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### **A STUDY ON PERFORMANCE OF SENSEX AND EVALUATION OF INVESTING LUMP SUM OR MONTHLY REGULAR INVESTMENT IN EQUITY ON RISK AND RETURN FOR INVESTOR**

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#### **ABSTRACT**

Investment in equity has always been considered as risky investment by investor and its high volatility and fear of erosion of principle has evaded many investors from venturing into it. Most of the investors have maintained a very conservative approach for investment and for their financial planning and thus at time are falling short for their financial goal. The paper evaluates the performance of Sensex as a performance of Equity market from Jan 91 - Feb 15 on risk and return and how it can be a key part of asset allocation for individual's financial planning even for conservative investor. Many Asset management Companies and financial planners have been advocating of investing systematically in equity market for getting high and safe return from equity market. It is on this premises that AMC's and distributors are aggressively promoting SIP's (Systematic Investment Plans). The paper also tries to evaluate whether there is any significant difference in volatility and return while investing monthly thus taking benefit of rupee cost averaging rather than investing lump sum

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#### **INTRODUCTION**

An investment decision always includes the sacrifice of immediate benefits for better future returns. An investment is always made with certain specific objectives in mind. These objectives are primarily classified as the primary and secondary objectives. While the primary objectives revolve around the risk and return part of an investment decision, the secondary objectives include the safety against inflation, liquidity, growth, tax benefit etc. An investment process generally starts with an understanding of the investment objectives and then framing out the investment policy. An investor with or without investment knowledge is always subconsciously alert and clear with his or her investment objectives. With the rising trend of fund management services all around the world, it becomes indispensable to have a very good understanding of how an investor thinks and responds to different investment avenues. The stock market is one of the most interested and inquisitive area for investors who always want to create massive wealth in the shortest time phase since stocks are the most wonderful category of financial instruments and one of the greatest tools ever

invented for building financial wealth. While investing in stock market perception and attitude of investor towards anything related to the stock market is of utmost importance. However there has always been tendency by investors to time the market and in this their emotions play a vital role. The question which comes to the mind of investor is when to enter the market for which advisors and many mutual fund houses promote the concept of SIP (Systematic Investment Plan) which is based on the principle of Dollar Cost Averaging It is at times advised by many financial advisors that investors who are investing in equities and stock market should not look to time the market rather than they should spend some time in market. But the biggest question which arise is how much time is good time which can satisfy the investor expectation. It is in this context this paper tries to study the performance of Indian Stock market and also try to evaluate whether it makes any sense to invest monthly to get benefit of Rupee Cost averaging

#### **Review of Literature**

In financial markets, "expectations" of the investors play a vital role. They influence the price of the securities; the volume trade and determine quite a lot of things in actual practice. These 'expectations' of the investors are influenced by their "perception" and humans generally relate perception

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to action. The beliefs and actions of many investors are influenced by the dissonance effect and endowment effect. The tendency to adjust beliefs to justify past actions is an example of the psychological phenomenon termed by Festinger (1957) as cognitive dissonance. Festinger's theory asserts that individuals are distressed by conflicting cognitive elements, such as a discrepancy between empirical evidence and past choices and thus they alter their belief store due to this discomfort. The key feature of dissonance is that individual beliefs are altered to conform to their past actions. In the context of investment decision-making, cognitive dissonance can be thought of as a psychological cost that investors may seek to reduce through adjustments in beliefs about the efficacy of past investment choices. We find ample proof for the wide prevalence of such a psychological state among Mutual Fund (MF) investors in India. For instance, UTI had a glorious past and had always been perceived as a safe, high yield investment vehicle with the added tax benefit. Many UTI account holders had justified their beliefs by staying invested in UTI scheme even after the 1999 bail out and many have still not lost faith in UTI, even after the July 2001 episode.

"Endowment Effect" is explained by Thaler, Kahneman and Knetsch (1992) as "People are more likely to believe that something they own is better than something they do not own". Much of economic and financial theory is based on the notion that individuals act rationally and consider all available information in the decision-making process. However, researchers have uncovered a surprisingly large amount of evidence that this is frequently not the case. Dozens of examples of irrational behavior and repeated errors in judgement have been documented in academic studies. Peter L. Bernstein in *Against The Gods* states that the evidence "reveals repeated patterns of irrationality, inconsistency, and incompetence in the ways human beings arrive at decisions and choices when faced with uncertainty."

Tversky and Kahneman originally described "Prospect Theory" in 1979. They found that contrary to expected utility theory, people placed different weights on gains and losses and on different ranges of probability. They found that individuals are much more distressed by prospective losses than they are happy by equivalent gains. Some economists have concluded that investors typically consider the loss of \$1 dollar twice as painful as the pleasure received from a \$1 gain.

They also found that individuals will respond differently to equivalent situations depending on whether it is presented in the context of losses or gains. Researchers have also found that people are willing to take more risks to avoid losses than to realize gains. Faced with sure gain, most investors are risk-averse, but faced with sure loss, investors become risk-takers. "Psychographics" describe psychological characteristics of people and are particularly relevant to each individual investor's strategy and risk tolerance. An investor's background and past experience can play a significant role in the decision an individual makes during the investment process. For instance, women tend to be more risk averse than men and passive investors have typically become wealthy without much risk while active investors have typically become wealthy by earning it themselves. Historically investment in equity stocks has given phenomenal returns amongst all the other asset classes if investment was done with discipline and with long term time horizon.

However while investing there are a lot of emotions which are involved and investor tends to time the stock market. To overcome emotional impact and also for systematic investment in stock market many financial planners advocate for Systematic Investment Plan on the premise of Rupee Cost Averaging. The literature which is available does not provide any convincing evidence as to which strategy is superior. There are studies by Israelson (1999), Simon (1994) and Steto (1994). For example, they indicate that the Rupee Cost Averaging strategy is superior to the Lump Sum strategy. For instance, Israelson (1999) compares annual holding period returns of the 35 largest equity funds over ten years and finds that the SIP strategy earned higher returns in 19 of the 35 funds studied. However, Bacon et al. (1997), Bernice (1998), Geer (1995), and Williams and Bacon (1991) compare annual holding period returns under the two strategies and conclude that the Lump Sum strategy is superior to the Rupee Cost Averaging method in earning higher returns. In one of the rare theoretical studies of the issue, Constantinides (1979) concludes that RCA is dominated by sequential as well as optimal nonsequential investment policies.

### Evaluation of Stock market Performance in India – Sensex

To study about the stock market has performed in India over the year's evaluation of Sensex from January 91 to March

Table 1

SENSEX PERFORMANCE							
YEARS	1	3	5	7	10	15	20
Count	280	256	232	199	163	103	43
Max	263.4%	59.8%	46.3%	29.0%	20.8%	16.6%	16.1%
Min	-53.5%	-15.6%	-7.1%	-5.8%	-2.7%	5.0%	6.9%
Average	18.0%	12.2%	11.5%	11.5%	11.7%	11.8%	10.9%
STDEV	39.8%	16.9%	12.0%	8.7%	6.0%	2.2%	2.1%
VaR(5%)	-26.8%	-5.3%	-3.1%	-2.2%	0.9%	7.5%	8.5%
variance	15.86%	2.86%	1.44%	0.76%	0.36%	0.05%	0.05%
Probability of Loss	35.00%	20.70%	14.22%	12.06%	1.84%	0.00%	0.00%
Return				Frequency			
<0	98	53	33	24	3	0	0
0 - 10%	29	97	89	68	51	19	18
10%- 20%	38	30	50	72	104	84	25
>20%	106	67	51	35	5	0	0
Between -10% & 0%	32	41	33	24	3	0	0
Less than -10%	66	12	0	0	0	0	0

2015 has been done (Table 1). The table depicts the return earned over different period of time if one has invested in Sensex. The analysis has been done based on premises than an investor invests in any month during this period and held his investment for specified duration of time. So for instance for investment period of one year in this period of study there have been 280 counts, similarly if investor held his investment for 5 years starting any month during this period the 232 count were studied

Following are the observations of the analysis

- 1) The Maximum Return as expected is in the range of 16-17% for a period 15 years and more and for short term it is as high as 263% for any one year
- 2) Minimum Return in Sensex has been in the range of 5 -7% for long term investment and that can be assumed as the worst return one can expect from the market
- 3) As expected equity is a long term investment as it can be observed that probability of Loss was 1.84% if holding period is 10 years and is zero if holding period is more than 12 years whereas for investment period of one year the loss probability is 35%. Thus for longer period for more than 10 years it becomes risk free investment in terms of loss
- 4) Average long term return for more than 10 years is 10-12% with very low Standard deviation
- 5) Even in terms of volatility the standard deviation is almost in the range 2-4% beyond 12 years
- 6) Equity even though seems an ideal product for long term for short term such as for one year investment horizon 37.8% time in the period it has given more than 20% return which implies that on an average every third year one can expect more than 20% return from the market
- 7) On conducting Historical VaR Analysis it was observed that for horizon of 15 years or more the return is more than 7.5% thus it almost a risk free investment for long term period
- 8) As regard the downside risk is concerned for a period beyond 5 years or more the loss has never been more than 10 %
- 9) The downside risk return for period more than twelve years is positive and the worst return is 5%

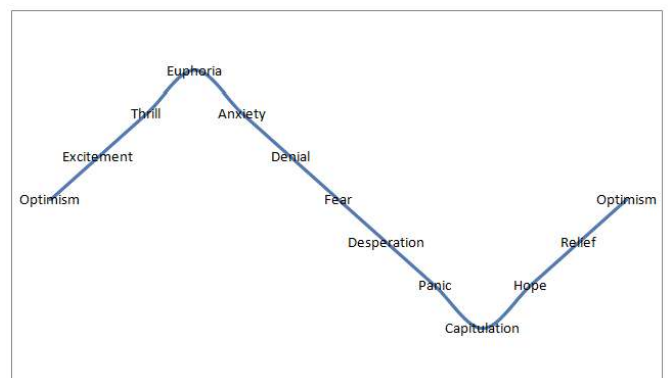
### Investing Lump sum or Monthly

Mutual Fund companies and many financial advisors have been advocating on investing in equity market through SIP (Systematic Investment Plan). A Systematic Investment Plan (SIP) is a vehicle offered by mutual funds to help investor save regularly. It is just like a recurring deposit with the post office or bank where you put in a small amount every month. The difference here is that the amount is invested in a mutual fund. The minimum amount to be invested can be as small as 100 and the frequency of investment are usually monthly or quarterly. An SIP allows you to take part in the stock market without trying to second-guess its movements. It is also known as Rupee Cost Averaging. In SIP means investor commits itself to investing a fixed amount every period commonly monthly. This method of investment has been encouraged by many financial advisors and is aggressively marketed by Mutual Fund companies. The method has its merit on account for retail investors as they can start saving by a small amount

of Rs 500 per month itself. It also inculcates habit of compulsory savings and helps in maintaining financial discipline. The table below illustrates an example of working of SIP of any Mutual Fund Scheme. In this it is assumed that an investor invests Rs 1000 per month in HDFC Sensex Fund beginning from April 1, 2013 for 24 Months till March 2015

**Table 2**

Investment Date	NAV (Rs)	Units Purchased	Total Units
1-Apr-13	157.514	6.349	6.349
2-May-13	164.859	6.066	12.415
3-Jun-13	164.542	6.077	18.492
1-Jul-13	164.464	6.08	24.572
1-Aug-13	162.924	6.138	30.71
2-Sep-13	159.332	6.276	36.986
1-Oct-13	164.846	6.066	43.052
1-Nov-13	178.992	5.587	48.639
2-Dec-13	176.398	5.669	54.308
1-Jan-14	178.448	5.604	59.912
3-Feb-14	170.829	5.854	65.766
3-Mar-14	176.814	5.656	71.422
1-Apr-14	189.304	5.283	76.705
2-May-14	188.779	5.297	82.002
2-Jun-14	207.806	4.812	86.814
1-Jul-14	215.642	4.637	91.451
1-Aug-14	216.153	4.626	96.077
1-Sep-14	227.989	4.386	100.463
1-Oct-14	225.497	4.435	104.898
3-Nov-14	236.463	4.229	109.127
1-Dec-14	242.274	4.128	113.255
1-Jan-15	233.495	4.283	117.538
2-Feb-15	246.584	4.055	121.593
2-Mar-15	249.372	4.01	125.603
1-Apr-15	239.71		125.603



**Diagram 1**

As seen from the table the benefit of Rupee Cost Averaging where by maintaining investment of Rs 1000 continuously investor purchase more units when NAV is low or when markets were relatively down and he is buying less units when NAV is high or markets are high and this follows the basic principle of investing in Stock Market on Buying Low and Selling High even though partly as the method only helps in buying and not selling. An investor who has invested Rs 24000 over a period of 24 months, his fund value on April 2015 was Rs 30108 which is effectively a return of 23.44% p.a. However had customer would have invested Rs 24000 in lump sum on April 1, 2013 the fund value would have been Rs 36523 and effectively almost same return which is 23.36% p.a. This is just an example to illustrate the working of SIP and the example was taken for a period when the stock market was on rising trend.

Table 3

YEARS	1	3	5	7	10	15	20
REGULAR MONTHLY INVESTMENT							
Count	280	256	232	199	163	103	43
Average	17%	12.6%	11.3%	11.7%	12.7%	14.4%	12.0%
Maximum	367%	55.0%	48.0%	38.6%	27.5%	19.1%	14.2%
Minimum	-161%	-31.3%	-12.6%	-8.2%	-3.8%	8.4%	10.7%
SD	51%	18.4%	13.6%	10.9%	8.1%	1.9%	0.7%
VaR(5%)	-46%	-15.0%	-6.1%	-3.8%	-1.8%	10.6%	11.1%
Probability of Loss	34.64%	23.83%	17.67%	16.08%	12.27%	0.00%	0.00%
loss(<0%)	97	61	41	32	20	0	0
0 - 10%	38	69	82	71	30	6	0
10%- 20%	24	42	57	48	77	97	43
>20%	121	75	43	48	36	0	0
Between -10% & 0%	28	35	40	32	20	0	0
Less than -10%	69	26	1	0	0	0	0
ONE TIME INVESTMENT							
YEARS	1	3	5	7	10	15	20
Count	280	256	232	199	163	103	43
Average	18.0%	12.2%	11.5%	11.5%	11.7%	11.8%	10.9%
Max	263.4%	59.8%	46.3%	29.0%	20.8%	16.6%	16.1%
Min	-53.5%	-15.6%	-7.1%	-5.8%	-2.7%	5.0%	6.9%
SD	39.8%	16.9%	12.0%	8.7%	6.0%	2.2%	2.1%
VaR(5%)	-26.8%	-5.3%	-3.1%	-2.2%	0.9%	7.5%	8.5%
Probability of Loss	35.00%	20.70%	14.22%	12.06%	1.84%	0.00%	0.00%
<0	98	53	33	24	3	0	0
0 - 10%	29	97	89	68	51	19	18
10%- 20%	38	30	50	72	104	84	25
>20%	106	67	51	35	5	0	0
Between -10% & 0%	32	41	33	24	3	0	0
Less than -10%	66	12	0	0	0	0	0

Table 4. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
										Lower	Upper
Oneyr	Equal variances assumed	4.649	.032	-.417	558	.677	-.01601	.03838	-.09140	.05939	
	Equal variances not assumed			-.417	527.023	.677	-.01601	.03838	-.09141	.05940	
ThreeYr	Equal variances assumed	2.852	.092	.140	510	.889	.00216	.01551	-.02831	.03264	
	Equal variances not assumed			.140	505.196	.889	.00216	.01551	-.02831	.03264	
FiveYr	Equal variances assumed	1.144	.285	.033	462	.974	.00039	.01169	-.02258	.02336	
	Equal variances not assumed			.033	454.791	.974	.00039	.01169	-.02258	.02336	
SevenYr	Equal variances assumed	5.925	.015	.444	414	.657	.00422	.00949	-.01444	.02287	
	Equal variances not assumed			.444	396.034	.657	.00422	.00949	-.01444	.02287	
TenYr	Equal variances assumed	9.389	.002	.923	342	.357	.00698	.00757	-.00790	.02186	
	Equal variances not assumed			.923	317.841	.357	.00698	.00757	-.00790	.02187	
FifteenYr	Equal variances assumed	.630	.428	9.764	222	.000	.02662	.00273	.02124	.03199	
	Equal variances not assumed			9.764	220.185	.000	.02662	.00273	.02124	.03199	
TwentyYr	Equal variances assumed	13.522	.000	4.994	102	.000	.01533	.00307	.00924	.02141	
	Equal variances not assumed			4.994	73.479	.000	.01533	.00307	.00921	.02144	

The benefit of SIP has been partial control over emotional investing where investors flock towards market when there is feeling of euphoria and stop their SIP or redeem when there is a feeling of despondency in the market (Diagram 1). This behavior of emotional investing has been one of the biggest challenge for retail investors as there timing of entry in the market is when there is lot of euphoria and to make things worse the investor loose out their patience when there is a feeling of desperation and panic and at this time they sell their equity investment where logically is a time to increase their equity investment

#### Evaluation of Return from Monthly Systematic Investment than Lump sum Investment

To study about this Sensex data January 1991 – March 2015 was analyzed on the basis that any investor had invested

monthly or in lumpsum for same period and returns on the same periods were analysed to observe whether there is any difference in return on the mode of investing

**Hypothesis:** There is no difference between return of Monthly Regular Investment and Lumpsum Investment for same period

To test the difference in return in Monthly and Lumpsum investment T Test for independent sample was used using SPSS. The test also tested the variance in return by applying Levene's Test and checking the significance level of F value in the test

#### Findings

On analyzing the performance of Monthly Regular Investment and Lumpsum Investment following observations are made

- a) Generally it is perceived that by doing investment monthly and taking benefit of rupee cost averaging the risk will be lesser however as seen from the table for investment period of one, three five seven and ten years the variability as measured by standard deviation is high in monthly investment whereas for investment period of fifteen and twenty years variability in return is lesser for monthly investment than lumpsum.
- b) The significance of variability is also measure through Levene Test which indicates that for investment period one , three , seven and ten years the variability in return is significance and similarly for investment period of twenty years the variability in return is significance
- c) Almost similar observation is seen by conducting the VaR analysis where we observed that for investment period of one, three, five, seven and ten years the worst case return at 5% is more in case of lumpsum investment as compare to monthly investment. Whereas if investment period is fifteen and twenty years then VaR (5%) is higher for monthly investment than lump sum
- d) Looking at the historical probability of loss of more than 10% in equity if holding period is more than five years the investment done in lumpsum the probability is zero whereas there has been only one instance where for a period of five years monthly investment has yielded loss of more than 10%
- e) On testing the hypothesis for difference in average return through Paired T Test for independent sample it was observed that there is only substantial difference in return if investment period is fifteen years and twenty years for all other period of study the difference in return in lump sum or monthly investment is insignificant

## Conclusion

Looking at the results it can be concluded that Investing Systematically through SIP or doing monthly regular investment has not shown a substantial difference in return and neither in reducing risk however it is to definitely a very good way of investing as it induce people to save small amount regularly from their monthly earnings as generally people perceive follow saving as  $\text{saving} = \text{income} - \text{expenses}$  but in financial planning language it is advisable to follow  $\text{expenses} = \text{income} - \text{saving}$ . It is at this context SIP plays an inevitable role. It is also observed from the study that for safer double digit return from the market it is important to spend time in market and irrespective whether one does through SIP or through Lumpsum investment.

## REFERENCES

- Anand Pandey, 2003. "Efficiency of Indian stock market" Retrieved from <http://papers.ssrn.com/Abstract-id474921>
- Craig Israelson, 1999. "Lump Sums take Their Lumps: Contrary to Popular Opinion, Lump Sum Investing Doesn't Always Result in Superior Returns over Dollar Cost Averaging," *Financial Planning*, pp. 51-56.
- Festinger, L. 1957. A theory of cognitive dissonance. Stanford, CA: Stanford University Press.
- George M. Constantinides, 1979. "A Note on the Suboptimality of Dollar-Cost Averaging as an Investment Policy," *Journal of Financial and Quantitative Analysis*, Vol. 14, No. 2, pp. 44-50.
- Goetzman, W. N. and Peles, N. 1997. Cognitive Dissonance and Mutual Fund Investors. *The Journal of Financial Research*, 20 (2), 145-158.
- Ippolito, R. 1992. Consumer reaction to measures of poor quality: Evidence from Mutual Funds. *Journal of Law and Economics*, 35, 45-70.
- Kahneman, D., Knetsch, J. L. and Thaler, R. H. 1991. The Endowment Effect, Loss Aversion, and Status Quo Bias: Anomalies. *Journal of Economic Perspectives*, 5 (1), 193-206.
- Kahneman, D., Knetsch, J.L. and Thaler, R.H. 1990. Experimental tests of the endowment effect and the Coase theorem. *Journal of Political Economy*, 98, 1325-1348.
- Kahneman, Daniel and Amos Tversky 1979. "Prospect Theory: An Analysis of Decision under Risk", *Econometrica*, XLVII.
- Kainth Dr. Gursharan Singh and Manpinder Kaur, 2009. "Mutual Fund Industry in India: Investor's Perception",
- Keli, P. 2005. A Theory of Cognitive Dissonance. Stanford: Stanford University Press.
- Khorana, A. and Servaes, H. 1999. Retail Investor Sentiment and Return Co movements. *Journal of Finance*, 61, 2451-2486.
- Lee, C. M. C., Shleifer, A. and Thaler, R. H. 1991. Investor Sentiment and the Closed-End Fund Puzzle. *Journal of Finance*, 46 (1), 75-109.
- Napach Bernice. "How to Exceed Dollar-Cost Averaging Returns." *Medical Economics*, Vol. 75, No. 15, p. 18.
- Peter Bacon, Richard E. Williams and M. Fall Ainina, 1997. "Does Dollar-Cost Averaging Work for Hands?" *Journal of Financial Planning*, Vol. 10, No.3.pp.78-80.
- Richard E. Williams and Peter W. Bacon, 1999. "Lump Sum Beats Dollar Cost Averaging," *your/is/ of Financial Planning*, Vol. 6, No. 2, p. 64.

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