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Investment Analysis on Capital Market Investments using Financial Econometric Techniques

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A B S T R A C T

Investment is key factor in the economy and it is considered as the pivotal tool for strengthening the economy and GDP of the nation. The idea of investment is different is person to person based on their needs and understanding about the market conditions. Investment management is very crucial for any investor sustain in market and to achieve a good returns from the market. The study analyzes the different factors motivating the investors to enter in to the market and also integrate their objectives with the specific time period. It is further studies the investors awareness about risk, return, liquidity, capital appreciation and earnings per share. The present study focuses on develop the financial model for investors using linear regression econometric t technique to assess the investments.

Keywords: Investment, Risk, Return, Market, Investment management and Econometrics

1. Introduction

The word “investment” can be defined in many ways according to different theories and principles. It is a term that can be used in a number of contexts. Generally, investment is an application of money for earning more money. Investment also means savings or savings made through delayed consumption. However, investment can be interpreted broadly from three angles -

- Economic
- Layman
- Financial

Economic investment includes the commitment of the fund for net addition to the capital stock of the economy. The net additions to the capital stock means an increase in building equipments or inventories over the amount of equivalent goods that existed, say, one year ago at the same time.

The layman uses of the term investment as any commitment of funds for a future benefit not necessarily in terms of return. For example a commitment of money to buy a new car is certainly an investment from an individual point of view.

Meaning of investment

Investment is an activity that is engaged in by people who have savings, i.e. investments are made from savings, or in other words, people invest their savings .But all savers are not investor’s .investment is an activity which is different from saving. Let us see what is meant by investment.

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1.1. Definition of Investment Management:

Investment management (also called fund management, asset management or portfolio management) is the process of investing a portfolio on an ongoing basis. Investment management includes preparing a strategy, either short- or long-term, to acquire and dispose of portfolio holdings. Also, it can include banking, budgeting, and tax services and duties. In another case, the term refers to managing the holdings within an investment portfolio and trading them to realize a particular investment objective.

1.2. Investment objectives/Nature of Investment Management

Investment is made because it serves some objective for an investor. Depending on the life stage and risk appetite of the investor, there are three main objectives of investment: safety, growth and income. Every investor invests with a specific objective in mind, and each investment has its own unique set of benefits and risks. Let us understand these objectives in detail.

Safety

While no investment option is completely safe, there are products that are preferred by investors who are risk averse. Some individuals invest with an objective of keeping their money safe, irrespective of the rate of return they receive on their capital. Such near-safe products include fixed deposits, savings accounts, government bonds, etc.

Growth

While safety is an important objective for many investors, a majority of them invest to receive capital gains, which means that they want the invested amount to grow. There are several options in the market that offer this benefit. These include stocks, mutual funds, gold, property, commodities, etc. It is important to note that capital gains attract taxes, the percentage of which varies according to the number of years of investment.

Income

Some individuals invest with the objective of generating a second source of income. Consequently, they invest in products that offer returns regularly like bank fixed deposits, corporate and government bonds, etc.

Other objectives

While the aforementioned objectives are the most common ones among investors today, some other objectives include:

Tax exemptions

Some people invest their money in various financial products solely for reducing their tax liability. Some products offer tax exemptions while many offer tax benefits on long-term profits.

Liquidity

Many investment options are not liquid. This means they cannot be sold and converted into cash instantly. However, some people prefer investing in options that can be used during emergencies. Such liquid instruments include stock, money market instruments and exchange-traded funds, to name a few.

2. Investment Decision Process

Investing has been an activity confined to the rich and business class in the past. But today, we find that investment has become a house hold word and is very popular with people from all walks of life .India appears to be slowly but surely closing in some of the top savers among countries in the global peaking order. savings in Indians touched a new high of 31percent of the GDP during2011-2012.chain leads the pack of savers with the saving figure at close to 49 percent of GDP followed by other emerging market economies like Bangladesh 36 percent, Bhutan 48 percent of their GDP. The escalating cost due to, inflation are decreasing the value of saved money with each passing year .consider the cost buying a home ,of getting admitted in a hospital or paying for the higher education of a child. One's life's savings could vanish in a blink. Knowledgeable investing requires the investing to be aware of his needs the amount of money he can invest and the investment options available to him. These will relate to the investment decision process, a typical investment decision goes through a five step procedure which is known as investment process these steps are:

1. Defining the investment objective
2. Analyzing securities
3. Construct a portfolio
4. Evaluate the performance of portfolio
5. Review the portfolio

1. Defining the investment objective

Investment objective may vary from person to person .it should be stated in terms of both risk and return .In other words ,the objective of an investor is to make money accepting the fact of risks that likely to happen .The typical objectives of investor include the current income ,capital appreciation, and safety

of principal. More over constrains arising due to liquidity, the time horizon, tax and other special circumstances, if any must also be considered this steps of investment process also identifies the potential financial assets that may be included in the portfolio based on the investment objectives.

2. Analyzing securities

The second steps of analyzing securities enable the investor to distinguish between underpriced and overpriced stock. Return can be maximized by investing in stocks which are currently underpriced but have the potential to increase .it might be useful to remember the golden principle of investment; buy low sell high. There are two approaches used for analyzing securities; technical analysis and fundamental analysis.

3. Construct a portfolio

The actual construction of portfolio, which can be divided into three sub parts
a) How to allocate the portfolio across different asset classes such as equities, fixed income securities and real assets
b) The assets selection decision, this is the step where the stocks make up the equity component, the bonds that make up the fixed income component.
c) The final component is execution, where the portfolio is actually put together, where investors have to trade off transaction cost against transaction speed.

4. Evaluate the performance of portfolio:

The performance evaluations of the portfolio done on the in terms of risk and return, Evaluation measures are to be developed .CAGR (compounded annual growth rate) may be one criteria. Ex: Hindustan unilever gave a CAGR of 21 percent in returns to the shareholders for the last 13 years.

5. Review the portfolio:

It involves the periodic repetition of the above steps. The investment objective of an investor may change overtime and the current portfolio may no longer be optimal for him. So the investor may form a new portfolio by selling certain securities and purchasing others that are not held in the current portfolio.

3. Introduction to Econometrics

The literal meaning of the word econometrics is 'measurement in economics'. The first four letters of the word suggest correctly that the origins of econometrics are rooted in economics. However, the main techniques employed for studying economic problems are of equal importance in financial applications. As the term is used in this book, financial econometrics will be defined as the application of statistical techniques to problems in finance. Financial econometrics can be useful for testing theories in finance, determining asset prices or returns, testing hypotheses concerning the relationships between variables, examining the effect on financial markets of changes in economic conditions, forecasting future values of financial variables and for financial decision-making.
Financial data are observed at much higher frequencies than macroeconomic data. Asset prices or yields are often available at daily, hourly, or minute-by-minute frequencies. Thus the number of observations available for analysis can potentially be very large -- perhaps thousands or even millions, making financial data the envy of macro econometricians, The implication is that more powerful techniques can often be applied to financial than economic data, and that researchers may also have more confidence in the results. Furthermore, the analysis of financial data also brings with it a number of new problems. While the difficulties associated with handling and processing such a large amount of data are not usually an issue given recent and continuing advances in computer power, financial data often have a number of additional characteristics.

4. Literature Review

Singh B K (2012), in their writings "A study on investors' attitude towards mutual funds as an investment option" from International Journal of Research in Management has reiterated the need for spreading the awareness about Mutual Funds among common masses. There is a strong need to make people understand the unique features of investment in stock markets. From the existing investors point of view the benefits provided by securities like return potential and liquidity have been perceived to be most attractive by the invertors' followed by flexibility, transparency and affordability.
Divya K. (2012), in the article "A Comparative study on evaluation of Selected¬ Mutual Funds in India" from International Journal of Marketing and Technology has suggested that the investment managers whose performance is below benchmark index should have a relook at their investment strategy and asset allocation. Investing styles should be redesigned according to up & down swings of the market to generate superior performance.
Sehdev R and Ranjan P (2014), published article "A study on Investor's perception towards mutual fund investment" from Scholars Journal of Economics, Business and Management have mentioned that mostly people prefer balanced funds and debt funds. After that people look for Equity diversified and Sector funds. The factors responsible for investors' preference for mutual funds as an investment option are benefits and transparency,

returns, redemption period, Liquidity and Institutional Investor's activity. For information on mutual funds people are mostly depending on internet rather than any other media channel.

Prabhu G and Vechalekar N.M. in the article "Perception of Indian Investor towards investment in mutual funds with special reference to MIP Funds" from IOSR Journal of Economics and Finance have mentioned that most of the investors are aware of various schemes of mutual funds.

A study of Chen and Volpe (1998), provides evidence that highly financially illiterate participants have an inclination to make implausible decisions in terms of managing their personal finance. 128 Selim Aren and Sibel Dinç Aydemir / Procedia - Social and Behavioral Sciences 210 (2015) 126 – 135 There is a large and growing body of literature revealing that individuals have the deficiency of financial literacy which would assist them to make wise financial decisions. Mitchell and Curto (2010), provide evidence that women are less financially literate than men and also that cognitive ability and education could improve the literacy level. Additionally, men working in banking and finance sector and those having both high income and educational level are more literate

5. Objectives of Study

The present study considered the following objectives for data analysis.

- To study the Investment patterns in capital markets
- To analyze the investments based on market movement
- To assess the factors affecting the investors to proffer financial modeling for their investment
- To build a financial model according to market fluctuations and investors choice

6. Data Analysis

The proposed study considered the selected investors and based on their opinion about investment the following analysis is made and interpreted.

6.1 Demographic Factor Anlaysis:

Analysis on Gender of Investors:

Table 1. Gender of Investor

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	63	63.0	63.0	63.0
Female	37	37.0	37.0	100.0
Total	100	100.0	100.0	

Interpretation: The above table explains the total investors are considered for the analysis is hundred, in hundred responded investors 63 investors i.e., 63% are males and 37 investors i.e., 37% investors are females.

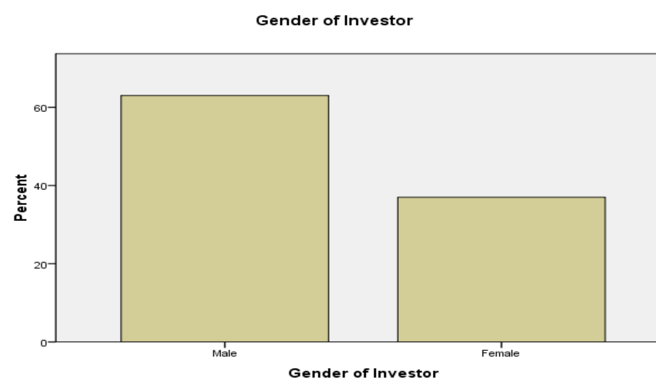

Fig1 Graphical Representation of Gender

6.2 Analysis on Factors Considered for investment:

Table 2. Factor Considered for Investment

	Frequency	Percent	Valid Percent	Cumulative Percent
Risk	18	18.0	18.0	18.0
Return	22	22.0	22.0	40.0
Liquidity	25	25.0	25.0	65.0
Capital Appreciation	16	16.0	16.0	81.0
EPS (Earning Per Share)	19	19.0	19.0	100.0
Total	100	100.0	100.0	

Interpretation: The above statistics explain the choice of preferences of investors before investing their money in capital market investments. The analysis states the majorities of the investors i.e., 25% of investors prefer liquidity for their investments and followed by the returns i.e., 20%. It is observed that a significant percentage of investors i.e. 16% preferring capital gain for their investment to continue their investments in market for long run and 19% investors prefer to increase percentage of EPS on their investments made in shares, very few investors i.e., 18% are preferring to tale risk for their investments made in capital markets.

Graphical Representation of Factors affecting Investment:

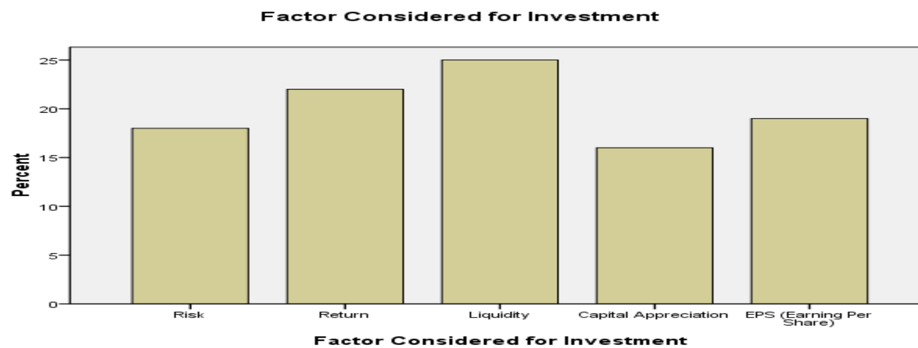

Fig 2. Graphical Representation of Factors affecting Investment:

Hypothesis Testing:

H_0: There is no significance gender difference in factors influencing investment

H_1: There is a significance gender difference in factors influencing investment

Table 3. Group Statistics

	Gender of Investor	N	Mean	Std. Deviation	Std. Error Mean
Factor Considered for Investment	Male	63	2.83	1.339	.169
	Female	37	3.19	1.411	.232

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
Factor Considered for Investment	Equal variances assumed	.233	.630	-1.286	98	.201	-.364	.283	-.925	.198
	Equal variances not assumed			-1.268	72.369	.209	-.364	.287	-.935	.208

Interpretation: From the above table the value of levene's test significance is identified as 0.630, it states the equal variance significance of two tailed significance need to be considered for concluding the experiment result. The significance of equal variance is 0.201 i.e., $p > 0.05$ there is strong evidence to support null hypothesis and experiment results states there is no significance

difference in age and factors considering for the investments.

H_0: Age is not influencing the investment factors

H_1: Age is influencing the investment factors

Table 5 Test of Homogeneity of Variances

Factor Considered for Investment

Levene Statistic	df1	df2	Sig.
.711	3	96	.547

The significance of Homogeneity of variance is 0.547 i.e., $p > 0.05$ this states the test is considered for homogeneity of variance is accepted for further processing the anova test.

Table 6. ANOVA

Factors considered for investment

			Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)		.927	3	.309	.160	.923
	Linear Term	Unweighted	.274	1	.274	.142	.707
		Weighted	.201	1	.201	.104	.748
		Deviation	.726	2	.363	.189	.828
Within Groups			184.913	96	1.926		
Total			185.840	99			

Interpretation: The significance value is extracted from the above experiment is 0.963 here the p value is greater than 0.05 and result can be concluded with the accepting the null hypothesis and result can be interpreted as there is no significance age difference on factors influencing the investors to made their investment in capital markets.

Linear Regression Analysis on Factors affecting investments and Time Period

H_0: There is no significance impact of time period and factors influencing investment

H_1: There is a significance impact of time period and factors influencing investment

Table 7. ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	102.970	5	20.594	36.705	.001[a]
	Residual	52.740	94	.561		
	Total	155.710	99			

a. Predictors: (Constant), Earning Per Share, Liquidity of Investment, Risk factor of Investment, Return of Investment, Capital Appreciation

b. Dependent Variable: Time Period of Investment

Interpretation: From the above anova test statistics the value of significance is arrived at 0.01 i.e, $p < 0.05$ Hence the null hypothesis is accepted and test can be concluded that the factors are influencing the investment in different time periods.

Table 8. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.813[a]	.661	.643	.749

a. Predictors: (Constant), Earning Per Share, Liquidity of Investment, Risk factor of Investment, Return of Investment, Capital Appreciation

Here the adjusted R square value identified as 0.66.1 i.e. 66.1% there is high variance is observed in between the factors time period and factors considered for investment.

Table 9. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.441	.826		11.433	.000
	Risk factor of Investment	.024	.058	.026	.417	.678
	Return of Investment	-.522	.070	-.583	-7.418	.000
	Capital Appreciation	-.666	.083	-.764	-8.017	.000
	Liquidity of Investment	-.956	.087	-.890	-10.940	.000
	Earning Per Share	-.252	.086	-.287	-2.921	.004

a. Dependent Variable: Time Period of Investment

From the above co-efficient the regression equation is formed and considered as the Financial Modeling for the selected investors using econometric analysis based on the response of the investors is

Time Period of Investment = 0.9441 + 0.24(risk) - 0.522 (return) – 0.666 (Capital Appreciation) - 956 (liquidity) – 0.252 (earning per share)

7. Conclusion

The study identified the majority of the investors are concern safety about their investment in capital markets, and the different age group people are looking into different investment options for their new investments. It is observed that there is no gender difference in factors considered for the investment in capital market. Based on the time period the investors are considering the different factors for their investment, the present study found majority of the investors are giving preference for liquidity and more returns from their investment. The study suggests the investors analyze and identify the risk for their investment made in made market and suggest for diversification of their investment according to their market conditions.

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