



REALIZATION OF GAINS VERSUS LOSSES BY INDIAN MUTUAL FUND MANAGERS

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Abstract: Mutual fund managers are considered to be very efficient in terms of trading in the securities market. However, as per literature, it was found that they are not always proficient in dealing with securities during the fluctuations in the stock market. This paper has been attempted to inquire about the realization pattern of Indian Mutual Fund Managers which indicates about their biasness towards “Disposition Effect”. This bias signposts that the fund managers are more readily selling the profitable stocks (winners) from their portfolio in comparison to the losing stocks (losers). It was ascertained through empirical analysis that the fund managers aren’t selling more losers than winners for the entire sample. The data settings have allowed us to examine the bias among different AMCs and categories of mutual fund schemes. For this bifurcation of data again, no significant differences between the realization of winners and losers were observed. The study implies that fund managers are trading efficiently in the Indian Equity Market.

Keywords: Mutual Funds, Realized Gains, Unrealized Gains, Realized Loss, Unrealized Loss

1. INTRODUCTION

Shefrin and Statman (1985) were first to discover the tendency in the behavior of investors to carry on with their loss-making stocks/assets and realize the gaining stocks for assuring profits. From 1961 to 1981, they analyze aggregate data of mutual fund trades from Investment Capital Institute. They found that there were fewer redemptions in weak stock market months than in good months.

DE (Disposition Effect) is one of the biases in the field of behavioral finance that influence investors to make imperfect decisions at the time of trading or investments. DE implies the way investors tend to treat unrealized

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gains and losses on financial assets. The effect describes how often investors sell profitable stocks, despite holding them for higher gains in future. The other side of DE is even worse wherein investors tend to hold unprofitable investments. Rationally, it is best to sell these poorly performing stocks before they decline further and reinvest the proceed into fresh ventures to make money.

The rapidly growing size of AUM (Asset under Management) of mutual funds in India have shown the importance of mutual funds among investors in their investment decisions. Better returns amidst market volatility and professional approach in managing portfolios have resulted in increased subscription by investors. Professional investors like mutual fund managers are more likely to avoid behavioral biases and expected to perform better than a retail investor, as they have more trading experience and have access to superior investment technological tools. Thus, it creates a necessity to study and find whether the fund managers are doing justice to the investor's confidence in mutual funds. Further, this study has never been done earlier in India for measuring DE. It might be useful to ascertain how Indian Fund managers behave. In the form of originality of work, it adds to the prevailing body of knowledge. Thus, the objective of our study can be classified as:

- To see whether fund managers are selling more winners than losers.
- To understand the realization of winners from the portfolio using different periods like on annual basis.
- To see how AMCs are different in selling winners than losers.
- To understand how various categories of mutual funds are different in terms of realization of securities.

The rest of the paper has been organized as follows: The subsequent section discusses the review of literature and empirical evidence for the bias DE. Afterward, gaps have been identified in the literature and hypothesis have been formulated to fill those gaps. The next section discusses the results and lastly, the section culminates the findings and conclusion.

2. REVIEW OF LITERATURE

Since the discovery of evidence of DE, it was studied and quoted by researchers of various countries all over the world. It was empirically found to influence Australian (Brown *et al.*, 2006), Chinese (Feng and Seashole, 2005), Finnish (Grinblat and Kheloharju, 2001), Israeli (Shapira and Venezia, 2001), Taiwanese (Barber *et al.*, 2007; Lee *et al.*, 2010) and US- American (Odean, 1998; Shefrin and Statman, 1985) investors. Similar evidence was

found in Estonia (Talpsepp, 2010) and Germany (Weber and Camerer, 1998) through experimental evidence.

The evidence from various countries was documented both on the individual investor as well as market data. For evaluating market data, [Lakonishok and Smidt (1986); Ferris, Haugen, and Makhija (1988) and Bermer and Kato (1996)] the volume of trading stocks by aggregate investors was used to document DE. Many of them found consistent increase in the volume of trading when stock prices have increased and decreasing volume in the scenario of falling prices, which indicates that the market was affected by DE. Studies on the behavior of individual investor have documented a significant presence of this bias [Odean (1998); Weber and Camerer (1998); Chui (2000); Shapira and Venezia (2001); Grinblatt and Keloharju (2001); Feng and Seasholes (2005); Coval, Hirshleifer, and Shumway (2005); Shumway and Wu (2006)].

There is copious literature available on the evidence of DE among individual investors. Besides some studies have searched for evidence of DE among various investor communities, keeping aside individual investors. Grinblatt and Keloharju (2001) have studied all types of investors—households, non-financial corporations, government institutions, not-for-profit institutions, and financial institutions. They argued that financial institutions were arguably the foremost sophisticated kind of investor in their study. Though this research analyzes the behavior of mutual fund managers therefore in the subsequent section the literature review is considered specifically to identify the evidence of DE among professional investors and more specifically mutual fund managers.

Shapira and Venezia (2000) showed that in Israel both, individual as well as professional investors exhibit DE, but the effect was strong for individual investors, where stock market gains are tax-free. Adding to the literature of professional investors Garvey and Murphy (2004) found that US proprietary stock traders hold onto their losers for long and sell winners rapidly.

The argument that greater investment expertise is less susceptible to DE is supported by Locke and Mann (2005). They studied the trading behavior of 300 professional futures traders at the Chicago mercantile exchange and find all traders hold losers longer than winners, the least successful traders hold losers the longest while most successful traders hold losers for the shortest time. Heisler (1994) studied the professional futures traders, a small group of speculators in the Treasury bond futures market, and found that these investors hold trade with an initial paper loss significantly longer than the trade that shows an initial profit.

Adding to the evidence of professional future traders, Coval and Shumway (2005) analyzed the behavior of 426 proprietary Treasury bond futures traders at the Chicago board of trade. They revealed how trader's risk-taking in the afternoon trading session is related to their performance in the morning. They found that investors take above average afternoon risk to get over from morning losses. Choe and Eom (2009) used Korean data covering stock index futures transactions of all market participants, individuals, institutions, and foreign investors. They documented that DE is pervasive among all categories of investors but professional investors and institutional investors are less associated with the bias as compared to individuals.

Barber *et al.* (2007) studied all trading activity on the Taiwan stock exchange during 1994- 1999. They found that individuals are realizing their losses faster than the other market participants. They did not find DE among mutual fund managers and foreign investors. While searching evidence in foreign exchange market O'Connell and Teo (2009) did not find evidence of DE among large institutions in currency trade.

Many studies have documented robust evidence for reverse DE among professional investors, more commonly in foreign investors and mutual fund managers. It was believed that accounts of foreign investors are managed by professional money managers as they are more sophisticated and experienced than individual and household investors. Barber and Odean (2000) found reverse DE in the actively managed fund *viz-a-viz* investors of passively managed funds (e.g. Index funds) where the role of portfolio managers is minimal exhibit small but directionally positive DE that is significantly different from actively managed funds.

Chang, Solomon, and Westerfield (2014) have documented that delegated assets like mutual funds exhibit a robust reverse DE. Dhar and Zhu (2006) show that about 20% of investors are showing reverse DE. Foreign investors and foreign institutional investors also exhibit reverse DE (Talpsepp, 2011).

3. DATA AND METHODOLOGY

The portfolio holding data of Asset Management Companies (AMCs) has been used for examining the realization of Gains and Losses. The data of 46 schemes from the top 10 AMCs of India is considered for examining the bias. The portfolio holding data is available for the last date of each month. Five-year portfolio holding data (April 2013 to March 2018) is used for studying the bias among Mutual funds managers.

For calculating gains and losses the methodology of Odean (1998) has been followed, where they have used proportion of gains and losses realized rather than taking actual gains and losses. It has been argued by Odean (1998) that in some months the opportunity to sell a winning stock is more than the opportunity to sell a losing stock as all the stocks are rising in a bullish phase and vice-versa. Thus, instead of taking actual number of gains and losses they have taken proportion of gains and losses realized to investigate the bias.

3.1. Calculation of RG, URG, RI, and URL

The positions made at the end of each month is been analyzed to ascertain whether it has resulted in a realized gain, unrealized gain, realized loss, or unrealized loss.

For measuring profit and losses on positions made, the actual prices have to be compared with the average purchase price. In the absence of information about average purchase price and actual price, the Value Weighted Average Price (VWAP) and the Closing Price (CP) has been used as a proxy for these prices.

The position is marked as realized gain, unrealized gain, realized loss, and unrealized loss as follows:

- If the change in the holding size of a particular stock is equal to or greater than zero then it will be counted as unrealized gain or loss. It will be marked as an unrealized gain if the closing price is greater than the VWAP and vice versa.
- Similarly, if the change in holding size is less than zero, it means some units of that particular stock has been realized. It will result in realized gain or loss. The position is marked as a realized gain if the closing price is greater than VWAP and vice versa.

The proportion of gains realized is calculated by dividing the total number of realized gains by the total gains, i.e. realized as well as unrealized. Similarly, the proportion of losses realized has been calculated by dividing the total number of realized losses by total losses (realized losses and unrealized losses).

The fund is said to be biased if the proportion of gains realized is found greater than the proportion of losses realized.

$$DSP = PGR - PLR$$

The differences between these proportions are examined for their statistical significance. A paired sample t-test is used to see whether the

difference between these proportions is significantly different from zero or not. This way the analysis of the bias was to be analyzed for the mutual fund managers of India.

4. RESULT AND DISCUSSIONS

This section discusses the result of the bias from different perspectives. It includes analysis of aggregate results, AMC-wise results, and result for different categories.

4.1. Aggregate Results

The evidence for DE has been documented in several ways. From aggregate data for the entire sample period to monthly analysis of the difference between the proportion of gains and losses realized has been analyzed. The differences were investigated with the paired sample t-test for assessing their statistical significance.

The mutual funds are said to be professionally managed and thus assumed to be free from all sets of biases due to their technical expertise and experience. Thus to enquire the actuality, the portfolio holding data was being evaluated for the realized gains and losses to see whether the fund managers are exhibiting a disposition to sell winners than losers. Figure 1 below presents the aggregate number of gains/losses realized as well as unrealized.

It is postulated in Figure 1 that the aggregate number of gains realized are comparatively lesser than the aggregate number of losses realized. Odean (1998) has compared the Proportion of Gains and Losses Realized instead of actual number of gains and losses in belief that for some months the opportunity to buy/sell may differ. Thus, to nullify the market impact he has compared the proportion of gains and losses realized instead of

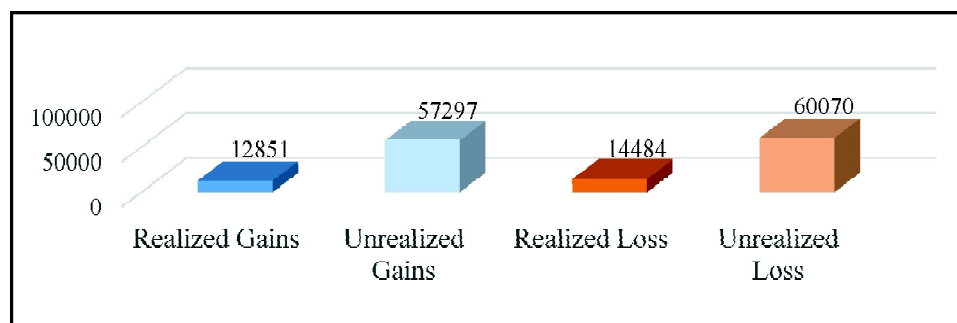


Figure 1: Aggregate of Gains and Losses

Source: Based on Author's calculations

actual number of gains/losses realized. Table 1 presents the additional sets of information regarding the gains and losses realized.

Table 1 reports PGR and PLR for overall sample funds. The number of gains realized, losses realized, gains unrealized, and losses unrealized for the entire sample period for all the funds have been calculated. Overall, the sample funds on average do not appear to realize gains rapidly than losers. The t-statistic along with the DSP has been reported in the Table 1. It is found that the funds sell a higher proportion of losers instead of winners when data over entire period has been reviewed. The PGR is 18.32% and PLR is 19.43% which is slightly higher than the proportion of gains realized. The null hypothesis that PGR=PLR has been rejected with a t statistic of -2.9791 at 0.05 level of significance. As the calculated DSP indicates, a negative disposition spread was observed for the sample. This is also known as reverse DE, which is found by many studies of mutual fund managers (Cici 2012; Da Silva *et. al*, 2006; Chang *et. al*, 2014).

4.1.1. Aggregate Of Realized Gains And Losses (YEARLY):

As we found in Figure 1, the realized gains are lower than the realized losses on an aggregate basis. It was also scrutinized in this section whether the pattern was consistent on yearly basis or not. Thus, the entire data was segregated into 5 different financial years. The results are as follows:



Figure 2: Aggregate of Gains and Losses

Source: Based on Author’s calculations

Figure 2 shows that in all financial years except 2013-14 the realized losses are greater than realized gains. But as mentioned by Odean (1998) that in some years or months the opportunities to buy/sell may be different due to which the absolute numbers may not reflect a true picture. Hence to have a real picture of the data, the proportion of gains and losses realized have also been calculated. The results are presented with the help of Figure 3.

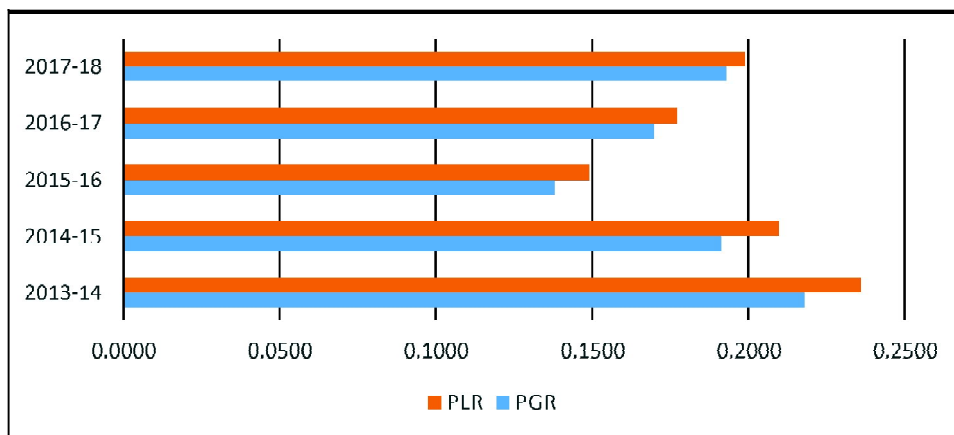


Figure 3: PGR and PLR for Different Years

Source: Based on Author's calculations

Fig 3 presents that for all 5 years the proportion of losses realized is greater than the proportion of gains realized. Thus, it was observed that during all the years the proportion of losses realized were greater than the proportion of gains realized. Table 2 has disclosed that for the first three years the difference was significant at a 5 % level of significance with a t statistic of -3.6133, -3.9082, and -2.5860. Thus, a significant reverse DE has been observed for the first three years and during the last two months of the year, insignificant DE was found.

4.2. AMC WISE DATA

Figure 4 depicts the aggregate number of gains and losses realized by each AMC. Figure 4 depicts that all the top 10 AMCs are realizing comparatively fewer number of gains than losses. It has also been ensured using the differences between PGR and PLR. They have also indicated that the DSP was negative for all 10 AMCs on an aggregate basis (Table 3).

The differences between PGR and PLR indicate that the significant reverse DE was observed for HDFC and Franklin Asset management

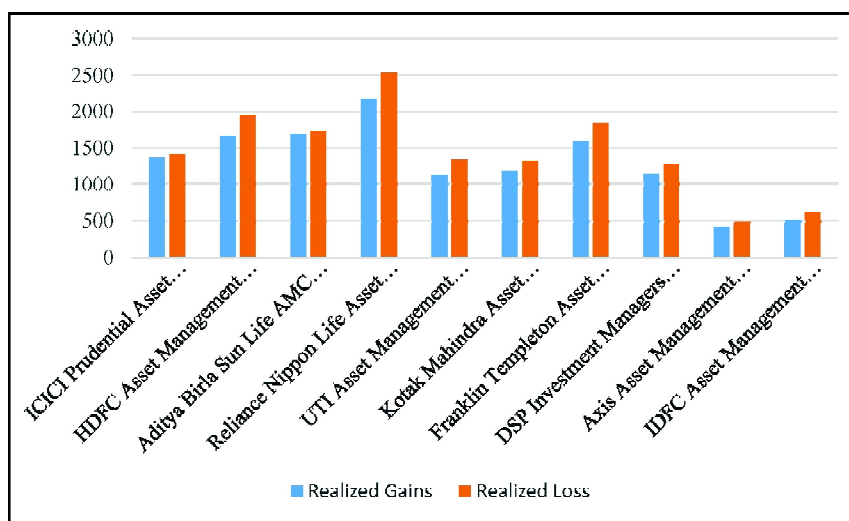


Figure 4: Aggregate of Gains and Losses Realized by AMCs

Source: Based on Author's calculations

Company Ltd with a t statistic of -3.1981 and -3.3783 respectively (Table 3). The rest AMCs are found with insignificant DE. The aggregate data was further segregated on the yearly basis to see whether the fund houses are realizing more gains in comparison to losses in any year.

4.2.1. Realized Gains and Losses By AMCS (YEARLY)

The below-mentioned figures compare the proportion of gains and losses realized by each AMC on yearly basis. The number of schemes from each AMC is different that's why instead of comparing actual number of gains and losses, the Proportion of gains/losses realized is compared to have a realistic picture.

2013-14: It was found that for the financial year 2013-14, all the AMCs are realizing greater number of losses except Aditya and IDFC Asset Management Company Ltd. The difference between the Proportion of Gains and Losses realized is found significant at 5% level of significance for the HDFC and ICICI with a t statistic of -2.7418 and -2.2559 respectively (Table 4). These two AMCs has observed robust reverse DE for the first financial year and the rest have shown insignificant difference between the proportion of gains and losses realized.

2014-15: In 2014-15, it was observed that again all the AMCs are exhibiting negative DSP except ICICI. The difference was observed greatest for Reliance, Franklin, UTI, and IDFC. Though checking the statistical

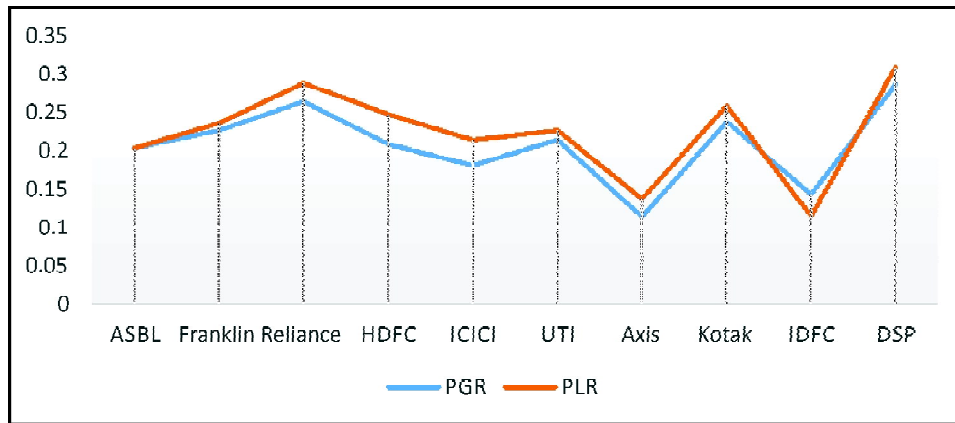


Figure 4.1: PGR and PLR by Top 10 AMC's for 2013-14

Source: Based on Author's calculations

significance it was found that the differences were not significantly different from zero for any of the AMC (Table 5). Thus, it can be said that for the second financial year the AMC's are realizing equal number of gains in comparison to losses.

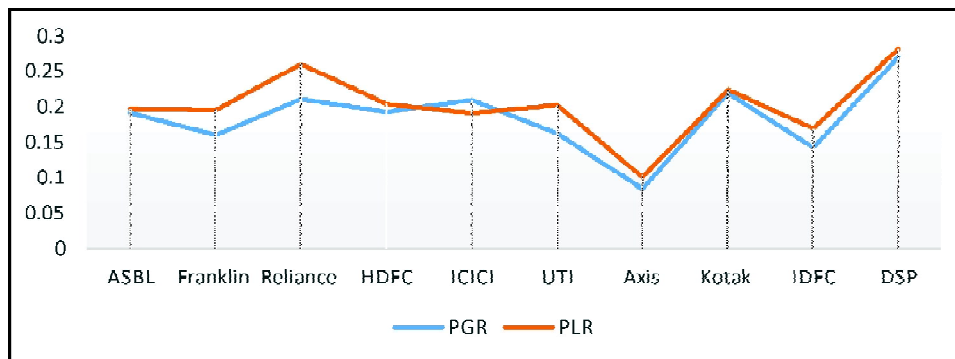


Figure 4.2: PGR and PLR Top 10 AMC's for 2014-15

Source: Based on Author's calculations

2015-16: In this financial year many changes among different AMC's were observed regarding realizing their gains and losses. 4 AMC's out of 10 have exhibited positive disposition spread. But at the same time the t statistic for these AMC's was found insignificant (Table 6). Thus, it can be said that they are indifferent in realizing gains versus losses.

2016-17: Due to turbulence in the market, in this financial year also, Positive and Negative DSP was observed for different AMC's. Reliance,

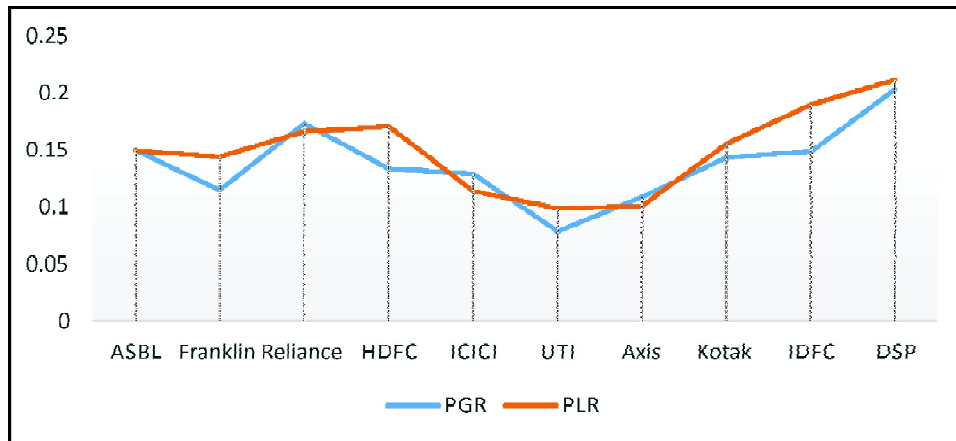


Figure 4.3: PGR and PLR by Top 10 AMC's for 2015-16

Source: Based on Author's calculations

ICICI, IDFC, and DSP are found with positive DSP. The rest of the AMC's have observed negative DSP, the difference was greatest for Reliance, HDFC, and Axis. Though the difference was not found large enough to be statistically significant (Table 7). Thus, for this financial year, the average disposition spread for all AMC's was not found significantly different from zero.

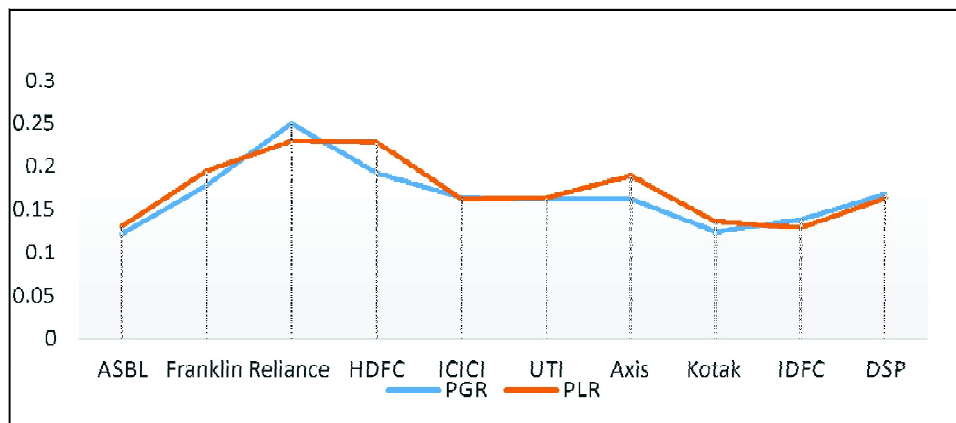


Figure 4.4: PGR and PLR by Top 10 AMC's for 2016-17

Source: Based on Author's calculations

2017-18: Only HDFC, Reliance, and UTI have observed positive DSP, though the difference was not found significant. Rest AMC's have observed a negative disposition spread with insignificant difference (Table 8). Thus,

it can be said that for the last financial year of the sample period the fund is found indifferent in terms of selling their winners and losers.

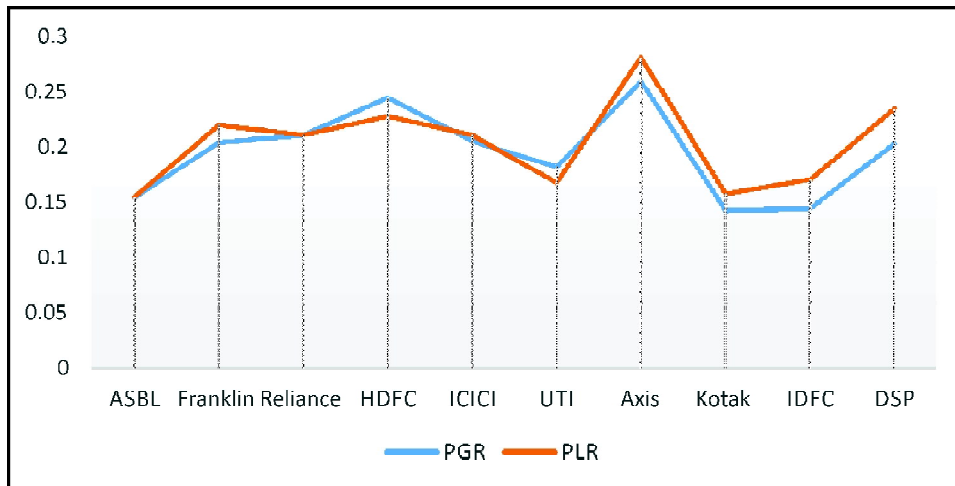


Figure 4.5: PGR and PLR by Top 10 AMC's for 2017-18

Source: Based on Author's calculations

4.3. Category Wise Data

In this section, the number of gains and losses realized are observed for different categories of funds. It was found on an aggregate basis all the categories have exhibited a greater number of losses in comparison to losses (Table 9).

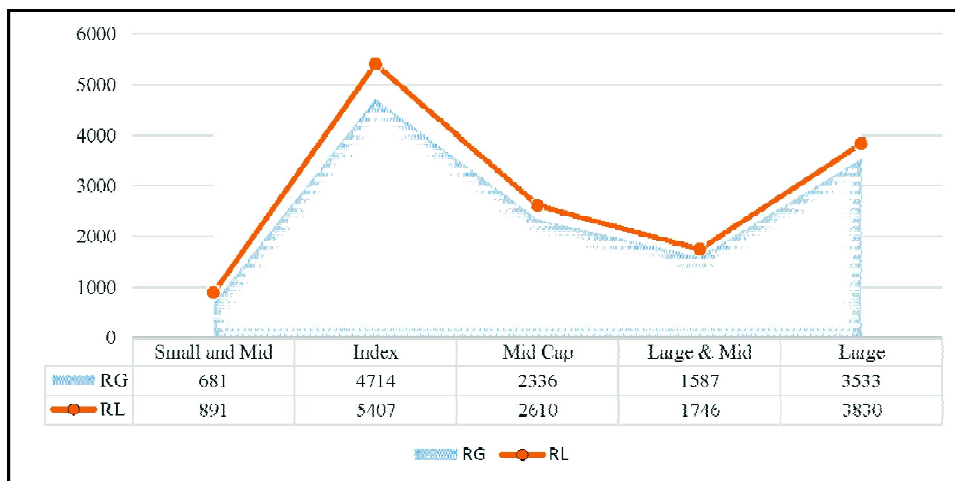


Figure 5: Aggregate of Gains and Losses by Different Categories of Funds

Source: Based on Author's calculations

The category-wise data was then further explored on yearly basis. It helps to understand the behavior of mutual fund managers for different schemes on yearly basis.

4.3.1. Gains and Losses Realized by Different Categories (Yearly)

4.3.1.1. *Large Cap Funds*: It was observed that for Large Cap funds the DSP was negative for all the years. It indicates that the funds of large-capitalization are more readily selling losers, and observed sustained from such biases. Though the negative DSP was found significant only for the first (2013-14) financial year (Table 10). For rest of the financial years, the large-cap funds are realizing equal number of winners and losers.

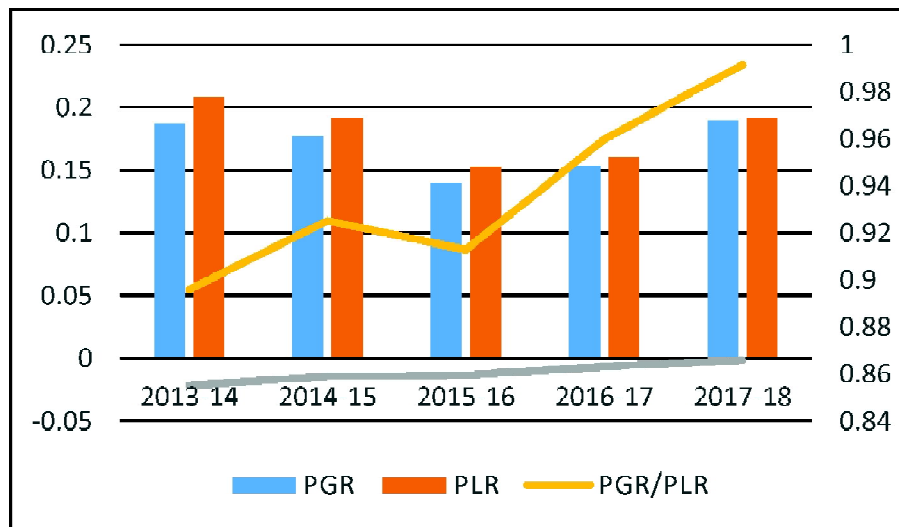


Figure 5.1: Aggregate of Gains and Losses of Large Cap Funds

Source: Based on Author's calculations

4.3.1.2. *Large and Mid-cap Fund*: Funds belong to Large and Mid-cap category are also observed realizing greater number of losses in comparison to winners for all the years. But the difference was found insignificant indicating that for all the financial years these funds are not different in selling winners and losers (Table 11).

4.3.1.3. *Mid-cap Funds*: During all the years the Mid-Cap funds have exhibited a negative DSP expect for the year 2015-16. It was found that for 2015-16 the Mid-Cap funds are exhibiting an insignificant positive DE. For the rest of the years also, it was observed that the difference between the proportion of gains and losses realized is not significantly different from zero (Table 12).

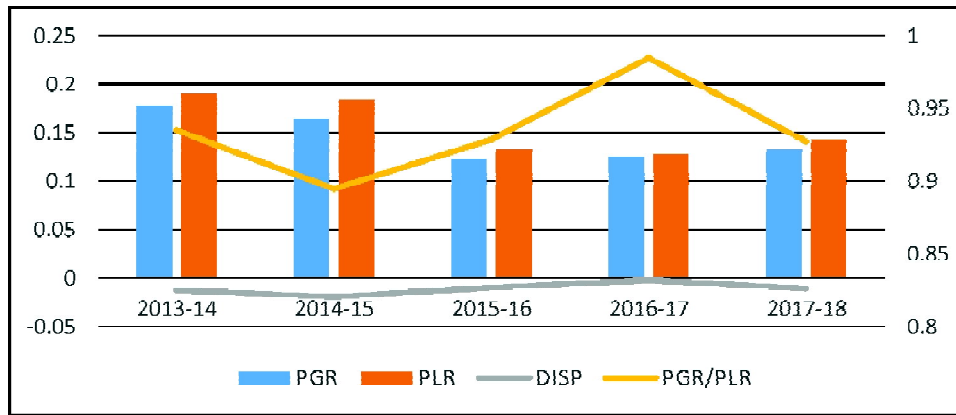


Figure 5.2: Aggregate of Gains and Losses of Large and Mid-Cap Funds

Source: Based on Author's calculations

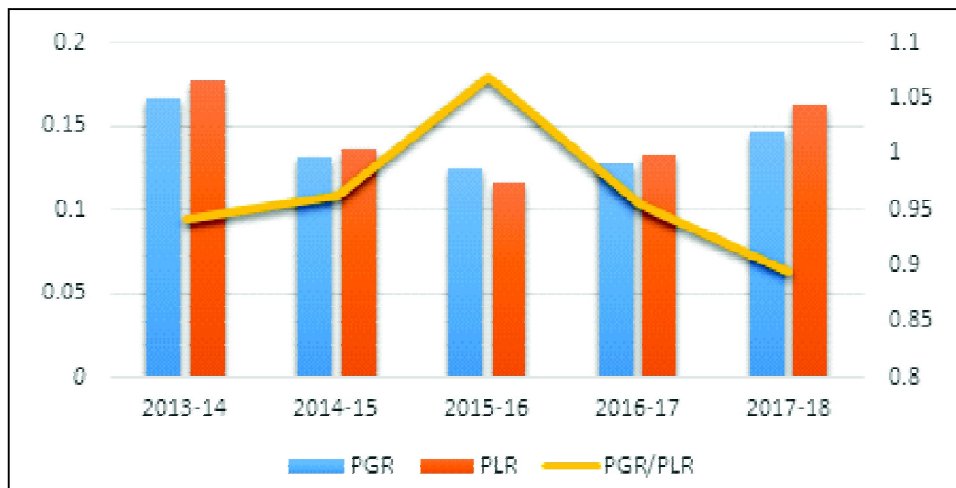


Figure 5.3: Aggregate of Gains and Losses of Mid Cap Funds

Source: Based on Author's calculations

4.3.1.4. Small and Mid-cap Funds: The Small Cap funds have also exhibited slightly positive DSP in the year 2016-17, though insignificant at the same time. It was also observed that for 2013-14, these funds have observed a significant negative DE. The difference between the proportion of gains and losses realized was found insignificant for the years 2014-15, 2015-16, 2016-17, and 2017-18 (Table 13).

4.3.1.5. Index Funds: The index funds are found exhibiting significant reverse DE for the first three financial years. For the last two financial years,

the Index funds are observed selling more winners than losers but at the same time, it is found to be insignificant (Table 14).

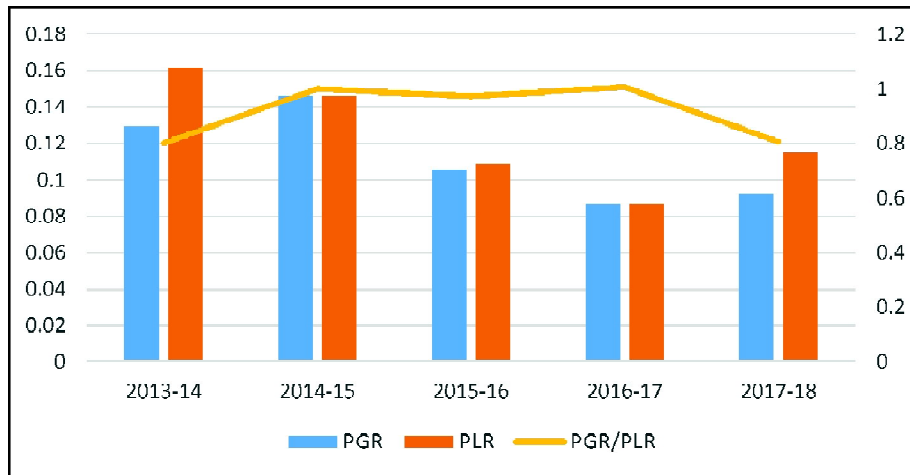


Figure 5.4: Aggregate of Gains and Losses of Small and Mid Cap Funds

Source: Based on Author’s calculations

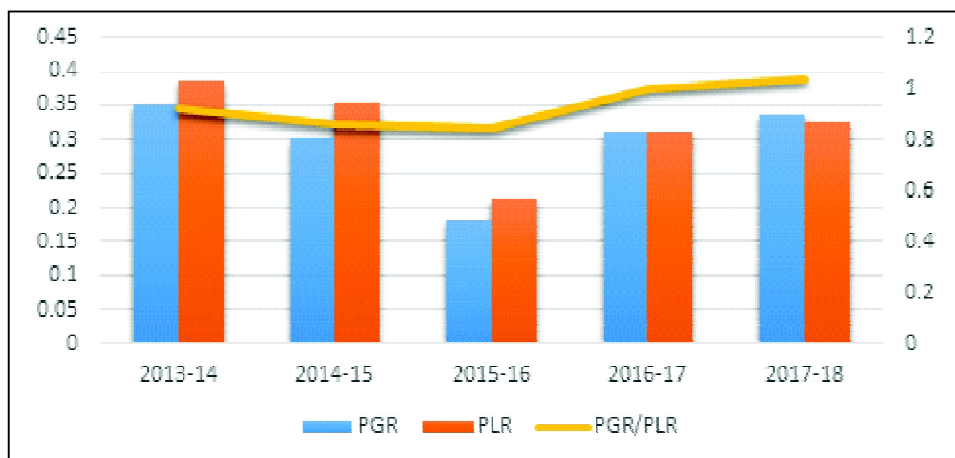


Figure 5.5 Aggregate of Gains and Losses of Index Funds

Source: Based on Author’s calculations

The analysis made on yearly basis for different categories is brought to the conclusion that only index funds for the first three years and large-cap funds for the first financial year have exhibited robust reverse disposition effect. The rest of the categories have exhibited insignificant differences between the proportion of gains and losses realized i.e. does not indicate in any direction of this bias.

5. FINDINGS AND CONCLUSION

It is concluded from the above findings that based on aggregate data from the entire sample, Indian Mutual fund Managers do not appear to realize more winners than losers. Similar results were attained when the data has been classified based on different financial years. It is observed that for each financial year, the proportion of gains realized are comparatively lesser than the proportion of losses realized. Significant reverse disposition effect was observed in the initial three financial years and insignificant disposition spread was observed for the last two financial years.

The data settings have allowed looking for bias for different categories as well as different AMCs. The findings disclosed that based on different categories, schemes do not seem to be biased with disposition effect. All the categories are exhibiting robust reverse disposition effect on aggregate basis except the Mid-Cap fund. The latter was found with insignificant disposition spread.

Findings based on different AMCs disclosed that only HDFC Asset Management Company Ltd. and Franklin Asset Management Company Ltd. was found with robust reverse disposition effect rest have exhibited insignificant differences.

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APPENDIX

Table 1
Aggregate Number of Gains and Losses Realized

<i>Measures</i>	<i>Aggregate Data</i>
Realized Gains	12851
Unrealized Gains	57297
Realized Loss	14484
Unrealized Loss	60070
PGR	0.1832
PLR	0.1943
DSP	-0.0111
t-statistic	-2.9791*
σ (PGR-PLR)	0.0037

*denotes significance at 5% level of significance

Source: Based on Author's Calculations

Table 2
Aggregate Number of Gains and Losses Realized for different Years

<i>Measure</i>	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>	<i>2017-18</i>
Realized Gains	3477	2335	1909	2234	2896
Unrealized Gains	12475	9874	11920	10920	12108
Realized Loss	2986	3585	1968	2778	3167
Unrealized Loss	9666	13508	11233	12907	12756
PGR	0.2180	0.1913	0.1380	0.1698	0.1930
PLR	0.2360	0.2097	0.1491	0.1771	0.1989
DISP	-0.0180	-0.0185	-0.0110	-0.0073	-0.0059
PGR/PLR	0.9235	0.9119	0.9260	0.9589	0.9704
t statistic	-3.6133*	-3.9082*	-2.5860*	-1.6269	-1.3021
σ (PGR-PLR)	0.0050	0.0047	0.0043	0.0045	0.0045

*denotes significance at 5% level of significance

Source: Based on Author's Calculations

Table 3
Aggregate Number of Gains and Losses Realized for different AMCs

Asset Management Company	ICICI Prudential Asset Management Company Limited	HDFC Asset Management Company Limited	Aditya Birla Sun Life AMC Limited	Reliance Nippon Life Asset Management Limited	UTI Asset Management Company Ltd	Kotak Mahindra Asset Management Company Limited	Franklin Templeton Asset Management (India) Private Limited	DSP Investment Managers Private Limited	Axis Asset Management Company Ltd.	IDFC Asset Management Company Limited
Realized Gains	1351	1659	1691	2172	1127	1193	1590	1133	423	512
Unrealized Gains	6191	6822	8543	7520	5927	5622	7319	3818	2472	3063
Realized Loss	1418	1954	1725	2523	1337	1318	1845	1277	481	606
Unrealized Loss	6443	7130	8596	8422	6497	5742	7472	3983	2525	3260
PGR	0.1791	0.1956	0.1652	0.2241	0.1598	0.1750	0.1785	0.2288	0.1461	0.1432
PLR	0.1804	0.2151	0.1671	0.2305	0.1707	0.1867	0.1980	0.2428	0.1600	0.1567
DSP	-0.0012	-0.0195	-0.0019	-0.0064	-0.0109	-0.0116	-0.0195	-0.0139	-0.0139	-0.0135
PGR/PLR	0.9930	0.9094	0.9886	0.9721	0.9361	0.9377	0.9013	0.9426	0.9131	0.9136
t statistic	-0.2026	-3.1981*	-0.3662	-1.0976	-1.7894	-1.7799	-3.3783*	-1.6583	-1.4833	-1.6351
σ (PGR-PLR)	0.0062	0.0061	0.0052	0.0058	0.0061	0.0065	0.0058	0.0084	0.0094	0.0083

*denotes significance at 5% level of significance

Source: Based on Author's Calculations

Table 4: Aggregate Number of Gains and Losses Realized for different AMCs for the financial year 2013-14

Asset Management Company	ICICI Prudential Asset Management Company Limited	HDFC Asset Management Company Limited	Birla Sun Life AMC Limited	Aditya Nippon Life Asset Management Limited	Reliance Nippon Life Asset Management Limited	UTI Asset Management Company Ltd	Kotak Mahindra Asset Management Company Limited	Franklin Templeton Asset Management (India) Private Limited	DSP Investment Managers Private Limited	Axis Asset Management Company Ltd.	IDFC Asset Management Company Limited
RG	473	435	631	406	316	328	75	387	88	338	
URG	1854	1487	1758	1543	1431	1206	584	1243	528	841	
RL	361	374	533	387	286	275	76	336	55	303	
URL	1417	1214	1318	1177	1053	941	477	965	425	679	
PGR	0.2033	0.2263	0.2641	0.2083	0.1808	0.21382	0.1138	0.2374	0.1428	0.2867	
PLR	0.2030	0.2355	0.2879	0.2474	0.2136	0.2262	0.1374	0.2583	0.1146	0.3085	
DSP	0.0002	-0.0092	-0.0238	-0.0391	-0.0327	-0.01233	-0.0236	-0.0208	0.0283	-0.0217	
PGR/PLR	1.0011	0.9609	0.9173	0.8418	0.8468	0.9455	0.8281	0.9193	1.2467	0.9291	
t statistic	0.0181	-0.6426	-1.7189	-2.7418	-2.2559	-0.7745	-1.2324	-1.2966	1.3961	-1.1064	
σ (PGR-PLR)	0.0127	0.0143	0.0139	0.0143	0.0145	0.0159	0.0192	0.0161	0.0203	0.0198	

*denotes significance at 5% level of significance

Source: Based on Author's Calculations

Table 5
Aggregate Number of Gains and Losses Realized for different AMCs for the financial year 2014-15

Asset Management Company	ICICI Prudential Asset Management Company Limited	HDFC Asset Management Company Limited	Aditya Birla Sun Life AMC Limited	Nippon Life Asset Management Limited	UTI Asset Management Ltd	Kotak Mahindra Asset Management Company Limited	Franklin Templeton Asset Management (India) Private Limited	DSP Investment Managers Private Limited	Axis Asset Management Company Ltd.	IDFC Asset Management Company Limited
RG	360	234	341	281	285	217	46	255	69	247
URG	1521	1225	1274	1176	1073	1118	498	907	415	667
RL	488	417	612	410	355	374	81	369	113	366
URL	1989	1717	1739	1604	1502	1471	722	1278	553	933
PGR	0.1914	0.1604	0.2111	0.1928	0.2099	0.1625	0.0845	0.2194	0.1425	0.2702
PLR	0.1970	0.1954	0.2603	0.2036	0.1912	0.2027	0.1009	0.2240	0.1696	0.2817
DSP	-0.0056	-0.0350	-0.0492	-0.0107	0.0187	-0.0402	-0.0163	-0.0046	-0.0271	-0.0115
PGR/PLR	0.9714	0.8208	0.8111	0.9473	1.0978	0.8019	0.8383	0.9795	0.8402	0.9591
t statistic	-0.4653	-2.7186	-3.6146	-0.7827	1.3048	-2.9171	-1.0211	-0.2889	-1.2583	-0.5974
σ (PGR-PLR)	0.0121	0.0129	0.0136	0.0137	0.0143	0.0138	0.0160	0.0159	0.0215	0.0193

*denotes significance at 5% level of significance

Source: Based on Author's Calculations

Table 6
Aggregate Number of Gains and Losses Realized for different AMCs for the financial year 2015-16

Asset Management Company	ICICI Prudential Asset Management Company Limited	HDFC Asset Management Company Limited	Aditya Birla Sun Life AMC Limited	Reliance Nippon Life Asset Management Limited	UTI Asset Management Company Ltd	Kotak Mahindra Asset Management Company Limited	Franklin Templeton Asset Management (India) Private Limited	DSP Investment Managers Private Limited	Axis Asset Management Company Ltd.	IDFC Asset Management Company Limited
RG	329	206	317	220	179	115	65	197	86	195
URG	1867	1589	1515	1427	1206	1350	532	1178	492	764
RL	280	235	321	288	152	149	50	199	112	182
URL	1595	1397	1613	1402	1182	1362	445	1081	478	678
PGR	0.1498	0.1148	0.1730	0.1336	0.1292	0.0784	0.1089	0.1432	0.1488	0.2033
PLR	0.1493	0.1439	0.1659	0.1704	0.1139	0.0986	0.1010	0.1554	0.1898	0.2116
DSP	0.0005	-0.0292	0.0070	-0.037	0.0153	-0.0201	0.0078	-0.0122	-0.0410	-0.0082
PGR/PLR	1.0032	0.7969	1.0425	0.7838	1.1343	0.7960	1.0778	0.9215	0.7838	0.9608
t statistic	0.0432	-2.5431	0.5769	-2.9692	1.2212	-1.9335	0.4230	-0.8805	-1.8737	-0.4352
σ (PGR-PLR)	0.0112	0.0115	0.0122	0.0124	0.0125	0.0104	0.0186	0.0139	0.0219	0.0191

*denotes significance at 5% level of significance

Source: Based on Author's Calculations

Table 7
Aggregate Number of Gains and Losses Realized for different AMCs for the financial year 2016-17

Asset Management Company	ICICI Prudential Asset Management Company Limited	HDFC Asset Management Company Limited	Aditya Birla Sun Life AMC Limited	Nippon Life Asset Management Limited	UTI Asset Management Company Ltd	Kotak Mahindra Asset Management Company Limited	Franklin Templeton Asset Management (India) Private Limited	DSP Investment Managers Private Limited	Axis Asset Management Company Ltd.	IDFC Asset Management Company Limited
RG	227	311	452	313	219	226	78	153	101	154
URG	1640	1439	1357	1318	1119	1168	403	1083	629	764
RL	276	391	537	448	256	291	104	199	114	162
URL	1842	1620	1802	1518	1321	1489	446	1267	772	830
PGR	0.1216	0.1777	0.2499	0.1919	0.1637	0.1621	0.1622	0.1238	0.1383	0.1677
PLR	0.1303	0.1944	0.2296	0.2279	0.1623	0.1635	0.1891	0.1357	0.1287	0.1633
DSP	-0.0087	-0.0167	0.0203	-0.0360	0.0013	-0.0014	-0.0269	-0.0119	0.0097	0.0044
PGR/PLR	0.9330	0.9140	1.0883	0.8427	1.0083	0.9917	0.8575	0.9119	1.0753	1.0272
t statistic	-0.8293	-1.3158	1.5146	-2.6474	0.0979	-0.1030	-1.1367	-0.9231	0.5691	0.2614
σ (PGR-PLR)	0.0105	0.0127	0.0134	0.0136	0.0137	0.0132	0.0237	0.0130	0.0170	0.0170

*denotes significance at 5% level of significance

Source: Based on Author's Calculations

Table 8: Aggregate Number of Gains and Losses Realized for different AMCs for the financial year 2017-18

Asset Management Company	ICICI Prudential Asset Management Company Limited	HDFC Asset Management Company Limited	Birla Sun Life AMC Limited	Aditya Nippon Life Asset Management Limited	UTI Asset Management Company Ltd	Kotak Mahindra Asset Management Company Limited	Franklin Templeton Asset Management (India) Private Limited	DSP Investment Managers Private Limited	Axis Asset Management Ltd.	IDFC Asset Management Company Limited
RG	302	404	431	439	352	241	159	201	168	199
URG	1661	1579	1616	1358	1362	1085	455	1211	999	782
RL	320	428	520	421	369	248	170	215	212	264
URL	1753	1524	1950	1429	1385	1234	435	1151	1032	863
PGR	0.1538	0.2037	0.2106	0.2443	0.2054	0.1815	0.2589	0.1424	0.1439	0.2028
PLR	0.1544	0.2193	0.2105	0.2275	0.2104	0.1673	0.2809	0.1574	0.1704	0.2342
DSP	-0.0005	-0.0155	2.6E-05	0.0167	-0.0050	0.0144	-0.0220	-0.0150	-0.0265	-0.0314
PGR/PLR	0.9966	0.9292	1.0001	1.0735	0.9762	1.0861	0.9215	0.9044	0.84474	0.8660
t statistic	-0.0457	-1.1929	0.0021	1.1896	-0.3634	1.0034	-0.8666	-1.1103	-1.7869	-1.7442
σ (PGR-PLR)	0.0114	0.0130	0.0122	0.0141	0.0138	0.0144	0.0254	0.0135	0.0148	0.0180

*denotes significance at 5% level of significance

Source: Based on Author's Calculations

Table 9
Aggregate Number of Gains and Losses Realized for different categories of fund

<i>Measures</i>	<i>Small and Mid-Cap Fund</i>	<i>Index Fund</i>	<i>Mid-Cap Fund</i>	<i>Large & Mid-Cap Fund</i>	<i>Large-Cap Fund</i>
RG	681	4714	2336	1587	3533
URG	5508	10883	14368	9276	17262
RL	891	5407	2610	1746	3830
URL	6385	11425	15425	9452	17383
PGR	0.1100	0.3022	0.139847	0.146092	0.169897
PLR	0.1224	0.3212	0.144719	0.155921	0.18055
DSP	-0.0124	-0.019	-0.00487	-0.00983	-0.01065
PGR/PLR	0.8985	0.9409	0.966336	0.936965	0.940997
t statistic	-2.2462	-3.6918	-1.2991	-2.0389	-2.8722
σ (PGR-PLR)	0.0055	0.0051	0.0038	0.0048	0.0037

*denotes significance at 5% level of significance

Source: Based on Author's Calculations

Table 10
Aggregate Number of Gains and Losses Realized for Large-Cap Fund yearly

<i>Large Cap Funds</i>	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>	<i>2017-18</i>
Realized Gains	857	672	596	590	818
Unrealized Gains	3722	3119	3681	3248	3492
Realized Loss	681	940	586	714	909
Unrealized Loss	2579	3967	3253	3744	3840
PGR	0.1872	0.1773	0.1393	0.1537	0.1898
PLR	0.2089	0.1916	0.1526	0.1602	0.1914
DISP	-0.0217	-0.0143	-0.0133	-0.0064	-0.0016
PGR/PLR	0.8959	0.9253	0.9129	0.9598	0.9915
t statistic	-2.3729	-1.7089	-1.6920	-0.8040	-0.1958
σ (PGR-PLR)	0.0092	0.0084	0.0079	0.0080	0.0083

*denotes significance at 5% level of significance

Source: Based on author's calculations

Table 11
Aggregate Number of Gains and Losses Realized for Large & Mid-Cap Fund Yearly

<i>Large & Mid- Cap Fund</i>	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>	<i>2017-18</i>
Realized Gains	467	299	246	255	320
Unrealized Gains	2151	1518	1753	1770	2084
Realized Loss	380	462	243	305	356
Unrealized Loss	1612	2050	1591	2081	2124
PGR	0.1784	0.1645	0.1231	0.1259	0.1331
PLR	0.1907	0.1839	0.1324	0.1278	0.1435
DISP	-0.0124	-0.0194	-0.0094	-0.0019	-0.0104
PGR/PLR	0.9350	0.8947	0.9288	0.9851	0.9272
t statistic	-1.0718	-1.6637	-0.8736	-0.1893	-1.0566
σ (PGR-PLR)	0.0116	0.0116	0.0108	0.0101	0.0099

*denotes significance at 5% level of significance

Source: Based on author's calculations

Table 12
Aggregate Number of Gains and Losses Realized for Mid-Cap Fund on yearly

<i>MIDCAP</i>	2013-14	2014-15	2015-16	2016-17	2017-18
Realized Gains	595	366	429	407	539
Unrealized Gains	2989	2419	3015	2797	3148
Realized Loss	560	564	386	489	611
Unrealized Loss	2617	3564	2927	3187	3130
PGR	0.1660	0.1314	0.1246	0.1270	0.1462
PLR	0.1763	0.1366	0.1165	0.1330	0.1633
DISP	-0.0102	-0.0052	0.0081	-0.006	-0.0171
PGR/PLR	0.9418	0.9618	1.0691	0.9549	0.8951
t statistic	-1.1163	-0.6246	1.0168	-0.7382	-2.0426
σ (PGR-PLR)	0.0092	0.0083	0.0079	0.0081	0.0084

*denotes significance at 5% level of significance

Source: Based on Author's Calculations

Table 13
Aggregate Number of Gains and Losses Realized for Small & Mid-Cap Yearly

<i>Small and Mid-Cap Funds</i>	2013-14	2014-15	2015-16	2016-17	2017-18
Realized Gains	152	148	144	111	126
Unrealized Gains	1025	862	1221	1163	1237
Realized Loss	189	243	153	130	176
Unrealized Loss	982	1415	1258	1371	1359
PGR	0.1291	0.1465	0.1055	0.0871	0.0924
PLR	0.1614	0.1466	0.1084	0.0866	0.1146
DISP	-0.0322	-2.7E-05	-0.0029	0.0005	-0.0222
PGR/PLR	0.8001	0.9998	0.9729	1.0060	0.8062
t statistic	-2.2201	-0.0019	-0.2505	0.0483	-1.9660
σ (PGR-PLR)	0.0145	0.0141	0.0117	0.0107	0.0113

*denotes significance at 5% level of significance

Source: Based on author's calculations

Table 14
Aggregate Number of Gains and Losses Realized for Index Funds Yearly

<i>Index Funds</i>	2013-14	2014-15	2015-16	2016-17	2017-18
Realized Gains	1406	850	494	871	1093
Unrealized Gains	2588	1956	2250	1942	2147
Realized Loss	1176	1376	600	1140	1115
Unrealized Loss	1882	2512	2204	2524	2303
PGR	0.3520	0.3029	0.1800	0.3096	0.3373
PLR	0.3846	0.3539	0.2139	0.3111	0.3262
DISP	-0.0325	-0.0509	-0.0339	-0.0015	0.0111
PGR/PLR	0.9154	0.8559	0.8413	0.9952	1.0341
t statistic	-2.8055	-4.4036	-3.1829	-0.1295	0.9641
σ (PGR-PLR)	0.0116	0.0116	0.0107	0.0116	0.0115

*denotes significance at 5% level of significance

Source: Based on author's calculations