Ind equity is generating excess returns.

Out of 24 schemes considered for study, 7 belong to hybrid arbitrage category. All funds of these category have Sharpe ratio below benchmark. They are underperformers of benchmark. In this underperformers category, there are one belong to public sector. UTI arbitrage is generating excess return compared to benchmark.

Out of 24 schemes considered for study, 7 more belong to hybrid dynamic category. All are having Sharpe ratio below that of benchmark. They are all underperforms. There funds are not able to generate excess returns over benchmark.

Last category of funds under study are hybrid multi asset allocation. This category has 5 funds. In this, there is one scheme belong to public sector category. This SBI scheme has Sharpe ratio value less than that of benchmark. Remaining 6 schemes belong to private sector category. Out of 4, 3 schemes have Sharpe ratio below benchmark. They underperformed market. Quantum multi asset outperformed market.

Table No. 6 Treynor Ratio

CATEGORY OF FUND	Below benchmark	Above bench mark	Total
HYBRID EQUTIY SAVINGS	02	03	05
HYBRID ARBITRAGE	01	06	07
HYBRID DYNAMIC	05	02	07
HYBRID MULTI ASSET ALLOCATION	03	02	05

Hybrid equity savings with 5 schemes considered for study. Out of 5 schemes, 3 schemes have Treynor ratio greater than the market (Nifty). They are outperformers of market. Remaining 2 schemes belong to Treynor ratio less than the market (Nifty). Out of 3 schemes of good performers, all three belong to private category. Two outperformers belong to private category.

7 Hybrid arbitrage schemes of hybrid mutual funds are considered for study. Out of 7 schemes 6 schemes have Treynor ratio which have value greater than market (Nifty). They are outperformers compared to (Nifty) market. Out of 6 schemes of private sector one out of 7 schemes has Treynor ratio value less than the market. It belongs to public sector. It under performs the market.

7 hybrid dynamic schemes of hybrid mutual funds are considered for study. All the schemes have Treynor ratio less than the market value. They underperform the market.

Hybrid multi asset allocation with 5 schemes are selected for study. 2 schemes (40%) have Treynor ratio that of market. They outperform market. In outperformers one belongs to public and remaining one belong to private category. Three out of 5 schemes (60%) belong to private category.

MARKET TIMING ABILITY INTERMS OF NIFTY

Table No. 7 TREYNOR MAUZY MODEL

CATEGORY OF FUND	SIGNIFICANT	INSIGNIFICANT	TOTAL
HYBRID EQUITY SAVINGS	5	NIL	5
HYBRID ARBITRAGE	7	NIL	7
HYBRID DYNAMIC	6	1	7
HYBRID MULTI ASSET ALLOCATION	5	NIL	5

Treynor and Mazuy model (1966) designed a model to analyse the timing ability of fund managers. In it there is quadratic relationship between fund return and market returns. The equation is

$(Rp - Rf) = \boldsymbol{\alpha} + \boldsymbol{\beta}\ (Rm - Rf) + \gamma\ (Rm-Rf)\ ^2 + ep$

α – constant term

Rp – Return of fund

Rm – Return of market portfolio

Rf – Risk free return

Ep – random error

β - selecting ability of fund manager

γ – timing ability of fund manager

This equation is used in regression with Rp – Rf, Rm –Rf and (Rm – Rf) ^2. When test for statistical significance, those t-γ which are + ve, they have market timing skills whose t-γ are negative and insignificant, they are do not enough market timing skills.

Market timing ability in terms of Nifty:

In Hybrid Equity Savings category all funds have positive γ – values. It indicates managers of all funds have successful market timing abilities. In this category, manager of Tata Equity has relatively good timing skills. In Hybrid Arbitrage category all have positive γ – values. It indicates that managers of all funds have successful market timing abilities. Out of all in this category Invesco Ind Arbitrage funds managers have good timing skills. In Hybrid Dynamic category, 6 out of 7 have positive γ – values. It indicates that they have good timing skills. Only one have negative γ- value. Fund managers of Nippon Ind Balanced Advantage have negative timing skills.In Hybrid Multi Asset Allocation category all funds have positive (+) γ – values all fund managers have good timing abilities. Out of all funds, ICICI Pru Multi Asset have relatively high γ. It says that fund manager has relatively good timing skills and timing abilities

Table No. 8 HENDRICKSON – MERTON MODEL

CATEGORY OF FUND	SIGNIFICANT	INSIGNIFICANT	TOTAL
HYBRID EQUITY SAVINGS	4	1	5
HYBRID ARBITRAGE	7	NIL	7
HYBRID DYNAMIC	5	2	7
HYBRID MULTI ASSET ALLOCATION	5	NIL	5

ANALYSIS BASED ON HENDRICKSON – MERTON MODEL

Hendrickson – Merton derived a model to study timing abilities of fund managers to predict timing ability, they designed a formula

$(Rp – Rf) = \alpha + \beta (Rm-Rf) + D\gamma (Rm-Rf) + ep$

D – dummy variables

When Rm > Rf markets are said to take upturn, dummy variable takes '0' value. When Rm < Rf markets are said to be take down turn, dummy variable takes value '-1'.

β – selecting ability of fund manager.

γ – timing ability of fund manager.

Hybrid equity savings with 5 schemes are considered for study. 24 schemes selected for study. 4 schemes under this category have significant Υ values skills. They are able to sense mood of market and 4 private sectors of hybrid equity savings are good market timers. One has insignificant Υ value. It indicates fund manager has poor market timing ability.

Hybrid arbitrage has 7 schemes of mutual funds under study. All 7 schemes have positive Υ-values mean they are significant. Relatively fund manager of IDFC arbitrage has good market timing ability. Out of seven 6 schemes belong to private category. From these 6 schemes, IDFC has relatively large Υ-value. It means IDFC fund manager has good market timing skills followed by ICICI Pru Equity arbitrage and ICICI Pru equity arbitrage.

Hybrid Dynamic with 7 schemes of mutual funds are consider for study Two schemes have two negative Υ value, they are insignificant. The fund managers have lack of market timing skills. Only there are two, one belongs to public sector and other belongs to private sector.

Remaining 5 funds have positive Υ values. They are significant. The fund manager has a good market timing ability. INVESCO Ind Dynamic, a private sector has relatively high Υ. Its fund manager has good market timing ability. Relatively fund managers are good market timers. 3 schemes have relatively great timing ability followed by Nippon Ind Balance advantage and Edel Wiess balance advantage.

Hybrid multi asset allocation with 5 funds belongs to mutual fund schemes under study. All the funds have positive Υ-values. All fund managers are good market timers. ICICI multi asset allocation has 5 schemes of hybrid mutual fund considered for study. All have positive Υ-values. It means they are significant. They indicate good market timing abilities of fund managers. In 5 schemes there is one public and other private sector. Relatively ICICI Pru Multi asset allocation has high Υ value indicates market manager is good market timer. When both public and private sectors are compared public sector fund SBI Multi Asset is in 3rd position. Within private sector ICICI Pru Multi Asset Allocation stands first followed by Axis Triple Advantage and Quantum Multi Asset Allocation

V. Summary and conclusions

All funds under Hybrid Equity Savings category positive returns. HDFC and Sundaram Equity savings have almost equal returns. All funds under Arbitrage category have positive returns. All funds under Hybrid Dynamic and Hybrid Multi Asset Allocation are positive return in hybrid equity savings 3 funds have negative beta and 2 funds have positive beta. In hybrid dynamic 2 funds have negative beta and 5 funds have positive beta. In hybrid multi allocation two funds have beta negative and 3 funds have positive beta.In hybrid equity savings all schemes underperform the market. In arbitrage hybrid and hybrid dynamic underperform market. In hybrid multi asset allocation all schemes underperform market. In hybrid equity savings 2 schemes (40%) below bench mark and 3 funds above bench mark (60%).In hybrid arbitrage only one UTI arbitrage underperform market and remaining 6 funds are above benchmark, In hybrid dynamic 5 funds below benchmark and 2 funds above benchmark. In hybrid multi asset allocation, 60% are below bench mark and 40% above benchmark.

In Hybrid Equity Savings category all funds have positive γ – values. It indicates managers of all funds have successful market timing abilities. In this category, manager of Tata Equity relatively good timing skills. In Hybrid Arbitrage category all have positive γ – values. It indicate that managers of all funds have successful market timing abilities. Out of all in this category Invesco Ind Arbitrage funds managers have good timing skills. In Hybrid Dynamic category, 7 out of 8 have positive γ – values. It indicates that they have good timing

skills. Only one have negative γ- value. Fund managers of Nippon Ind Balanced Advantage have negative timing skills. In Hybrid Multi Asset Allocation category all funds have positive (+)

γ – values all fund managers have good timing abilities. Out of all funds, ICICI Pru Multi Asset have relatively high γ. It says that fund manager has relatively good timing skills and timing abilities In Hybrid Equity Arbitrage out of 5 funds 4 funds have positive γ- values only one has negative γ- values. Sundaram Equity Savings has negative γ- value. Its fund manager has no timing skills. Out of 4 funds which have the + ve γ- values. Tata Equity savings has relatively high γ- value. Its fund manager has relative high market timing abilities.

In Hybrid Arbitrage all funds have positive γ- values. Out of all funds, UTI Arbitrage high γ- value. Its fund manager has relatively high timing skills. In Hybrid dynamic out of 8 funds 6 have '+' ve γ- values. Their fund managers have good timing skills. Two funds have negative γ- values. Fund managers of ICICI Balanced Advantage and UTI Unit Linked Insurance Plan 10 years lock of timing skills.In Hybrid Multi Allocation all funds have positive γ- value. All fund managers good timing skills. Fund manager of SBI multi asset allocation has relatively high market timing skills. On all 24 funds ICICI PRU multi asset allocation high gamma value. Fund manager of ICICI PRU multi asset allocation has excellent timing skills.

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APPENDIX
A – 1
HENDRICSON AND MERTON MODEL

	HYBRID EQUITY SAVINGS	beta	SE-beta	t-beta	gamma	SE-gamma	t-gamma
1	HDFC EQUITY SAVINGS	0.3796	0.05841	6.4986	0.0282	0.0577	0.4891
2	PGIM IND EQUITY SAVINGS	0.3871	0.0562	6.5790	0.0261	0.0556	0.4695
3	SUNDARAM EQUITY SAVINGS	0.2597	0.0799	3.2508	-0.1105	0.0789	-1.1399
4	TATA EQUITY SAVINGS	0.3844	0.0562	6.8347	0.0334	0.0555	0.6018
5	IDFC EQUITY SAVINGS REG	0.3882	0.0563	6.8892	0.0307	0.0557	0.5510
	HYBRID ARBITARGE						
6	ABSL ARBITRAGE	0.3754	0.0506	7.4128	0.0195	0.0500	0.3900
7	UTI ARBITRAGE	0.3885	0.0503	7.7093	0.0305	0.0498	0.6136
8	NIPPON IND ARBITRAGE	0.383	0.051	7.537	0.029	0.050	0.570
9	KOTAK EQ ARBITRAGE	0.3832	0.0506	7.5608	0.0275	0.0501	0.5507
10	IDFC ARBITRAGE	0.3871	0.0504	7.6699	0.0320	0.0499	0.6415
11	ICICI PRU EQ ARBITRAGE	0.3856	0.05061	7.6189	0.0304	0.05003	0.6080
12	INVESCO IND ARBITRAGE	0.36798	0.0497	7.4282	0.0280	0.0491	0.5698
	HYBRID DYNAMIC						
13	EDE WEISS BAL ADV	0.4122	0.0664	6.2065	0.0455	0.0656	0.6929
14	INVESCO IND DY EQ	0.4673	0.0783	5.9652	0.0942	0.0774	1.2165
15	ICICI BALANCED ADV	0.3169	0.07169	4.4207	-0.0469	0.0768	-0.6624
16	L&T BALANCE ADV	0.4090	0.0703	5.8176	0.0706	0.0692	1.0170
17	NIPPON IND BALANCE ADV	0.4882	0.0826	5.9110	0.0842	0.0816	1.0320
18	UTI UNIT LINK INSU PLAN - 10Y	0.0237	0.0369	0.6445	-0.0217	0.0364	-0.5951
19	UTI UNIT LINK INSU PLAN - 15Y	0.4384	0.0669	6.549	0.0551	0.0661	0.8333
	HBRID MULTI ASSET ALLOCATION						
20	AXIS TRIPLE ADV	0.4477	0.0708	6.3870	0.0712	0.0693	1.027
21	HDFC MULTI ASSET	0.3799	0.0635	5.976	0.0286	0.0628	0.4558
22	ICICI PRU MULTI ASSET	0.5095	0.0826	6.167	0.0949	0.0816	1.162
23	QUANTUM MULTI ASSET	0.4130	0.1616	2.555	0.0365	0.1598	0.2223
24	SBI MULTI ASSET	0.3898	0.0571	6.822	0.0399	0.0564	0.7082

A =2 Treynor –Mazuy model

	HYBRID EQ SAVINGS	**Beta**	**Se beta**	**t beta**	**Gamma**	**Se gamma**	**t gamma**
1	**HDFC EQ SAVINGS**	**0.7290**	0.0483	15.0819	2.5216	0.3144	8.0201
2	**PGIM IND EQ SAVINGS**	**0.7425**	0.0466	16.0148	2.5508	0.3020	8.4456
3	**SUNDARAM EQ SAVINGS**	**0.6943**	0.0653	10.6225	2.18195	0.4275	5.1029

4	**TATA EQ SAVINGS**	**0.7631**	0.0462	16.5068	2.7557	0.3012	9.1491
5	**IDFC EQ SAVINGS REG**	**0.7665**	0.0455	16.8462	2.7481	0.2978	9.2281
	HYBRID ARBITARGE						
6	**ABSL ARB**	**0.7158**	0.0409	17.478	2.4177	0.2679	9.0241
7	**UTI ARB**	**0.7110**	0.04072	17.4584	2.3726	0.2665	8.9008
8	**NIPPON IND ARB**	**0.7167**	0.0409	17.4836	2.4369	0.2684	9.0794
9	**KOTAK EQ ARB**	**0.7195**	0.0408	17.6247	2.4474	0.2674	9.1501
10	**IDFC ARB**	**0.7121**	0.0407	17.4564	2.3980	0.2669	8.9829
11	**ICICI PRU EQ ARB**	**0.7127**	0.0409	17.4265	2.4024	0.2676	8.9753
12	**INVESCO IND ARB**	**0.7185**	0.0411	17.4916	2.5131	0.2668	9.4181
	HYBRID DYNAMIC						
13	**EDE WEISS BAL ADV**	**0.7537**	0.05401	13.9533	2.5981	0.3533	7.3526
14	**INVESCO IND DY EQ**	**0.7688**	0.06382	12.0459	2.6561	0.4177	6.5384
15	**ICICI BALANCED ADV**	**0.6288**	0.04152	1.5141	0.3210	0.2724	1.1814
16	**L&T BALANCE ADV**	**0.7678**	0.0581	13.218	2.8705	0.3784	7.5849
17	**NIPPON IND BALANCE ADV**	**0.7424**	0.0675	10.9351	2.2699	0.4419	5.1358
18	**UTI UNIT LINK INSU PLAN -10Y**	**0.3505**	0.0296	11.828	2.0518	0.1939	10.577
19	**UTI UNIT LINK INSU PLAN -15Y**	**0.7949**	0.054	14.639	2.7654	0.3554	7.7806
	HBRID MULTI ASSET ALLO						
20	**AXIS TRIPLE ADV**	**0.7721**	0.0569	13.558	2.657	0.372	7.127
21	**HDFC MULTI ASSET**	**0.7676**	0.0526	14.592	2.7796	0.3421	8.125
22	**ICICI PRU MULTI ASSET**	**0.8871**	0.069	13.247	3.175	0.4387	7.238
23	**QUANTUM MULTI ASSET**	**0.7510**	0.0624	12.029	2.607	0.4084	6.384
24	**SBI MULTI ASSET**	**0.7736**	0.0470	16.431	2.829	0.3062	9.238

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