Research Paper
Impact Factor: 3.996
Peer Reviewed & Indexed Journal

IJMSRR
E- ISSN - 2349-6746
ISSN -2349-6738

A STUDY ON THE ASSOCIATION BETWEEN DEMOGRAPHIC VARIABLES AND MACRO-ECONOMIC FACTORS FOR STOCK MARKET INVESTMENT DECISIONS

Dr. K. Malarvizhi*   Dr. M. Jaya**
** Dean, Business Studies, Hindustan College of Arts & Science, Chennai.*
***Associate Professor and Head, Dept. of Commerce,Asan Memorial College of Arts and Science, Chennai.*

Abstract
Stock market development is an indispensable and inevitable factor that helps to determine the economic development of a country. Macro economic factors play a significant role in the movement of stock market. It represents the real and financial sectors of the Indian economy. The nine macro economic factors were chosen for the study viz., Gross Domestic Product, Balance of Payments, Foreign Institutional Investment, Real Effective Exchange Rate, Money supply, Index of Industrial Production, Exchange rate, Inflation Rate and Interest Rate. Perceptions of the investors towards their investment pattern on macro economic factors were analyzed in this study. Each demographic variables namely age, education, occupation and income and percentage of income invested indicates statistical relationship with few macro economic factors. But the macro factors Money supply and Exchange Rate establishes a strong statistical relationship with all the demographic factors. Hence it predominantly occupies the mindset of investor in their stock market decisions.

Keywords: Macro economic factors, Investment Decision, Stock Market, Investors.

Introduction

Capital market plays an indispensable role in directing the internal and external resources of an economy to productive investments. However, rational investors like to play safe and invest their hard-earned money optimally. Those investors look for organized information and logical reasoning backed by scientific methods and techniques. The movement of stock indices is highly sensitive to the changes in fundamentals of the economy and to the changes in expectations about the future prospects. Economic fundamentals play a defining decision role in the performance of stock market. The development of the economy is measured by macro economic factors. Industrial development of a country is reflected in its economic fundamentals. The changes and movement of stock market provides a base for the movement of many macro economic factors. Hence, an understanding of the inter linkage between the macro economic factors and stock market movement will provide the regulators and policy makers the inputs necessary for their vital decisions. Investors are enabled to make profitable investment decisions by analyzing the relationship between the macro economic factors and stock market.

Both stock market and macroeconomic factors show a strong relationship between them. Stock market represents the most important mechanisms for the mobilization of investments. It enables investors to adjust their holdings of securities in response to changes in their assessment about risk and return, and to sell the securities at cash to meet liquidity needs. Based on the review of literature nine macro economic factors has been selected. They are Gross Domestic Product (GDP), Balance of Payment (BOP), Index of Industrial Production (IIP), Foreign Institutional Investment (FII), Exchange rate, Money supply, Real Effective Exchange Rate, Interest rate and Inflation rate.

Since the two prime considerations of a judicious investor are the risk and return inherently present in a security, guidance on choosing the right stock based on a scientific method would be a benefit to the investors. Investors invest in the stock market with objectives of maximizing return and minimizing risk. This implies that macro economic variables can influence an investor's investment decision and motivates many researches to investigate the relationship between stock market and macro economic variables. The study aims to analyse the perception of the investors towards the macro economic factors and its impact on their investment decisions

Review of Literature

Ruta Khaparde and Anjali Bhute (2014) opine that the perception of investors differs around on the basis of different factors like age, income, experience of investing, investment objectives and individual social needs. The present study involves the presentation of investor's perception towards the impact of macroeconomic performance on stock market behavior. The perception has been studied and analyzed on the basis of individual factors with respect to different macroeconomic variables seems to be bothering the stock market behavior.

Bennet et al (2011) identified the factors that influence the stock selection decision and also studied the demographic factors affecting the same. Retail investors consider their investment needs, goals, objectives and constraints in making investment

IJMSRR
E- ISSN - 2349-6746
ISSN -2349-6738

decisions. The attitude of the retail investors is influenced by various factors such as dividend, different strategies, experiences of successful investors, online trading, investors' awareness programme etc.

Geetha and Ramesh (2011) explored the perceptions and behaviors of the small investors towards the mutual funds and also suggested some measures to increase the quantum of investors and investments as well. The study was of much significance as included the decision making of investors and was also of great help to the asset management companies to have a better understanding about investors' decision making. It was also suggested that such knowledge would also help the financial advisors to perform their functions more effectively and efficiently.

There is paucity in the literature studying the influence of demographic variables on the macro economic factors for investment decision in stock market. Hence this study aims to bridge this research gap.

Objectives of the Study

- To examine the demographic profile of the stock market investors.
- To analyse the investors perception about the impact of macroeconomic factors in the Indian stock market.

Hypothesis of the Study

- There is no significant relationship between age of investors and perception on selected macro economic factors.
- There is no significant relationship between income of investors and perception on selected macro economic factors.
- There is no significant relationship between qualification of investors and perception on selected macro economic factors.
- There is no significant relationship between occupation of investors and perception on selected macro economic factors.

Methodology

The analysis is based on primary data which was collected through a questionnaire designed for the study. The study employs random sampling for the purpose of collection of data. The stock market investors are selected randomly with the help of stock broking firms. The secondary data on macro economic factors are collected for a period of ten years from April 2006 to March 2016. Information relating to macro economic factors has been collected from the Reserve Bank of India's Hand Book of Statistics on Indian Economy, Review of Indian Securities market, International Financial Statistics (IFS) database and RBI bulletins. Analysis of Variance (ANOVA) is applied to find out the association between the variables.

Limitations of the Study

- The study focused on only selected macro economic factors but this cannot be generalized for other macro economic factors.
- The perception of the investors collected mainly belongs to Tamilnadu State. Hence, this perception may vary in different states of India.

Analysis & Interpretations

The growth of stock market contributes to national economic growth only when this growth translates into increased mobilization of resources, return from investment, and minimizing the risk attached to stock market investment. Hence, the survey has been conducted to find out the impact of stock market in the pattern of investment and risk diversification of retail equity investors. The association between the selected macro economic factors and the demographic profile is analyzed individually through ANOVA. Further, among the factors which sub division of demographic variable influences more is found out through the statistical results.

Table 1,ANOVA of age of the investor and their perception of the macro economic factors

Macro Variables	Age Group	Mean	S.D	F value	P value
GDP	Below 25	2.7959	1.30671	1.885	0.154
	25-30	3.1458	1.33755		
	Above 30	2.8476	1.15009		
BOP	Below 25	3.0408	1.20691	0.875	0.418
	25-30	3.5417	1.20452		
	Above 30	3.8524	1.33720		

M3	Below 25	3.2857	1.11803	2.560	0.049*
	25-30	3.0938	1.08655		
	Above 30	3.7190	1.25561		
FII	Below 25	2.7755	1.24608	0.197	0.021*
	25-30	2.8854	1.38313		
	Above 30	2.9238	1.41214		
IIP	Below 25	2.7347	1.22092	3.500	0.032*
	25-30	2.7604	1.21174		
	Above 30	2.9619	1.05724		
Inflation	Below 25	3.1837	1.50932	0.124	0.883
	25-30	3.0625	1.49253		
	Above 30	3.0867	1.50171		
Interest	Below 25	2.6122	1.18702	0.341	0.711
	25-30	2.4792	1.29760		
	Above 30	2.8286	1.32184		
REER	Below 25	2.6735	1.08758	1.500	0.225
	25-30	2.4688	.91713		
	Above 30	2.9810	.97449		
Exchange Rate	Below 25	3.1020	1.48948	3.951	0.005*
	25-30	3.3229	1.22685		
	Above 30	3.7524	1.25408		

Source: Computed from primary data
(*) denotes rejection of the hypothesis at 5% significance level.

A close scrutiny of the table 1 reveals that the macro economic factors M3, IIP, FII and Exchange rate has significant relationship between the ages of the investors as the p-value is less than 0.05. It is interesting to note that the mean score of above 30 years are high in all these significant factors. Hence, these investors are more concerned about BOP, IIP, FII and Exchange Rate to decide about their investment in stock market than the other younger age groups. The younger age group and middle age group people takes some years to know about the stock market and take decision than the matured age group. A young investor of less than 25 years age would have started the practice of learning and investing in the stock market. He may not be deeply aware of the factors to be considered for his investment decision. But after few years, the investors at the middle age will be interested to learn many factors to decide about their investment. At a matured age, he would have decided to see few factors to base his decisions on.

Table 2,ANOVA of Education of the investor and their perception of the macro economic factors

Macro Variables	Education	Mean	S.D	F value	P value
GDP	Below HSC	2.8608	1.30810	0.445	0.641
	Under graduate	3.0460	1.21911		
	Post graduate	2.9518	1.26783		
BOP	Below HSC	3.1519	1.36897	1.867	0.157
	Under graduate	3.5287	1.21845		
	Post graduate	3.3976	1.21915		
M3	Below HSC	3.1519	1.20988	0.095	0.009*
	Under graduate	3.2805	1.13320		
	Post graduate	3.0843	1.17083		
FII	Below HSC	2.8481	1.25155	0.240	0.057*
	Under graduate	2.8276	1.45640		
	Post graduate	2.7639	1.39201		
IIP	Below HSC	2.5696	1.18412	0.350	0.705

IJMSRR
E- ISSN - 2349-6746
ISSN -2349-6738

Macro Variables	Education	Mean	S.D	F value	P value
	Under graduate	2.7287	1.10852		
	Post graduate	2.3747	1.21081		
Inflation	Below HSC	3.2405	1.41616	0.605	0.547
	Under graduate	3.9885	1.49802		
	Post graduate	3.0723	1.56004		
Interest	Below HSC	2.5823	1.30686	0.404	0.048*
	Under graduate	2.8023	1.26178		
	Post graduate	2.4819	1.30067		
REER	Below HSC	2.4810	1.02358	0.037	0.963
	Under graduate	2.8828	.96282		
	Post graduate	2.4458	.96592		
Exchange Rate	Below HSC	2.9114	1.35107	2.032	0.033*
	Under graduate	3.2644	1.29812		
	Post graduate	2.9157	1.28029		

Source: Computed from primary data
(*) denotes rejection of the hypothesis at 5% significance level.

Of all the macro economic factors analyzed money supply, FII, Interest and Exchange rate have significant relationship with education of investors as the p value is less than 0.05. Further the mean score of these factors are analyzed and it reveals that investors with undergraduate education has a high mean score. It can be inferred that investors with under graduation education are giving more importance to the macro economic factors like money supply, FII, Interest and Exchange rate for their investment decision. Investors with less education are not more aware of these factors to decide about their investment. The investors with post graduate education are less in number than the graduate investors.

Table 3,ANOVA of Occupation of the investor and their perception of the Macro economic factors

Macro Variables	Occupation	Mean	S.D	F value	P value
GDP	Employed	3.1064	1.2200	0.436	0.647
	Profession	2.9106	1.2994		
	Business & Others	2.9250	1.2301		
BOP	Employed	3.4468	1.2124	0.427	0.653
	Profession	3.2114	1.2297		
	Business & Others	3.4500	1.3491		
M3	Employed	3.2340	1.2547	1.858	0.058*
	Profession	3.0488	1.1297		
	Business & Others	3.1000	1.1757		
FII	Employed	3.6596	1.3717	0.922	0.399
	Profession	2.8862	1.3682		
	Business & Others	2.5000	1.3594		
IIP	Employed	2.7021	1.1212	0.286	0.751
	Profession	2.5528	1.1749		
	Business & Others	2.5750	1.1775		
Inflation	Employed	3.2340	1.4921	0.423	0.056*
	Profession	3.0081	1.4793		
	Business & Others	3.1250	1.5292		

IJMSRR
E- ISSN - 2349-6746
ISSN -2349-6738

Interest	Employed	2.6170	1.2433	1.778	0.041*
	Profession	2.5772	1.2931		
	Business & Others	2.2625	1.2802		
REER	Employed	2.5745	0.8783	0.686	0.504
	Profession	2.4959	1.0030		
	Business & Others	2.3750	0.9984		
Exchange Rate	Employed	3.2979	1.1962	2.056	0.030*
	Profession	3.0813	1.3094		
	Business & Others	2.8250	1.3666		

Source: Computed from secondary data
(*) denotes rejection of the hypothesis at 5% significance level.

The analytical results reveals that M3, FII, Interest, Inflation and Exchange rate movements has an impact on investment decision based on the occupation of the investors. The p values of these factors are less than 0.05 which is significant at 5 per cent level. It is noteworthy from the mean score analysis that investors who are employed have a high mean score. The reason for this can be attributed to the high working mass of India. The population of India consists more of employed persons than the professionals and business persons. They constitute a big portion of the stock market investors. The professionals and business men with high income avenues have many alternative investment avenues than the stock market which ensures a smooth and safe return on their investment.

Table 4, ANOVA of Income of the investor and their perception of the macro economic factors

Macro Variables	Income	Mean	S.D	F value	P valve
GDP	Below Rs. 20,000	2.9167	1.2519	0.433	0.649
	Rs. 20,001– Rs.30,000	3.0385	1.2612		
	Above Rs. 30,000	2.8776	1.2703		
BOP	Below Rs. 20,000	3.4167	1.3019	0.239	0.788
	Rs. 20,001– Rs.30,000	3.2981	1.3644		
	Above Rs. 30,000	3.4082	1.1562		
M3	Below Rs. 20,000	3.4167	1.1454	3.224	0.001**
	Rs. 20,001– Rs.30,000	2.9135	1.1914		
	Above Rs. 30,000	3.1429	1.1214		
FII	Below Rs. 20,000	2.9167	1.3812	0.035	0.004*
	Rs. 20,001– Rs.30,000	2.8558	1.3824		
	Above Rs. 30,000	2.8878	1.3537		
IIP	Below Rs. 20,000	2.9167	1.2854	3.327	0.038
	Rs. 20,001– Rs.30,000	2.4038	1.0568		
	Above Rs. 30,000	2.6224	1.1798		
Inflation	Below Rs. 20,000	3.2500	1.6177	0.353	0.703
	Rs. 20,001– Rs.30,000	3.0385	1.4341		
	Above Rs. 30,000	3.0612	1.5047		
Interest	Below Rs. 20,000	2.4375	1.1833	0.976	0.005*
	Rs. 20,001– Rs.30,000	2.8750	1.2785		
	Above Rs. 30,000	2.6224	1.3356		
REER	Below Rs. 20,000	2.4167	0.9415	0.224	0.736
	Rs. 20,001– Rs.30,000	2.5192	1.0610		
	Above Rs. 30,000	2.4490	0.9095		
Exchange Rate	Below Rs. 20,000	3.1042	1.3406	0.306	0.004*
	Rs. 20,001– Rs.30,000	3.0865	1.3802		
	Above Rs. 30,000	2.9592	1.2345		

Source: Computed from primary data

(*), (**) denotes rejection of the hypothesis at 5% & 1% significance levels.

Income level of the investors is the one of the important factors to determine their investment into the stock market. Investor belonging to the second category is having more mean scores. Their investments are considered to be based on macroeconomic factors. Investors having Income below Rs. 20000 is not able to invest more because their income is less. The investor earning above Rs. 30000 income, are more interested to invest in alternative investment avenues (Real estate, Gold, etc.,) than stock market investment.

The ANOVA results reveal that M3, FII, REER and Interest, movements have an impact on the investment decision based on the income of the investors. The p values of these factors are less than 0.05 which is significant at 5 per cent level. It is noteworthy from the mean score analysis of investors belonging to that the investors earning income between Rs.20000 to 30000 is that they have a high mean score. This implies that they consider the macro factors Money supply, Foreign Institutional Investments, Real Effective Exchange Rate and Interest rate more specifically to decide about their investment.

Table 5,ANOVA of percentage of Income invested by the investor and their perception of the macro economic factors

Macro Variables	Income invested	Mean	S.D	F value	P value
GDP	Up to 10 %	3.1064	1.22002	0.436	0.647
	11% - 20%	2.9106	1.29948		
	Above 20%	2.9250	1.23016		
BOP	Up to 10 %	3.7468	1.21241	1.858	0.158
	11% - 20%	3.2114	1.22977		
	Above 20%	3.5500	1.34917		
M3	Up to 10 %	3.2340	1.25478	0.427	0.004*
	11% - 20%	3.0488	1.12973		
	Above 20%	3.1000	1.17570		
FII	Up to 10 %	3.6596	1.37171	0.922	0.003*
	11% - 20%	2.8862	1.36828		
	Above 20%	3.0000	1.35945		
IIP	Up to 10 %	2.7021	1.12124	0.286	0.751
	11% - 20%	2.5528	1.17490		
	Above 20%	2.5750	1.17759		
Inflation	Up to 10 %	3.2340	1.49219	0.423	0.656
	11% - 20%	3.0081	1.47934		
	Above 20%	3.1250	1.52925		
Interest	Up to 10 %	2.6170	1.24330	2.056	0.130
	11% - 20%	2.5772	1.29316		
	Above 20%	2.2625	1.28027		
REER	Up to 10 %	2.5745	0.87836	0.686	0.504
	11% - 20%	2.4959	1.00306		
	Above 20%	2.3750	0.99842		
Exchange Rate	Up to 10 %	3.9979	1.19628	1.778	0.001*
	11% - 20%	3.0813	1.30945		
	Above 20%	2.8250	1.36665		

Source: Computed from primary data
(*) denotes rejection of the hypothesis at 5% significance level.

The analysis reveals that impact of income invested and perception of macroeconomic factors and indicate that M3 and Exchange rate are having significant relationship at 5 percent level as the P value is less than 0.05. Interest rate displays a very high significant relationship at 1 per cent level as the p value is less than 0.01. It shows that while they making

IJMSRR
E- ISSN - 2349-6746
ISSN -2349-6738

investment in the share market, investors will look after the interest because changes in the interest rate will determines the investment. The high mean score of the investor shows that majority of them will invest only 10 per cent of their income in the share market. These investors are ready to take risk up to 10 per cent of their income for a good return. Comparatively less number of investors is investing above 20 per cent of their income. These kinds of investors may have much knowledge about the stock market and its techniques to augment their return.

Conclusion

Stock market represents the most important mechanisms for the mobilization of investments. It enables investors to adjust their holdings of securities in response to changes in their assessment about risk and return, and to sell the securities at cash to meet liquidity needs. Perceptions of the investors towards their investment pattern on macro economic factors were analyzed in this study. Each demographic variables namely age, education, occupation and income and percentage of income invested indicates statistical relationship with few macro economic factors. But the macro factors Money supply and Exchange Rate establishes a strong statistical relationship with all the demographic factors. Hence it predominantly occupies the mindset of investor in their stock market decisions. The application of the findings along with the suggestions identified by the study will help both the policy makers and investors to understand the movement of the macro economic factors, which will further enhance the profitability and healthy development of the capital market in the right direction.

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