



Factors Influencing Individual Investor Behavior (The Case of the Karachi Stock Exchange)

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ABSTRACT

The study of the investment decision process consists of economic perspectives derived from the relationship between the lifestyle, demographic variable and behavioral. Through this examination it has been analyzed that the behavioral variables and utility maximization are taken together for a complete study. This study incorporated this concept by taking 30 variables from diverse decision criteria including contemporary concerns. The findings suggest that an individual considers on the wealth maximization criteria on making their stock purchase.

Introduction

The study of Neumann and Morgenstern (1947) states that investors are completely consistent and deal with such choices that are, are risk-taking because they just want to increase their wealth.. According to utility theory individual investors select the portfolio that increases their expected utility measured in expected return while decreases the risks or losses. The study on economic theory does not cater to the investor's decisions. Instead it focuses on macroeconomic models that elaborate the mass market behavior (Nagy & Obenberger 1994). However, due to the lack of the information and their mathematical capacities, the investors are bounded to be rational, since except of the knowledge they store and experience they have is all limited. (Hoffmann, Eije, & Jager, 2006).

Behavioral finance is a study which has enlightened the role of behavioral aspects of investment decisions. In behavioral finance, financial markets are analyzed using models which are less narrow than those given by Neumann and Morgenstern (1947).

Behavioral finance focalizes on how investors translate and grabs the information to take investment decisions. It also examines the investor behavior which leads to various market abnormalities. It is a rapidly growing field which focuses on the behavior of financial practitioners psychology (Merikas, Andreas, George, & Prasad, 2004; Al-Tamimi, 2006).

Many research studies have been conducted on the behavior and portfolio performance of institutional investors in the past (Venter, 2006; Prowse, 1990; Nagy & Obenberger, 1994; Baker & Haslem, 1974). Individual investors participate in the stock market by purchasing and selling different stocks and it is very important to identify various economic and behavioral motivations that affect their purchasing decisions. This study is an attempt to give insight into the behavior of individual investors i.e. which factors influence them to purchase stocks.

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First study that was conducted in Karachi, Pakistan is about the Pakistani Investor's behavior. It gave an insight to individual local investors; investment professionals/ planners and companies listed in Karachi stock exchange. The understanding of behavioral process for investors is essential for planning financial investments since it will help them to use their strategies with their clients. The professional investment, which deals with retail client may incorporate important factors when addressing individual investor concerns. Besides, companies can make their future policies and strategies by focusing on these factors which attract investors and influence them to invest.

Literature Review

In 1970s, the theory of the individual investors was first appeared. Lease, Lewellen, and Schlarbaum (1974) determined the demographic characteristics, investment strategy patterns, information sources, asset holdings, market attitudes and perceptions, of the individual investor.

Baker and Haslem (1974) found that investors were of two different types, one who seek capital appreciation and the other who seeks dividends.. Investors who gave importance to dividends were older, females, and risk averse and did not seek a large increase in the value of their stock. While the second type concerned with capital appreciation were willing to sacrifice current dividends for future price appreciation.

Efficient Market Hypothesis (EMH) explains that stock market prices reflect all publicly available information so that it is impossible to systematically attain abnormal returns using such information (Winsen, 1976). Winsen (1976) studied whether the flow of information was associated with the investor behavior or not. The findings supported the argument that investors in some firms misunderstand and/or misuse certain publicly available data items which results in their behavior not being an adequate function of the flow of information coming in the stock market.

Falk and Matulich (1976) examined the relationship between some personal characteristics of a group of investors and a group of investment advisors, and the degree of risk attributed by them to various types of financial investments.

Baker, Hargrove, and Haslem (1977) found that the relationship between risk and total return is positive but lesser than the relationship between risk and capital appreciation. It has been reduced by the negative risk-dividend relationship. As dividends and capital appreciation together sums to total return therefore the presence of a positive risk-total returns relationship even after negative risk-dividends means that the positive association between risk and expected return appears to be due to the impact of capital appreciation in investor expectations of total return. Also it means that lower risk investors seek high dividends while higher risk investors seek higher capital appreciation in growth stocks.

Barnwell characterized individual investors as belonging to two extremes- active or passive in her lifestyle analysis.

According to Warren, Stevens, and McConkey (1990), demographics are used to segment the market for financial and economic services but lifestyle characteristics help in identifying individual investor's financial needs more precisely. Lifestyle dimensions also helps in differentiating between the investors investments such as stocks and bonds. The analysis revealed that those investors who has little investments they mostly concentrated on the stocks in bonds which can be described as volunteers whereas, those investors who had heavy investments didn't get involved in any community organization and volunteering.

Riley and Chow (1992) found that with the increasing of age the risk aversion also decreases i.e. after 65 of age retirement, risk aversion increases with the increase of age.

Nagy and Obenberger (1994) studied the factors that are involved in the individual stock investor influence and also examined the wealth maximation criteria which are

important to the investors .even though investors choose their own method of criteria of stocks.

Merikas, Andreas, George, and Prasad (2004) studied that the most important variables were related to classic wealth maximization criteria. Environmental criteria like “coverage in the press”, “statements from politicians and government officials” and “political party affiliation” were totally unimportant to most stock investors. Five factors were identified as Accounting Information, Personal Financial Needs, Subjective/Personal, Advocate Recommendation, and Neutral Information.

Hoffmann, Eije, and Jager (2006) researched of the needs and conformity behavior on investors. The results indicated that besides satisfying the financial needs investors also struggle to satisfy socially oriented needs. Hoffmann, et al. (2006) also found that individual investors give importance to financial gains. Thus, this study followed an “extended” utility approach along with supporting behavioral finance, which states that investing offers both utilitarian and expressive benefits. Therefore investors display a palette of different needs besides the financial aspects of investing (Fisher & Statman, 1997; Statman, 1999; Statman, 2002; Statman, 2004).

Al-Tamimi (2006) researched factors were from the corporate earnings expected, government holdings, stock marketability, get rich quick, and the creation of financial markets. The least influencing factor were faced in international financial markets. Factor analysis made 5 factors: neutral information, accounting information, advocate recommendation, self-image / firm-image coincidence, and personal financial needs.

Sevil, Sen, and Yalama (2007) aimed at understanding the decision processes of small investors trading in Istanbul stock exchange and found that investors are not completely rational as perceived by traditional finance theories.

Research Methods

Nagy and Obenberger (1994); used 30 variables previously Al-Tamimi (2006) given in appendix, table 3.1, were used in the Pakistani market, particularly in Karachi. These variables included few from the traditional sphere i.e. utility theory or wealth maximization criteria e.g., expected dividends, expected corporate earnings, perceived risk, while others addressed more modern concerns such as firm's environmental record and perceived firm ethics. Few variables concerned with financial information such as Condition of Financial Statements and Recent Price Movements of Firm's Stock were also used.

The study aimed at analyzing the behavior investors/shareholders in Karachi Stock Exchange. The information was gathered from individual investors who purchase and sell stocks in the Karachi Stock Exchange. There are around 200 brokerage houses in Karachi, out of which 142 are active while the rest are inactive. Each active brokerage house has at least 400 individual investors thus giving a total population of around 57000 (142*400). The variables were used to identify important variables which influence single investors when taking decisions of stock purchase and whether these variables can be grouped in homogenous sets. Convenience based sampling was the technique used in this research in which respondents were selected based on convenience. Evaluation was conducted by the Participants which influenced equity investment decisions. Respondents noted whether each variable was (1) A important item used to make investment decisions ("Act On"), (2) A secondary item ("Consider") or (3) An item ignored in the investment decision process ("No Influence"). It was a primary research thus data was collected through a questionnaire. 153 questionnaires were distributed to individual investors who invested in Karachi stock exchange and the response rate was 100%.

In order to test the reliability of the instrument used, Cronbach Alpha was applied. Cronbach alpha measures the reliability of the different categories and consists of estimates

of how much variation in scores of different variables is due to chance or random errors (Al-Tamimi, 2006). A coefficient greater than or equal to 0.5 is acceptable and a good indication of construct reliability. The sample size chosen for the reliability test was 40. The overall significance level of Cronbach's alpha came out to be 0.761, thus reliability is 76% and the instrument was reliable to be used further in the study.

Table 1: Reliability Test

Cronbach Alpha	N of Items
.761	33

The ranking of the variables are according to frequency that were found in the response category and used factor analyses to examine how well they interacted. Factor analysis technique was used to determine whether there were underlying constructs that represented a combination of investor concerns.

Results

In response to the study, significant variables based on their frequency distributions were identified which influence individual investor's behavior. Table 6 in appendix lists 30 variables with frequencies which respondents considered to have significant influence on their stock purchase decisions.. Lastly, the sample respondents were more self reliant when considering which stocks to choose and ignore family members and friends/coworkers opinions but considered stock broker advices.

Table 7, in appendix, ranks the frequency distribution of variables least influence the investor's behavior. First, Social Relevance & image is apparently not important to investors which include Environmental Record, International Operations, Perceived Ethics of Firm and Local Operations. While Data in Reports/Prospectuses and Exchange listings of companies were given only cursory considerations.

The second focus of this research was to identify whether the variables most important to investors from homogenous groups or not. Factor analysis was applied to determine whether there are underlying constructs that signify a combination of investor concerns and varimax Algorithm of Orthogonal Rotation was used. The labeling of the variables and the empirical factor formation and identification are rarely perfect, thus endurance is encouraged. Two variables were removed from factor analysis because their Anti Image values (Measure of Sampling Adequacy; an extension of KMO), were less than 0.5 (i.e. 0.410 and 0.430). These variables were You/Yourself and Family Member Opinions. Removing these variables also improved KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy) from 0.769 to 0.785 and Bartlett test of sphericity is rejected which means that the correlation matrix is not an identity matrix and thus there is an underlying structure among the variables. Table 2 shows the KMO and Bartlett values.

Table 2: Assumptions of factor Analysis: KMO & Bartlett tests

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.785
Bartlett's Test of Sphericity	Approx. Chi-Square	1516.992
	df	378
	Sig.	0.000

Seven factors/components were extracted based on “Principle Components” extraction method and threshold of Eigen value 1. Table 9 in appendix, represents the total variance explained by seven factors extracted. Component one explains 12.8% variation with 3.591 Eigen value, component two, 10.6%, 2.98, third component with 10.3% and 2.909, fourth component with 7.537% variation and 2.11 Eigen value, fifth component with 7.494% variance explained and Eigen value of 2.098, sixth component with 6.109% and 1.71 Eigen value and seventh component with 5.35% variation and 1.498 Eigen Value. Table 3 represents the Rotated Component Matrix which identifies seven factors with highest factor loadings of each variable in each factor. The first factor/component bearing 6 variables, tax consequences being omitted because it is cross loading in another component as well, thus 5 variables remaining.

Table 3: Rotated Component Matrix identifying seven factors with the highest factor loadings of each variable in each factor.

Rotated Component Matrix	Component						
	1	2	3	4	5	6	7
Local Operations	.726						
International Operations	.716						
Institutional Holdings	.669						
Environmental Record	.639						
Perceived Ethics Of Firm	.500						
Tax Consequences	.490			.455			
Competing Financial Needs							
Current Financial Position		.794					
Condition of Financial Statements		.715					
Exchange Listing		.632					
Data In Reports & Prospectuses		.591					
Past Performance of Investors Stock Portfolio			.780				
Past Performance Of Stock			.694				
Recent Price Movements Of Firms Stock			.675				
Expected Stock Market Performance			.635				
Gut Feeling On Economy			.533				
Expected Corporate Earnings							
Friend or Coworker Recommendation				.717			
Attractiveness of Non Stock Investments				.677			
Use of Valuation Equations					.692		
Current Economic Indicators					.690		
Time Before Funds are Needed					-.601		
Diversification Needs							
Affordable Share Price						.718	
Minimizing Risk						.558	
Expected Dividends						.476	
Stock Broker Recommendation							.810
Feelings For Firms Products And Services							.451

Table 4 shows the factors assessment summary to give clarity to the factors extracted. Each factor shows its own reliability score i.e. alpha along with the factor loadings of each variable in each of the seven factors.

Table 4: Factors Assessment Summary

Factors	Factor Loadings
Factor 1: Social relevance & Image alpha= (0.762)	
Local Operations	0.726
International Operations	0.716
Institutional Holdings	0.669
Environmental Record	0.639
Perceived Ethics Of Firm	0.5
Factor 2 : Accounting Information alpha= (0.752)	
Current Financial Position	0.794
Condition of Financial Statements	0.715
Exchange Listing	0.632
Data In Reports & Prospectuses	0.591
Factor 3: Stock Performance alpha= (0.774)	
Past Performance of Investors Stock Portfolio	0.78
Past Performance Of Stock	0.694
Recent Price Movements Of Firms Stock	0.675
Expected Stock Market Performance	0.635
Gut Feeling On Economy	0.533
Factor 4: Friend/Coworker Influence alpha= (0.679)	
Friend or Coworker Recommendation	0.717
Attractiveness of Non Stock Investments	0.677
Factor 5: Evaluation alpha= (0.132)	
Use of Valuation Equations	0.692
Current Economic Indicators	0.69
Time Before Funds are Needed	-0.601
Factor 6: Classic alpha= (0.463)	
Affordable Share Price	0.718
Minimizing Risk	0.558
Expected Dividends	0.476
Factor 7: Stock Broker Influence alpha= (0.502)	
Stock Broker Recommendation	0.81
Feelings For Firms Products And Services	0.451

Table 5: Seven Factors identified through Factor Analysis.

Factors	
Factor 1: Social relevance & Image	Local Operations
	International Operations
	Institutional Holdings
	Environmental Record
	Perceived Ethics Of Firm
Factor 2 : Accounting Information	Current Financial Position
	Condition of Financial Statements
	Exchange Listing
	Data In Reports & Prospectuses
Factor 3: Stock Performance	Past Performance of Investors Stock Portfolio
	Past Performance Of Stock
	Recent Price Movements Of Firms Stock
	Expected Stock Market Performance
	Gut Feeling On Economy
Factor 4: Friend/Coworker Influence	Friend or Coworker Recommendation
	Attractiveness of Non Stock Investments
factor 5: Evaluation	Use of Valuation Equations
	Current Economic Indicators
	Time Before Funds are Needed
Factor 6: Classic	Affordable Share Price
	Minimizing Risk
	Expected Dividends
Factor 7: Stock Broker Influence	Stock Broker Recommendation
	Feelings For Firms Products And Services

Table 5 summarizes the variables in each factor. First factor is “Social relevance & Image”, which includes Local Operations, International Operations, Institutional Holdings, Environmental Record and Perceived Ethics of Firm.. Second factor was named “Accounting Information” in which variables that loaded heavily include Current Financial Position, Condition of Financial Statements, Exchange Listing, and Data in Reports & Prospectuses. Third factor was “Stock Performance” which comprises of Past Performance of Investors Stock Portfolio, Past Performance of Stock, Recent Price Movements of Firms Stock, Expected Stock Market Performance, and Gut Feeling on Economy. All of these variables relate to the past and present performance of stocks and thus its cumulative impact on the stock market makes a sensible factor. All were important variables except Gut Feeling on Economy. Friend/Coworker Recommendation and Attractiveness of Non Stock Investments were a part of fourth factor, “Friend/Coworker Influence”. The variables in the fourth factor were less influencing on investor’s decision making. Use of Valuation Equations, Current Economic Indicators and Time before Funds are needed are a part of fifth factor named

“Evaluation”. While sixth factor called “Classic” includes variables such as Affordable Share Price, Minimizing Risk and Expected Dividends.. Final factor called “Stock Broker Influence” includes Stock Broker Recommendation and Feelings for Firms Products and Services. This factor ascertains that stock broker influences an investor in his purchase decisions and in making a perception about a company’s products and services. Stock Broker Recommendation is somewhat important for investors in Karachi and they ignore their feelings for firms’ products and services.

Conclusion

Investors also make use of the accounting information derived by financial statements and the firm’s financial position in general. Concerns such as the firm's ethical posture, local and international operations, and environmental record are not considered. The recommendations of family members, friends and coworkers go largely unheeded, recommendations of Stock Brokers are considered, but 86% of the sample investors are self reliant and make purchase decisions on their own without any ones influence. Individual investors do not use the valuation models when evaluating stocks but consider the current economic indicators like GDP, Inflation rates, etc. While they ignore exchange listings of firms, the data found in reports and prospectuses, feelings for firms products and services as well as discount the attractiveness of non stock investments.

The investment decision process incorporates a broader range of items. Besides, each investor may view the seven broad criteria in a different way in terms of relative importance. This suggests that investment professionals would benefit by incorporating the variables discussed when addressing individual investor concerns.

Due to time constraint, it was unable to carry this research a step forward but this can further be taken up by other researchers to take the significant variables found in this study and tests their impact on the common stock holdings of individual investors.

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APPENDIX

Table 6: 30 variables used in the factor analysis

VARIABLES	
1) Expected Corporate Earnings	2) Expected Dividends
3) Diversification Needs	4) Competing Financial Needs
5) Feelings for Firm's Products and Services	6) Past Performance of Investor's Stock Portfolio
7) Condition of Financial Statements	8) Affordable Share Price
9) Past Performance of Stock	10) Data in Reports & Prospectuses
11) Attractiveness of Non-Stock Investments	12) Current Economic Indicators
13) Minimizing Risk	14) Use of Valuation Equations
15) Time before Funds are Needed	16) Stock Broker Recommendation
17) Tax Consequences	18) Institutional Holdings
19) Expected Stock Market Performance	20) Recent Price Movements of Firm's Stock
21) Gut Feeling on Economy	22) Family Member Opinions
23) Perceived Ethics of Firm	24) Exchange Listing
25) Friend or Coworker Recommendation	26) Local Operations
27) International Operations	28) Environmental Record
29) You/Yourself	30) Current financial position

Table 7: Frequency Distribution of Variables that Significantly Influence Investor Behavior

Frequency Distribution of Variables that Significantly Influence Investor Behavior		
Variables	Frequency	Percentages (%)
You/Yourself	131	85.6%
Expected Dividends	118	77.1%
Expected Stock Market Performance	103	67.3%
Expected Corporate Earnings	90	58.8%
Affordable Share Price	84	54.9%
Recent Price Movements of Firm's Stock	81	52.9%
Past Performance of Investor's Stock Portfolio	70	45.8%
Current financial position	69	45.1%
Diversification Needs	68	44.4%
Condition of Financial Statements	64	41.8%
Past Performance of Stock	64	41.8%
Stock Broker Recommendation	64	41.8%
Current Economic Indicators	62	40.5%
Time before Funds are Needed	57	37.3%
Minimizing Risk	54	35.3%
Tax Consequences	49	32%
Gut Feeling on Economy	45	29.4%
Use of Valuation Equations	41	26.8%
Competing Financial Needs	40	26.1%
Institutional Holdings	35	22.9%
Data in Reports & Prospectuses	31	20.3%
Exchange Listing	31	20.3%
Friend or Coworker Recommendation	29	19%
Feelings for Firm's Products and Services	27	17.6%
International Operations	23	15%
Attractiveness of Non-Stock Investments	21	13.7%
Local Operations	16	10.5%
Family Member Opinions	13	8.5%
Environmental Record	12	7.8%
Perceived Ethics of Firm	10	6.5%

Table 8: Frequency Distribution of Variables that Least Influence Investor Behavior

Frequency Distribution of Variables that Least Influence Investor Behavior		
Variables	Frequency	Percentage (%)
Environmental Record	96	62.7%
Family Member Opinions	91	59.5%
International Operations	80	52.3%
Perceived Ethics of Firm	79	51.6%
Attractiveness of Non-Stock Investments	77	50.3%
Friend or Coworker Recommendation	73	47.7%
Exchange Listing	71	46.4%
Local Operations	68	44.4%
Feelings for Firm's Products and Services	67	43.8%
Data in Reports & Prospectuses	44	28.8%
Gut Feeling on Economy	41	26.8%
Institutional Holdings	41	26.8%
Tax Consequences	40	26.1%
Past Performance of Stock	38	24.8%
Use of Valuation Equations	38	24.8%
Past Performance of Investor's Stock Portfolio	35	22.9%
Competing Financial Needs	31	20.3%
Minimizing Risk	26	17%
Time before Funds are Needed	24	15.7%
Current Economic Indicators	22	14.4%
Condition of Financial Statements	21	13.7%
Stock Broker Recommendation	21	13.7%
Diversification Needs	17	11.1%
Current financial position	14	9.2%
Affordable Share Price	11	7.2%
Recent Price Movements of Firm's Stock	11	7.2%
Expected Corporate Earnings	9	5.9%
Expected Stock Market Performance	6	3.9%
You/Yourself	4	2.6%
Expected Dividends	4	2.6%

Table 9: The Total Variance Explained by Seven Factors is 60%.

Total Variance Explained									
Comp.	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.242	22.293	22.293	6.242	22.293	22.293	3.591	12.826	12.826
2	2.852	10.185	32.478	2.852	10.185	32.478	2.98	10.642	23.468
3	2.146	7.664	40.143	2.146	7.664	40.143	2.909	10.389	33.857
4	1.922	6.864	47.007	1.922	6.864	47.007	2.11	7.537	41.394
5	1.375	4.911	51.918	1.375	4.911	51.918	2.098	7.494	48.888
6	1.298	4.636	56.554	1.298	4.636	56.554	1.71	6.109	54.997
7	1.062	3.794	60.348	1.062	3.794	60.348	1.498	5.351	60.348
8	1.051	3.754	64.102						
9	0.927	3.31	67.412						
10	0.87	3.108	70.52						
11	0.773	2.76	73.279						
12	0.722	2.578	75.857						
13	0.705	2.517	78.374						
14	0.671	2.395	80.769						
15	0.637	2.276	83.045						
16	0.546	1.952	84.997						
17	0.517	1.846	86.843						
18	0.464	1.658	88.501						
19	0.433	1.545	90.047						
20	0.431	1.539	91.585						
21	0.39	1.393	92.979						
22	0.361	1.29	94.268						
23	0.325	1.162	95.43						
24	0.32	1.142	96.573						
25	0.285	1.016	97.589						
26	0.25	0.892	98.481						
27	0.233	0.831	99.312						
28	0.193	0.688	100						