CHAPTER 3

REVIEW OF LITERATURE

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Review of Literature

There is a substantial volume of empirical work done on Mutual Fund’s Style particularly Style Analysis. A lot of researchers have emphasized on importance of fund style in determining fund performance. We divide our discussion into four parts. The first part discusses studies on the determinants of mutual fund performance, the second part highlights the role of fund manager, the third part covers the concept of style and lastly the fourth part is based on studies on application of Style Analysis.

3.1 Determinants of Mutual Fund Performance

Mutual fund is a trust that pools the money of the investors and invests it in the marketable securities. The capital appreciation, thus generated is distributed among the unit holders in proportion of the units held by them. Performance of the mutual fund is measured by the Net Asset Value, (NAV) of the fund. It has been found that the NAV is affected by various performance indicators and understanding the relationship between mutual fund performance indicators and its performance helps investors to make informed mutual fund investment decisions (Ranparia, 2013). Mutual Fund investors are always trying to find some indicators which can be used to predict the performance of mutual funds in order to have more chances to pick the best fund among the many which are found in the market (Yi, 2009). It also helps mutual fund companies in taking investment decisions and is useful for mutual fund regulatory bodies in framing policies. These relationships have been widely studied by scholars and practitioners.
According to Wermers (2000), Coval and Moskowitz (2001), Jan and Hung (2003) and Papadamou and Stephanidesz (2004), the returns of the mutual funds can be predicted on the basis of their performance indicators like performance persistence, turnover, expense ratio, asset size, load fee, investment style, mutual fund manager and ownership of the mutual fund. Lin (2006) examined three types of Taiwan mutual funds over various investment horizons. The explanatory variables included in the study were nav, current yield, turnover rate, expenses ratio, and load charges. From the analysis, it was evident that expenses ratio negatively correlated (Beta = -4.8556) when performance was evaluated for a 3 months horizon and positively correlated for other investment horizons. There is no statistically reliable relation between the performance with current yield, turnover ratio, and load charges. He concluded that aggressive funds appear to be more attractive for both short-term and long-term investments and performance of the fund was negatively correlated with expenses ratio and positively correlated with net assets value.

Ferreira et al, (2011) studied the determinants of mutual fund performance using a new data set of 16,316 open-end actively managed domestic and international equity funds in 27 countries. They concluded that mutual funds underperform the market overall, but performance persists on a short-term basis. Domestic funds outperform international funds, and U.S.-domiciled funds outperform funds elsewhere in the world. Fund age and fees are negatively related to performance, while funds that belong to large fund families, solo-managed funds, and funds distributed in several countries perform better. Country characteristics also help to explain fund performance. Domestic funds located in developed countries, especially
those with liquid stock markets and strong legal institutions, display better performance.

Murcia (2011) found that the larger the market share of the fund management company, the lower tends to be the yield, and that the funds of management companies belonging to banks and savings banks also tend to show higher yields. Conversely, variables specific to a fund, such as size or age, do not seem to have a bearing on its performance. See and Jusoh (2012) identified these factors as risk, fund size, management expense ratio, turnover ratio and fund age and examined the effect of these fund characteristics on fund performance by studying 69 Malaysian equity mutual funds representing 44 conventional funds and 25 Islamic funds over the period of five years. The hypotheses were tested using several regression analyses to see whether these have significant relationships with fund performance. The results showed that higher risk fund provides higher return. Those funds which spent more on research expenses give superior return compared to those that spent less. The findings also show that young funds performed better than old ones. However, fund size and turnover ratios were found to have no significant relationship with fund performance. Overall, the results indicate that investors should focus on young funds and select fund based on his/her preferred risk level. Fund managers should understand the characteristics that will affect fund performance and develop strategies on how to increase their funds performance.

A number of studies have focused on separating the returns of portfolios into components from long-run strategic asset allocation and active management decisions such as security selection and market timing. There
is broad agreement that long-term asset allocation, that is how a portfolio is allocated across asset classes, is the primary determinant of portfolio returns (Christopher, 2010). According to him category, style or sector focus, manager skill, and the fee structure determine a mutual fund's performance. We now discuss the primary factors one by one.

3.1.1 Performance Persistence: Performance persistence means that the future performance of mutual fund can be predicted through their past performance. Persistence can be positive or negative. Positive persistence means if a mutual fund has performed well in the past, it will continue to outperform in the future. Similarly, negative persistence means that if a mutual fund has not performed well in the past then it will continue to underperform in the future as well (Ranparia, 2013). A study done by Sharpe (1966) supported the persistence in the performance of the mutual funds. Grinblatt and Titman (1992) found positive persistence in the mutual funds. Later, Grinblatt and Titman (1993) confirmed the existence of both negative and positive performance persistence in the mutual funds. According to their study, if a mutual fund has not performed well in the past then it will not give good returns in the future and if the fund has performed well in the past, it will continue to perform well in the future also. According to Carhart (1997), Chen et al., (2000) and Rao (2001), positive persistence is there in the mutual funds but only for a short term period i.e., one year or less. However, Elton et al. (1996) and Drooms and Walker (2001) found the evidence of positive persistence upto three years but no evidence of the positive persistence was there beyond that period. On the contrary, Jan and Hung (2004) claimed that if mutual fund performance persists in the short run, it should also persist in the long run.
3.1.2 Turnover Ratio: Centre for Research and Security Prices (CRSP) has defined the funds turnover as, minimum of aggregated sales or aggregated purchases of securities, divided by the average 12-month total net assets of the fund. This ratio is expressed as a percentage of the fund. (http://www.crsp.com/products/documentation/fund-style). Ippolito(1989) and Wermers (2000) show that high turnover mutual funds dominate low turnover mutual funds in terms of the performance. According to them, although high turnover funds incur substantially higher transaction costs and charge higher expenses, they hold stocks with much higher returns than low- turnover funds. Jan and Hung (2003) found that turnover affects the performance on the basis of investment objectives. According to them high- turnover funds performs better than low turnover funds for aggressive growth equity funds, long term growth equity funds, global bond funds, high quality municipal bond funds, mortgage backed market funds, sector funds and special funds.

On the other hands low turnover funds are performing better than their high turnover counterparts among international equity funds, high- yield money market funds and precious metal funds. Dowen and Mann (2004) supported the conventional wisdom that high turnover reduces the overall performance of the mutual funds. They found the existence of the economies of scale in the cost structure of the mutual fund industry. According to them, the cost ratios for the individual funds decrease as the number of funds controlled by the asset manager increase. Nathan Rule (2007) constructed a model which indicated that funds with higher annual holdings turnover and lower worst 3-year returns had higher year to date
returns. Some studies such as Droms and Walker (1992, 1994 and 1996) suggested that the investment performance is not related to turnover rates for both domestic as well as international funds.

3.1.3: Expense Ratio: As described by the Centre for Research and Security Prices (CRSP), it is the ratio of the fund’s operating expenses paid by shareholders to the total investment (http://www.crsp.com/products/documentation/fund-style). These expenses include recordkeeping, custodial services, taxes, legal expenses, accounting and auditing fees and the marketing cost referred to as a 12b-1 fee. According to Securities and Exchange Commission, 12b-1 fee is an annual marketing or distribution fee on a mutual fund. It is considered as an operational expense and as such is included in a fund’s expense ratio. The maximum limit for this fee is 1 percent of a fund’s net assets. Droms and Walker (1994) and Grinblatt and Titman (1989) found that there is no relationship between expense ratio and mutual fund performance. According to their study, for mutual funds, expense ratio being high or low does not have any impact on their return. However, in an earlier study, Ippolito (1989) confirmed a positive relationship between mutual fund expenses and performance. Amphora and McLeod (1994) argued in favour of high expense ratio for the better performance of the mutual funds. They supported the Rule 12b-1 expense of the mutual fund. According to this study, Rule 12b-1 expense includes additional growth and provides benefit to shareholders from economies of scale. In some other studies done by Droms and Walker (1995, 1996), it was found that the higher expense ratio results in higher returns. The logic given by the authors for their findings was that, the higher expenses are consistent with the higher risk within the portfolio and hence may result into
higher returns. On the contrary, Philpot et al., (1998) found that mutual funds with higher expense ratios give lower returns. According to their study, mutual fund managers are not able to increase the returns of their portfolio by spending resources on active management i.e., analysis and trading activity, prediction of market efficiency etc. In another study, Jan and Hung (2003) found that, low expense mutual funds are giving better returns than the high expense mutual funds. Overall smaller funds with lower expenses ratios tend to generate consistently better performance and these results were consistent with Carhart (1997).

3.1.4 Asset Size: Asset size of a mutual fund is the total market value of all the securities held in its portfolio (Ranparia, 2013). Association of Mutual Funds of India has described it by the Asset Under Management of the mutual fund. Chen et al., (1992) found that larger funds performed better than small funds. According to them, large fund managers possess better stock selection capability and hence, lead to better performance of the fund. Philpot et al. (1998) and Dowen and Mann (2004) found that over time mutual funds exhibit economies of scale. This leads to better returns for larger funds. Annaert et al., (2003) argued that outperformance of a portfolio compared to benchmark perhaps purely because of chance. Thus, they decomposed the deviation from their expected return into a noise component and an efficiency score, which would be 100 percent if the fund exhibited no underperformance. The Bayesian Frontier approach was used for decompose. They found that European equity funds efficiency was positively related to fund size and apparently large funds outperform small funds that perhaps indicate the existence of scale of economies. However Indro et al. (1999) suggested that a relationship between fund size and
performance exists in a linear sense. When funds first start out, their growth provides cost advantages because growth increases net returns. In addition most cost and expenses do not rise in direct proportion to the fund size. They have found that when a fund reaches optimum size, marginal returns begin to decline or become negative.

Jan and Hung (2003) through stochastic dominance approach found that large funds are giving better results than small funds. Other studies as Droms and Walker (1994) and Grinblatt and Titman (1993) found the absence of any relationship between fund size and performance. Droms and Walker (1995) studied the mutual fund attributes with regard to the riskiness of the fund and suggested that smaller funds are more risky funds and hence, may lead to better returns as against their earlier study in the year 1994. Droms and Walker (2001) and Sing (2007) analysed the potential long run economies of scale to determine whether or not there is a significant relationship between asset size and this operating characteristics i.e., economies of scale. Their results contrast those studies above and found that mutual fund returns are not related to fund size over the period studied. This puts the economies of scale theory to test where it is argued that larger funds would be able to offer lower expenses and better returns simply through economies of scale. Abbasi et al. (2012) examined the effect of fund size on the performance of Iranian mutual funds. The findings highlighted no significant relationship between fund size and performance, whether fixed income instruments or big and small cap stock mutual funds.

3.1.5 Load Fee: Load fee is fee paid by the unit holder either at the time of buying the unit or at the time of selling the units. The charge collected by
the scheme when it sells the units to investors is called ‘entry load’ or ‘front-end load’ (Ranparia, 2013). The charge collected by the scheme when it buys back the units from the unit holders is called ‘exit load’ or ‘back-end load’. Schemes that do not charge a load are called ‘No Load’ schemes. There is a contradiction in the literature regarding the effect of load status of the fund. Some studies as Droms and Walker (1994 and 1996) have shown that there is no reward for paying load fee and the returns on mutual funds are not affected by the load fee. Further in a study, Droms and Walker (1995) found that load or no-load status of a fund is not related to the riskiness of the fund. Hence, there is no impact of the load status on the returns of the mutual funds. In contradiction to this some studies have shown that the mutual fund performance is affected by its load status. Philpot et al., (1998) found that mutual funds charging a load fee are underperforming than the no load funds. While Jan and Hung (2003) found that load funds are giving better results than the no-load funds. However, they argued that these findings are true when we restrict ourselves to a specific mutual fund category as the results may vary according to the investment objectives of the mutual funds.

3.1.6 Sector Performance: If the fund is concentrated in a single sector, the performance of stocks in this particular family, and specific economic factors, are the main drivers on fund price. Funds that hold foreign stocks, for example, will improve when the dollar weakens, simply because overseas shares become more valuable. Consumer stocks respond to the general state of the economy, while energy funds invested in oil and gas do well when crude oil prices are on the rise. Bond funds will perform well when interest rates fall and bond prices rise. Stock funds that invest in
small companies, as a general rule, do better when the market is rising and investors are taking more risks with their money. Index funds simply mirror the performance of market indexes such as the Standard & Poor's 500 — making management of the funds easy and relatively inexpensive for investors (Streissguth, 2012)

3.2 Role of a Fund Manager
A Mutual fund manager is a person who is responsible for implementing the fund’s investing strategy and managing its portfolio trading activities (Ranparia, 2013). Fund managers are responsible for implementing a consistent investment strategy that reflects the goals and objectives of the fund (http://www.moneycontrol.com/glossary/mutual-fund/what-is-the-role-of-a-fund-manager_1580.html). Fund managers monitor market and economic trends and analyse securities in order to make informed investment decisions (http://www.moneycontrol.com/planning_desk/understandingmf.php?step1=3). A fund manager’s job is to increase the returns on the capital/ funds with him. Normally the investment decision making process is team based involving research analysts, fund managers and chief investment officers (CIOs). Their role is to buy and sell based on their understanding of the markets, stocks and the economy based on the inputs from the research team and philosophy of the asset management company (AMC) which is reflected in the style with which they manage funds(http://wiki.answers.com/Q/What_is_the_job_of_a_mutual_fund_manager#slide1).
Individual investors wishing to invest their money in the financial or security market always face a choice between investing directly and investing indirectly via professional investment managers such as mutual fund managers. For most of the “unprofessional” investors (who do not have enough time, knowledge or information to do the investment analysis and asset allocation themselves), investing their money via the professional investment managers is a popular solution as individual investors believe that the professional investment managers can provide better investment results due to their less costly information and superior investment skills in stock picking or market timing. Indeed, the performance of the professional fund managers has been of great interest to both academic researchers and market practitioners for several decades. They are all interested in finding out what factors can affect (or be used to predict) the mutual funds performance (Goel et al., 2012). The services of professional investment managers are not free, and thus, investors expect good investment performance to cover the costs and they are always trying their best to pick a superior mutual fund in which to invest (Yi, 2009).

It has been a matter of great debate whether all the expenses, a company and investors invests on Fund Manager are actually worth it or not. It becomes a clear case of Active Management v/s Passive Management ie which model is better? Are investors better off in investing in Passive Index Funds which merely imitate a benchmark or is it worth buying Active Funds managed by Fund Managers. Many researchers and practitioners have tried to study the role of fund manager and his style in determining Fund performance.
Earliest work in this field was done by close in 1952. Treynor and Mauzuy (1966) examined the claims made by the fund managers that they can anticipate major stock market movements. They devised a statistical test of mutual funds historical success in anticipating major turns in the stock market. They argued that the only way in which fund managers can translate ability to outguess the market into benefit to the investor is by varying the fund volatility systematically in such a manner that the resulting characteristic line is concave upwards. The study suggests that an investor in mutual funds is completely dependent on fluctuations in the general market and the improvement in the rate of return can only be due to the fund managers ability to identify the under priced securities, companies and industries rather than to any ability to outguess the turns in the level of the market as a whole.

The first major analytical treatment of mutual fund performance is Jensen (1968). In his study the author assumes the validity of the CAPM and hence the existence of a unique risk factor, the market or systematic risk. If agents are risk averse and have the same set of beliefs about the payoff of securities in the economy, the expected excess return of a portfolio is a linear function of the excess return on the market portfolio, proxied by the S&P 500. Relation (1) here takes the simplest possible form where \( k=1 \). His data comprise a set of 115 U.S. open end mutual funds. While 14 funds out of his sample have historically under-performed the market at a 5percent level of significance, only three have significantly positive alphas. Since in a sample of 115 portfolios one expects six to out-perform at this level of significance by pure chance he concludes that there is no evidence for any superior performance of the mutual fund industry as compared to a simple
buy-and-hold strategy of the market portfolio. Jensen constructed a measure of absolute performance on a risk adjusted basis and evolved a definite standard against which the performance of various funds could be measured. The parameter $\alpha$, in recognition of this contribution often labeled “Jensen’s Alpha”, captures managerial ability. This standard provides a basis to measure the portfolio manager’s predictive ability, i.e., his ability to earn higher returns through prediction of security prices given the risk profile of the portfolio. The study led to the conclusion that mutual funds on average were not able to predict security prices well enough to outperform the market. Not even an individual fund was able to do significantly better than that expected from a mere random chance.

Arditti (1971) emphasised on introducing a variable namely the third moment of the fund's annual rate of return since the Sharpe's Reward to variability ratio proved that the funds did not outperform Dow Jones Industrial average. He proved that although the fund managers do poorly with reward-to-variability ratio, they can do well with respect to the skewness condition. The implication is that fund managers are willing to give up some expected return or take on a bit more variability in exchange for a greater chance at a large annual return. Fama (1972) broke a mutual fund manager’s forecasting skills into two components: micro forecasting and macro forecasting. In micro forecasting, the manager forecasts the price movements of the individual stocks and in macro forecasting, the mutual fund managers forecasts the price movements of the entire stock market. The former is known as security analysis while the latter is known as market timing.
Ross (1976) developed the Arbitrage Pricing Theory, which rationalizes the existence of more than one risk factor in the economy. The most widely used empirical implementation of this idea is provided by Fama-French (1993), who construct mimicking portfolios for risk factors associated with commonly observed asset pricing anomalies such as the small-firm and value effects. An important motive for the empirical performance analysis of mutual funds is based on the theoretical hypothesis of Grossman and Stiglitz (1980), who claim that investment managers can possess superior information, which can be translated into abnormal returns when selecting assets or timing transactions. This phenomenon was first captured by Sharpe’s (1992) style regression approach, which showed that only a limited number of major asset classes is required to successfully replicate the performance of an extensive universe of U.S. mutual funds. Sharpe’s approach is now the most widely used technique for style analysis, and the ability of investment style to explain mutual fund performance has been confirmed by several more recent studies (Chan et al., 2002 and Chen, et al. 2000). Controlling for style effects, there is empirical evidence to support the ability of fund managers to generate positive abnormal returns. These papers relate the return anomalies to the funds’ investment style. The most common style dimensions that have been investigated in the context of equity mutual funds are: stock size, value and momentum (Brown and Goetzmann, 1997, Daniel et al., 1997 and Jegadeesh and Titman, 1993). Lee and Rahman (1990) found that mutual fund managers are able to do good micro and macro forecasting for the fund. Another characteristic of mutual fund manager involves his stock picking ability. Carhart (1997) observed that there is little evidence of skilled or informed mutual fund managers in the area of persistence of the performance. Grinblatt and
Titman (1989, 1993) and Wermers (1997) found that managers who actively trade do possess significant stock picking abilities. According to this study, fund managers have the ability to outperform the market before expenses were deducted. However, later Wermers (2000) contradicted his previous study by finding that actively managed funds on average, underperform their passively managed counterparts. This study showed that the fund managers are not able to beat the market through better stock picking ability. Evensky (1997) mainly focused on information flow towards investors and selection and evaluation of fund managers. He suggested three core "P"s namely philosophy, process, and people. He quoted that the fund manager should not change scripts as market cycles come and go. If the fund manager does then the effort expended in the selection process will be worthless.

Rao (2001) hypothesised that mutual fund managers were able to follow a market timing strategy means where the forecaster predicts when stocks will out-perform the riskless securities and when riskless securities will out-perform stocks, but not predict the magnitude of relative returns. This highlights that the mutual fund managers did not successfully time the market and good stock selection skills. Weigand et al., (2004) attempted to compare the performance of the stocks that were most heavily weighted in mutual funds versus the stocks that were most lightly weighted. If the fund managers were superior stock pickers, individual investors might be able to earn excess returns by following the implicit stock selections of these professional investors and their research findings did not support this logic. They found that funds over 6-12 month periods, heavily weighted stocks perform better than lightly weighted stocks. Thus, finally they identified that
the stock selection ability of fund managers were no better than individual investors.

Several studies have been done regarding the impact of mutual fund manager’s tenure on its performance. Mishelson and Wagner (1999) examined the mutual fund manager tenure and mutual fund performance using a difference of means t-test and found no evidence of any relationship between mutual fund manager tenure and its performance. According to this study, selecting a mutual fund based on manager tenure is not a good investment. As fund manager’s tenure does not have any impact on its performance. In another study Costa et al., (2006) concluded that manager tenure is not a significant factor when looking for superior mutual fund investment returns. Costa and Porter (2003) found that managers with lengthy experience at funds were unable to provide greater risk adjusted returns than less experienced managers. Switzer and Huang (2007) examined whether small and mid-cap fund performance is related to fund manager human capital characteristics including tenure, investment experience, education, gender and professional training. The study exhibited that the CFA managers outperforms by 57.96 basis points than non-CFA managers at 10 percent level and managers possessing MBA qualification did slightly better than non-MBA managers but this was statistically insignificant and this contradicts the findings of Aron (2006) who found that Managers tenure, investment experience, and fund style do not have significant effects on fund performance.

Vikkraman et al. (2010) enumerated the performance of top three mutual funds in the equity, income and the balanced funds category based on their
return. The main objective of this research is to find out the risk and return and study the performance of the funds and to compare it with the market return. The study revealed that the performance of the funds with the market over the three years and whether the funds managers have good timing abilities and proper stock selection capacities and also the behaviour of the funds during the up and the down market were analysed. They found most of the funds performed well in the up market and yielded negative returns below the market level during the down period. The conservative income funds alone gave positive returns. The timing abilities and the stock selecting capacities of the fund managers are nil or very poor which might be the reason for the performance of the funds.

3.3 Investment Style

A number of previous research literature paid a great deal of attention to the relationship between the style of mutual funds and their performance. Capaul et al., (1993), Lakonishok et al., (1994), Fama and French (1998), and Chan and Lakonishok (2004) all show that the portfolios of value stocks outperform portfolios of growth stocks on a long-term and risk-adjusted basis (with varying performance due to varying investment styles). Several studies have been done regarding the performance of the mutual funds with respect to its investment style. In an earlier study, Donald (1974) found that the mutual fund’s performance is affected by its investment objective and funds with more aggressive objectives produced better performance. Papadamou and Stephanidesz (2004) and Rao (2006) also found that the performance of the mutual funds varies with its investment style. According to their study, out of growth and dividend plans, growth
plans are giving better returns and have low risk per return. Contrary to this, Shi and Seiler (2002) found that investment style is not sufficient to judge the performance of the mutual funds and it does not have considerable impact on its returns.

Elton et al., (2007) also found that investment style does have an impact on the returns and investors should build a portfolio of the funds from different families. Nathan Rule (2007) Also, growth funds were expected to have higher returns than either blend or value funds. Rao (2006) classified 419 open-ended equity mutual fund schemes (2005-06) into six distinct investment styles, analysed the financial performance pertaining to the two dominant investment styles and tested the hypothesis whether the differences in performance are statistically significant. The analysis indicated that growth plans have generated higher returns than that of dividend plans but at a higher risk.

3.4 Style Analysis and its Applications

Since its inception a lot of studies have been conducted on style analysis as a tool for measuring fund performance. Basically, there are two groups of researchers like Sharpe (1988, 1992) and Tierney and Winston (1991) who has deal with the applications of style analysis and its use to analyze the asset mix of a portfolio manager. Sharpe (1988, 1992) suggests the style analysis has a key role in determining a portfolio manager’s effective asset mix, so that this method can either be used to estimate how effective a manager is at actively managing the portfolio.
There has been some controversy as to whether RBSA or HBSA is more suitable technique to implement it. As per Horst et al., (2003) although return-based style analysis is less suitable to predict future portfolio holdings, it performs better than holding-based style analysis in predicting future fund returns. Trizcinka (1995, 1997), Hardy (1997) and Lobosco (1999) defend Sharpe’s style model due to its simplicity and objectivities while Christopherson (1997) and Di Bartolomeo and Witkowski (1997) reveal some disadvantages of the model. According to them, style estimates obtained by RBSA are based on purely historical data and hence are backward looking. They also claim RBSA may suffer from spurious correlations among asset classes and it does not capture a style drift properly when a manager changes investment strategies.

Runkle and Johnson (2000) view that the usual application of the return-based style analysis relies on commercially available indexes that exhibit extreme multicollinearity. The authors conclude that the only way to implement return-based analysis is to use portfolio-specific benchmarks that properly capture the investment objectives of the portfolio. Christopherson (1995) have same criticism on the mention approach primarily on statistical grounds and he recommends an alternative investment style classification system. Nonetheless, Christopherson (1995) could not able to show the effects of his statistical evidence an actual style analysis. Despite such criticism, the difficulty of data availability for HBSA has caused RBSA to gain substantial popularity among investors and analyst. Due to popularity of RBSA it has been applied in context of various instruments and countries.
Karatepe and Gökgöz (2006) performed style analysis of Turkish equity mutual funds between 2001-02 and found that the funds are heavily composed of passive investments (approximately 53 percent) with risk free assets and that the portfolio structure and potential fund returns have been negatively affected while attempting to diminish the portfolio risks. Lin and Yung, (2007) conducted style analysis on real estate mutual funds and found that the characteristics of real estate related securities are different from those of the general common equities. To help investors understand better the products offered by real estate mutual funds, they developed style descriptors that are specifically created for real estate related securities. Among the universe of real estate securities, they found that real estate funds tilt toward large stocks and favor growth moderately over value. Growth managers outperform value managers in this sector by 1.51 percent to 2.30 percent per year. However, there is evidence of shifts in the investment style among the funds.

Rao (2006) conducted a study on investment styles and performance of equity mutual funds in India. The study classified the 419 open-ended equity mutual fund schemes into six distinct investment styles, analysed the financial performance of select open-ended equity mutual fund schemes for the financial year 2005 - 2006 pertaining to the two dominant investment styles and tested the hypothesis whether the differences in performance are statistically significant. The variables chosen for analyzing financial performance are: monthly compounded mean return, risk per unit return and Sharpe ratio. A comparison of the financial performance of the 21 open-ended equity growth plans was made in terms of the chosen variables. The analysis indicated that growth plans have generated higher
returns than that of dividend plans but at a higher risk. Further, 17 growth plans have generated higher returns than that of corresponding dividend plans offered by the same asset management companies (AMC) and only one dividend plan could generate higher return than its corresponding growth plan. However, three growth plans and the corresponding dividend plans had the same returns. Out of the 21 growth plans, 4 growth plans had higher coefficient of variation (risk per unit return) than the corresponding dividend plans and 13 dividend plans had higher coefficient of variation (risk per unit return) than the corresponding growth plans offered by the AMC.

Mason et al., (2012) conducted style analysis for diversified U.S. equity funds. In this study they considered two methods of returns based style analysis for classification of investment styles for a single asset class, US diversified equity funds. They extended Sharpe’s (1992) style returns based style analysis (RBSA) by forming style groups using cluster analysis and RBSA factors. They also introduced a parsimonious best fit Index (BFI) of style classification which explicitly acknowledged the existence of market segmentation and practitioner benchmarking. The methods provided complementary information about mutual fund returns. Both methodologies explained a significant proportion of the cross section of out of sample returns, but the BFI method performed better out-of-sample is more transparent and more closely aligned to investment practice.

Pollet and Wilson (2008) studied the effect of size on mutual fund behavior. If actively managed mutual funds suffer from diminishing returns to scale, funds should alter investment behavior as assets under management
increase. Although asset growth has little effect on the behavior of the typical fund, they found that large funds and small-cap funds diversify their portfolios in response to growth. Greater diversification, especially for small-cap funds, is associated with better performance. Fund family growth is related to the introduction of new funds that hold different stocks from their existing siblings. Funds with many siblings diversify less rapidly as they grow, suggesting that the fund family may influence a fund’s portfolio strategy.

Brown and Harlow (2002) studied the Impact of Investment Style Consistency on Mutual Fund Performance. While a mutual fund’s investment style influences the returns it generates, little is known about how a manager’s execution of the style decision might affect performance. Using multivariate techniques for measuring the consistency of a portfolio’s investment mandate, the authors demonstrated that more style-consistent funds tend to produce higher total and relative returns than less consistent funds, after controlling for past performance and portfolio turnover. These findings are robust across fund investment style classifications, the return measurement period, and the model used to calculate expected returns and document a positive relationship between measures of fund style consistency and the persistence of its future performance, net of momentum and past performance effects.

Comer (2006) in hybrid mutual funds and market timing performance examined the stock market timing ability of two samples of hybrid mutual funds. He found that the inclusion of bond indices and a bond timing variable in multi-factor Treynor and Mazuy model framework leads to
substantially different conclusions concerning the stock market timing performance of these funds relative to the traditional Treynor Mazuy model. Coefficients from the traditional model are biased due to a strong correlation between various bond indices and the quadratic term used to measure timing ability in the model. Results from the multi-factor Treynor Mazuy model find less stock timing ability over the 1981-1991 time period than the Treynor Mazuy model and provide evidence of significant stock timing ability across the fund sample covering the 1992-2000 time period. A test designed to estimate stock portfolio changes during up and down stock markets provides some evidence that the results from the multi-factor Treynor Mazuy model are not spurious.

Fung and Hsieh (1998) explored the investment styles in mutual funds and hedge funds. The results indicate that there are 39 dominant mutual fund styles that are mixes or specialized subsets of nine broadly defined asset classes. There is little evidence of market timing or asset class rotation in these dominant mutual fund styles. There is little evidence of market timing or asset class rotation in these dominant mutual fund styles. Bogle (1998) have shown a less quantitative point of view for style analysis in comparison to the other researchers. This researcher suggests the style classification system introduced by Morningstar may be used to prove the passive investment is more advantageous than the active management in all style classes. In other words, since the style groups determined by Morningstar, circumvents the need to develop a multidimensional style definition, it gives more beneficial investment alternative.
Buetow et al., (2000) have shown that when the investment style can be completely and correctly captured by a set of asset classes, the results are found stable and consistent. However, this situation implies that style analysis can be applied, if a fund manager indexes a portfolio to specific benchmarks and actively allocates across the different benchmarks. The portfolio manager will have a tactical asset allocation strategy which allocates assets among benchmark portfolios or across other well-defined benchmarks, if this manager has a long-term strategic asset allocation strategy that categorizes the assets against well-defined benchmarks. Within this framework, the style analysis properly evaluates the investment philosophy since the asset classes involved in the analysis completely can describe the manager’s investment strategy and circumvents the need to develop a multidimensional style definition, it gives more beneficial investment alternative. Chan et al., (2002) use the Fama-French factors as style indices and find mutual funds adopt investment styles that tend to cluster around a broad market benchmark, and the few funds that deviate from the index are more likely to favor growth stocks and past winners. Barberis and Shleifer (2003) show how funds' pursuit of styles can account for observed patterns in stock returns. On the profitability of style momentum strategies, Moskowitz and Grinblatt (1999) and Asness et al., (1997) successfully apply momentum strategies to industry portfolios and country portfolios, respectively.

Horst, J.R. ter (1998) conducted style analysis and performance evaluation of Dutch mutual funds and showed how style analysis of mutual funds can be used to circumvent the problem of self-reported investment styles, and to improve relative performance evaluation. Subsequently, they related
style analysis to performance evaluation and presented results on the performance of Dutch mutual funds. Most strikingly, Dutch mutual funds that mainly invest in Netherlands equity show relative outperformance of the passive portfolio of indices reflecting the mutual fund's investment style. Moreover, the same groups of funds provide an extension of the mean-variance efficient investment set for Dutch investors, even after taking short sales restrictions into account, indicating that a domestic market effect might be present.

Horst, J.R. ter et al., (2003) analyzed the use and implications of (return based) style analysis. First, style analysis may be used to estimate the relevant factor exposures of a fund. They used a simple simulation experiment to show that imposing portfolio and positivity constraints in style analysis leads to significant efficiency gains if the factor loadings are indeed positively weighted portfolios, in particular when the factors have low cross-correlations. If this is not the case though, imposing the constraints can lead to biased exposure estimates. Second, style analysis may be used in performance measurement. If the actual factor exposures are a positively weighted portfolio and if the risk free rate is one of the benchmarks, then the intercept coincides with the Jensen measure. In general, the intercept in the style regression can only be interpreted as a special case of the familiar Jensen measure. Third, style estimates may be compared with actual portfolio holdings. It is shown that the actual portfolio holdings will in general not reveal the actual investment style of a fund because of cross exposures between the asset classes and because fund managers may hold securities that on average do not have a beta of one relative to their own asset class. Although return based style analysis is
less suitable to predict future portfolio holdings, our empirical analysis suggests that it performs better than holding based style analysis in predicting future fund returns.

In the context of Indian Mutual Funds very less studies have been conducted as far leaving more room for research. The concept of Style is gradually gaining importance and attention from researchers, academicians and investors.

Soumya Guha Deb (2008) performed RBSA of Indian Funds (2000-05) and studied the performance of equity funds vis-à-vis their style benchmarks. She found that the funds could not beat their style benchmark and hence underperformed. She used quadratic optimization of an asset class factor model proposed by William Sharpe. The results showed that the funds have not been able to beat their style benchmarks on the average. It also shows that although all the funds in the sample are equity funds, the fixed income asset classes have come out important components of their style exposures, may be due to ‘sticky’ returns of their component securities. The most important component of their style exposures are the mid cap stocks. This may indicate actual investment in those stocks, or in some other stocks that behaved like the mid cap index. Mutual fund performance reporting in India includes only the relative performance of funds with respect to standard general benchmarks. The analysis pointed out the weakness of fund managers vis-à-vis the style benchmarks of the funds they manage, we hope that our attempt could augment the performance evaluation framework currently used in India. To our knowledge, no
research has been conducted exclusively on style analysis of balanced funds in Indian context making it imperative to research on this topic.

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