Analysis Of Systematic Investment Plan & Lump Sum Investment Plan For Portfolio Management

Dr. Rashmi Somani

Associate Professor, Medi-Caps University Indore, Indore, (M.P.)

Dr. Sanjay Sharma

Assistant Professor, Medi-Caps University Indore, Indore

Abstract: Investment decisions are always very difficult in human life. Most of such decisions are taken considering the individuals future requirements. Such investments are usually made on several different types of assets such as property, fixed deposit, bond, mutual fund, precious metal, equity market etc. In an attempt to get more in future one usually delays the present consumption and uses the available fund in one or other type of investment product. Portfolio management decision is very important for any investors', whether it is individual investors or institutional investors. In this paper we have analyzed the systematic investment plan & lump sum investment plan for portfolio management process. Here we have taken sample stock from nifty' s midcap index from different sector and analysis performed on the both method from January 1, 2001 to December 31, 2014 and the result obtained shows that the investment in Systematic Investment Plan is better than Lump Sum Investment Plan.

Keywords: Portfolio, SIP, LSIP, Management, investment

I. INTRODUCTION

Investment decisions are always very difficult in human life. Most of such decisions are taken considering the individuals future requirements. Such investments are usually made on several different types of assets such as property, fixed deposit, bond, mutual fund, precious metal, equity market etc. In an attempt to get more in future one usually delays the present consumption and uses the available fund in one or other type of investment product. One of the most lucrative investments is in the equity market through purchase of shares directly from the market. The Indian stock market has undergone many changes in the last couple of decades; the volumes and liquidity have improved tremendously, emergence of National Stock Exchange(NSE), introduction of online trading system and many reforms to boost the participation of common, institutional and foreign investors. The increasing role of institutional investors and the introduction of online fully automated screen-based trading have resulted in improved efficiency and effectiveness of the market. With the improvements of technology and communication, now it is really a job of few seconds to place

the order for purchasing and selling share in equity market. Thanks to the steps taken by Security and Exchange Board of India (SEBI) and the leading Indian stock exchanges – NSE and Bombay Stock Exchange (BSE) to create the transparency in equity market which attracted a large number of investors in the market.

However, the investments in the stock markets are not really "Always Profitable". It involves lot of uncertainties and risk to the extent of losing the invested amount. Most of the investors really don't know how to invest and fall in the traps of traders, gradually diminish their invested fund and finally come out of the equity market with bitterness after losses being made. Smart investors or traders make money while the remaining loses it. Most of the times, investment decisions are based on "Tips" by someone – brokers, friends, experts on TV channels, newspapers, magazines etc. which involve high risks.

SYSTEMATIC INVESTMENT PLAN

This plan is very simple and is used by most of the portfolio managers and investors who are investing in stock

market, particularly in mutual funds. In this plan, Irrespective of the stock market trend whether prices are low or high a fixed amount of investment is done every month. The regularity of investment with fixed investment amount helps in purchasing more number of stocks when the price is low and less number of stocks when the stock price is high. Normally investors behave in reverse manner .SIP is helpful when regular investment is made and the time horizon is long.

LUMP SUM INVESTMENT PLAN

Lump sum Investment Plan is commonly known as Buy and Hold plan. This plan is very simple to operate in this plan, total amount is invested at the start and hold till the end of analysis period .during the analysis period no further buying and selling is performed .the amount invested is calculated on the basis of targeted return.

II. STATEMENT OF THE PROBLEM

How to manage the portfolio is always a big question to investors various study done on the portfolio management process & plan of investment. There is always a need for common investors to know how to enter into the market and make profit in it, and not to exit with disappointment. This paper is an attempt to give a very simple investment strategy for the investors who are not experts in the field but want to make money from the market without much hassle in their path. The present work is also an eye opener to the experts who may follow the same strategy with certain refinement based on their expertise and earn profit from it.

III. REVIEW OF LITERATURE

Jagdeesh and Titman (1993) analyses the strategy of US stock market from 1965 to 1989. .the strategy used stock selection on the basis of past return & hold them for future & they found that result is about realizes a compounded momentum return of 12.01% per year on average. Later on Rouwenhorst (1998) also found that the momentum profits documented by Jagdeesh and Titman for the US market could also be achievable in the European markets.

For portfolio management, Opportunistic rebalancing was suggested by (Daryanani, 2008), he used the fundamental rule of buy low and sell high. In this study various market situations were analyzed and they further gives the practical guidelines and includes use of wider rebalance bands, biweekly assessment of client's portfolio, rebalancing only those are out of balance portfolio.

A study on the comparative analysis of return of lump sum investment and Systematic investment plan is done by (Singhal & Goel, 2011) for HDFC mutual fund. The performance is measured using Sharpe, Treynor's and Jensen ratio. The result suggested that SIP gives better returns than the one time investment plan. Batras (Batra & Batra, 2012) explained new method Data Envelopment Analysis (DEA) for comparison between SIP with Lump Sum Investment Plan for investment in mutual funds. Their finding also favored that

SIP is more beneficial compared to Lump Sum Investment method.

A study (Soni & Khan, 2012) was performed to compare SIP results with other options available in the financial market. Their main objective was to find the best option which is having less risk and high return. For the study they have taken SIP and other avenues like different forms of shares, bonds, ULIPs, real estate, FDs etc. they found that the study favored SIP as the best option for small investors who wish to invest small amounts regularly for investment.

A study was conducted by (Panyagometh, 2013) for analyzing the effects of two important factors such as investment horizon and target terminal wealth on the performances of DCA and Value Investment Plan. For evaluating the performance various statistically ratio was used and found that with increased length of investment horizon and lowered target terminal wealth, VA have better performance than the DCA investment strategy

In a summary different researchers have carried out different studies for SIP, and LSIP as portfolio management plan, but none of them have analyzed the investment options for nifty mid cap 50 Index shares and in this paper, we have taken this case.

OBJECTIVES

The objectives of this study are to
✓ To analyze SIP & LSIP for some of the Nifty midcap stocks.
✓ To compare the returns using above plans for the selected stocks by IRR, Sharpe Ratio.

IV. RESEARCH METHODOLOGY

In the present study, we have taken investment amount as Rs.5000 per month for the full analysis period; same amount is invested every month and holds till the end of analysis period in SIP. At the end of analysis period all the stock is sold off and the profit/loss is calculated.

In LSIP large sum of amount is required to invest in the beginning of period. First we have calculated the amount to be invested based on different rate of returns i.e. 1.5% pm (19.56% pa), 2% pm (26.82% pa) and 2.5% pm (34.82% pa) for all the stocks, .The quantity is hold till end of the period ,and no buying/selling is done during the whole of the considered period. The amount invested is changed as per target return changed hence targeted return 1.5%, 2% and 2.5% is termed as LSIP15, LSIP20 and LSIP25.

The sample for the study consists of the constituent stocks of Nifty Midcap 50 Index. This index is computed using free float market capitalization weighted method, wherein the level of the index reflects the total market value of all the stocks in the index relative to a particular base period. The Nifty Midcap 50 Index has a base date of 01-Jan-04 and a base value of 1000.This index includes of 50 listed stocks. The sample stocks are taken from different types of sectors / areas like petroleum, Energy, Financial Services, and Telecom etc. The reason for taking the stocks from different sectors is to test the utility of strategies in diversified sectors. For the

analysis purpose we have selected three different stocks selected stocks for the purpose of analysis on the basis of abovementioned criteria are Hindustan Petroleum Corporation Limited, Bharti Infratel ltd and Power Finance Corporation Ltd.

As we have discussed earlier that the plan is beneficial only when the time period is long here we have consider the time duration is from January 01, 2001 to 31-Dec-14. The 14 year time is quite enough for the study. The above period includes the stock market fluctuation, global financial meltdown, the subsequent recovery period, and various bull & bear market. This period signifies all the major ups and downs in the Indian share markets. After selecting the stock investing is done on the basis of plan.

For the analysis purpose the adjusted daily closing prices of the stocks are taken for consideration. Data are obtained from various financial and capital market websites. After the selection of stocks, the analysis has been done for all the transactions. Due care is taken in selection of stocks to avoid for price adjustment due to stock split, bonus, dividend etc.

V. EXPERIMENTAL DESIGN

For our study, period from 01-Jan-01 to 31-Dec-14 is taken to gather the stock quotes. The investment amount per lot of stock purchase is taken as Rs. 5000 (small variation is also considered in the invested amount due to rounding of the quantity of the stock) for convenience only. Amount invested may be changed; it depends on the willingness and fund availability of investor as per his requirement. Dividends, transaction costs and tax implications are ignored in our study. Here we have taken three different stocks from Nifty 50Midcap Index, and their individual performance has been calculated for both the plan.

VI. MEASUREMENT OF RETURN

For performance measurement numbers of techniques are used n the literature. Since the investment amount is different at different time period, hence the method which used time value of money is better, so we have measured the performance on the basis of internal rate of return i.e.IRR. For the present study IRR, Sharpe Ratio and Average cost per share are mainly considered under both plans for measurement of performance evaluation. Further other parameters are also measured some of these are, highest, average and lowest closing prices, net investment amount, profit earned, portfolio values etc. For the performance evaluation it is necessary to compare the results with an index or a benchmark, hence we have compared the result with the respective benchmark index.

VII. ANALYSIS

HPCL is a company related to refining and selling of petroleum products. It is a part of Nifty Midcap 50 Index of NSE since 13-Feb-95. Apart from Nifty Midcap 50 Index, It is also included in more than 10 other indices such as CNX Nifty Junior, Midcap Index etc. The Company was incorporated in 1952 as Standard Vacuum Refining Company of India Limited, in 1962 the name was changed to ESSO Standard Refining Company of India Limited and in 1974 it was renamed as Hindustan Petroleum Corporation Limited .The Company is a government of India enterprise with a Navratna status. The data related to trading prices are downloaded from NSE India website. The total period of analysis is 168 months. During the period of analysis, the first and last closing prices are Rs. 140.25 and Rs. 547.45 respectively whereas the highest and lowest closing prices are Rs. 603.55 and Rs. 121.55 respectively. The average closing price during the period of study is Rs. 307.56. The average and standard deviation of return is 1.7and13.67 respectively. Risk free rate of return based on bank fixed deposit interest rate is taken as 9%. Internal rate of return of Nifty Midcap 50 Index since inception is 11.65%, whereas the Sharpe ratio of Nifty Midcap 50 Index is 0.09 during that period (IISPL, 2014).

Figure 1 shows the closing price of HPCL from 01-Jan-01 to 31-Dec-14 as quoted on National Stock Exchange.
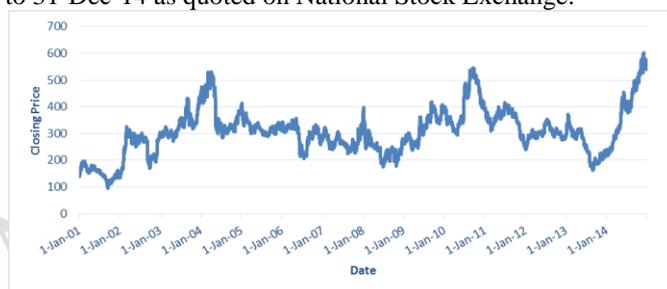

Figure 1: Closing Price of HPCL on NSE from 01-Jan-01 to 31-Dec-14

BHARTI INFRATEL LIMITED

Bharti Infratel Limited is a public limited company incorporated on November 30, 2006. It is engaged in telecommunication infrastructure business. It is listed in stock exchange on 28-Dec-12. And hence every 28th day of month (or the following day in case of holiday) is considered for decision making for investment. It is a part of CNX Midcap Index of NSE from 29-Sept-13. Apart from CNX Midcap Index, it is also part of CNX Junior, 100, 200 and 500 Indices. The data related to trading prices are downloaded from NSE India website. The company's IPO was listed on 28-Dec.-12 .The total period of analysis is 25 months. During the period of analysis, the first and last closing prices are Rs. 191.65 and Rs. 336.90 respectively whereas the highest and lowest closing prices are Rs.336.90 and Rs. 134.75 respectively. The average closing price during the period of study is Rs.212.02. The average and standard deviation of return is 2.56 and 7.68 respectively.

Figure 2 shows the closing price of Bharati Infratel Ltd. from 28-Dec-12 to 31-Dec-14 as quoted on National Stock Exchange.
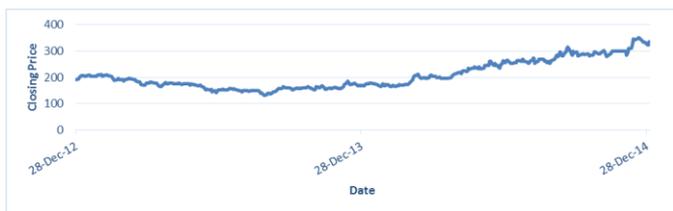
Figure 2: Closing Price of INFRATEL on NSE from 28-Dec-12 to 31-Dec-14

POWER FINANCE CORPORATION LTD

Power Finance Corporation Ltd. is a company related to finance in power sector (Wikipedia, 2015) established in 1986.The company was initially wholly owned by the Govt. of India and disinvested some of its stack to the public by means of an IPO in January, 2007. The company is a Navratna Company in India (PFC India Ltd., 2015). PFC is a part of Nifty Midcap 50 Index of NSE. Apart from Nifty Midcap 50 Index, it is also part of CNX Nifty Junior, CNX 100, CNX Midcap, CNX 500 and CNX PSE indices. The data related to trading prices are downloaded from NSE India website. The company's IPO was listed on 23-Feb-07 and hence every 23[rd]day of month (or the following day in case of holiday) is considered for decision making for investment. The total period of analysis is 95 months. During the period of analysis, the first and last closing prices are Rs. 111.65 and Rs. 301.40 respectively whereas the highest and lowest closing prices (monthly basis) are Rs.375.35 and Rs.98.25 respectively. The average closing price (monthly basis) during the period of study is Rs.200.29. The average and standard deviation of return is 1.99and14.15 respectively.

Figure 3 shows the closing price of PFC from 23-Feb-07 to 31-Dec-14 as quoted on National Stock Exchange.

Figure 3: Closing Price of PFC on NSE from 23-Feb-07 to 31-Dec-14

SYSTEMATIC INVESTMENT PLAN

The analysis under SIP plan for all the selected company is given below in the table. The analysis is done for all the companies under consideration and the summary of outcome is given in Table 1.

Company Name	HPCL	INFRATEL	PFC
Start Date	01-Jan-01	28-Dec-12	23-Feb-07
End Date	31-Dec-14	31-Dec-14	31-Dec-14
Period of Analysis (Month)	168	25	95
First Closing Price	140.25	191.65	111.65
Last Closing Price	547.45	336.90	301.40
Highest Closing Price	603.55	336.90	375.35
Lowest Closing Price	121.55	134.75	98.25
Average Closing	307.56	212.02	200.29

Price			
SIP Amount, pm	5,000	5,000	5,000
Net Invested Amount	16,83,135	2,49,859	9,50,229
Total Quantity at End	6,024	1,285	5,269
No. of Trades	169	26	96
Portfolio Value at End	3,297,839	432,917	1,588,077
Average Cost/Share	279.40	194.44	180.34
IRR %	9.07	65.11	12.84
IRR% (Nifty Midcap 50)	11.65	11.65	11.65
Risk free rate of return, %	9	9	9
Average of Return	1.7	2.56	1.99
Standard Deviation of Return	13.67	7.68	14.15
Sharpe Ratio	0.01	7.31	0.27
Sharpe Ratio (Nifty Midcap 50)	0.09	0.09	0.09

Table 1: Calculated Value in SIP for Midcap Stocks

✓ The start date of analysis is mentioned in the table. The starting date is 01-Jan-01 or the date of listing of the stock in the exchange, whichever is later.

✓ The analysis is carried out till 31-Dec-14 irrespective of the start date.

✓ Accordingly period of analysis is 168 month for HPCL, 25 month for INFRATEL and 95 month for PFC.

✓ The first, last, highest, lowest and average closing prices are given in the table

✓ SIP amount per month is taken as Rs. 5,000, only for buying of number of shares as integer value, this amount slightly deviates.

✓ The Net invested amounts under SIP are Rs.16,83,135 for HPCL, Rs.2,49,859 for INFRATEL, Rs.9,50,229for PFC

✓ Total quantity at end i.e. number of shares as on 31-Dec-14 are 6,024 for HPCL, 1,285 for INFRATEL, and5,269 for PFC. These quantities are squared off at their last closing price.

✓ Total numbers of completed trades are 169, 26, and 96 for, HPCL, INFRATEL, and PFC respectively.

✓ Portfolio value at end are Rs. Rs. 32,97,839 for HPCL, Rs. 4,32,917 for INFRATEL, and Rs. 15,88,077 for PFC .The comparison of Net invested amount with Portfolio value at end is shown in the Figure 4.

✓ The IRR is highest (65.11%) for INFRATEL followed by, PFC (12.84%) and least for HIND PETRO (9.07%). Except HIND PETRO, all other stocks outperform Nifty Midcap 50 Index which has IRR since inception as 11.65%.

✓ The risk free rate of return is considered as 9% as in other cases.

✓ Average and standard deviation of return for all the stocks are mentioned in the table which are used for the calculation of Sharpe ratio.

✓ Sharpe ratios are calculated for all the cases. Highest (7.31) for INFRATEL followed by PFC (0.27) and least for HPCL (0.01). Again other than HPCL, all are better than that of Nifty Midcap 50 Index's Sharpe ration of 0.09.

In SIP, all the calculations are based on premises that every month, the investor purchased shares of the company irrespective of the rate. With regular investment every month, it is observed that INFRATEL outperformed all the stocks with best IRR and Sharpe ratio. Average cost/share can't be the comparison criteria since every share has its own cost. Similarly the final portfolio value is different since the first date of SIP is different in all the cases.

LUMP SUM INVESTMENT PLAN

Lump sum Investment Plan or "Buy and Hold" investment strategy is being used and advocated by many researchers. In this strategy, total amount is invested at the start i.e. on 01-Jan-01 (or on the first date of listing of stock in exchange, whichever is later). The quantity is hold till end of the period i.e. 31-Dec-14 and no other buying/selling is done during the whole of the considered period.

First we have calculated the amount to be invested based on different rate of returns i.e. 1.5% pm (19.56% annual), 2% pm (26.82% annual) and 2.5% pm (34.82% annual) for all the stocks, for this the targeted amount is calculated accordingly. The analysis is done for all the companies under consideration and the summary of outcome is given in Table 2.

Company Name		HPCL	INFRATEL	PFC
Start Date		01-Jan-01	28-Dec-12	23-Feb-07
End Date		31-Dec-14	31-Dec-14	31-Dec-14
First Closing Price		140.25	191.65	111.65
Last Closing Price		547.45	336.90	375.35
Average of Return		1.7	2.56	1.99
Std. Dev. of Return		13.67	7.68	14.15
IRR% (Nifty Midcap 50)		11.65	11.65	11.65
Sharpe Ratio (Nifty Midcap 50)		0.09	0.09	0.09
Risk free rate of return		9%	9%	9%
Targeted Corpus	1.5%	75,77,436	3,05,140	21,07,202
	2%	1,36,93,620	3,26,709	28,36,467
	2.5%	2,55,55,294	3,50,117	38,71,058
Net Invested Amount	1.5%	6,21,194	2,10,304	5,12,191
	2%	4,91,688	1,99,139	4,32,276
	2.5%	4,03,526	18,850	3,70,734
Portfolio Value at End	1.5%	24,24,760	3,69,692	13,82,664
	2%	19,19,248	3,50,065	11,66,933

	2.5%	15,75,118	3,31,978	10,00,799
IRR %		10.21	32.43	13.47
Sharpe Ratio		0.09	3.05	0.32

Table 2: Calculated Values in LSIP for Midcap Stocks

✓ The start and end date, first and last closing price, average and standard deviation of return, IRR and Sharpe ratio of Nifty Midcap 50 Index, risk free rate of return are same as that mentioned in SIP.
✓ There is only one buying and one selling of the stock.
✓ The Targeted corpus for all the stocks and corresponding Net invested amount as per targeted rate of return (1.5% etc.) are as mentioned in the table.
✓ Finally the Portfolio values at end for all the stocks are noted in the table. Net invested amount and Portfolio value at end for all the stocks for 1.5%, 2% and 2.5% pm return respectively.
✓ IRR as calculated from the Net invested amount and portfolio value at the end are listed in the table for all the stocks.
✓ Sharpe ratio as calculated from IRR, risk free rate and standard deviation of return are listed in the table for all the stocks.

IRR of the Nifty Midcap 50 Index is 11.65%, from above mentioned data it is noted that INFRATEL and, PFC gave better return (32.43%, and 13.47% respectively) whereas HPCL underperformed (10.21%). Similarly the Sharpe ratio for, INFRATEL, and PFC (3.05,and 0.32) are better than Nifty Midcap 50 Index's Sharpe ratio (0.09) while HPCL have approximately same Sharpe ratio.

VIII.   MAJOR FINDINGS

In the present paper, two different investment plans viz. SIP and LSIP are discussed for two stocks of mid cap index. The stocks are taken from different sectors of industry which are having good financial results. The data related to the stock quotes are directly taken from NSE India official website. These data are analyzed for both the plans and the measurement is done mainly on the basis of IRR and Sharpe Ratio apart from the other parameters.

It is found that in all the cases, SIP dominates over LSIP plans. The IRRs of SIP are far better than LSIP plans. Similarly the Sharpe Ratio is also very high compared to LSIP. In some cases Cost of Share is less in LSIP but this is due to the fact that in LSIP investment done at the start of the period and if the price is low in start then that was the average price in this case, based on the other criteria also SIP is beneficial. Even the actual portfolio value of stock at the end of period is best in SIP for all stocks. In some of the cases, LSIP is also competing with SIP but LSIP is almost lagging among all the Cases.

IX. CONCLUSION

It is, therefore, concluded that for a well-planned and disciplined investor who invest in stock market on regular basis, must look into the opportunities of SIP compared to LSIP. The main thing is that investors shall be disciplined and

unbiased. If investment is done regularly as per the plan then although not guaranteed but the potential of SIP can't be ignored. In the case of investor who does not invest in stock market on regular basis, must Use LSIP compared to SIP.

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