Asian Academy of Management Journal, Vol. 14, No. 2, 41–64, July 2009

SATISFACTION OF RETAIL INVESTORS ON THE STRUCTURAL EFFICIENCY OF THE MARKET: EVIDENCE FROM A DEVELOPING COUNTRY CONTEXT

Mamunur Rashid[1*] and Md. Ainun Nishat[2]

[1]*Graduate School of Business, Universiti Kebangsaan Malaysia*
43600 UKM Bangi, Selangor, Malaysia
[2]*Department of Business Administration, East West University*
43 Mohakhali C/A, Dhaka 1212, Bangladesh

[*]Corresponding author: mamun.finance@gmail.com

ABSTRACT

Satisfied investors are a necessary element of the stock market. They help to finance rapid expansion in developing countries. This study explores the components of market structure that contribute to the satisfaction level of retail investors. Around 300 retail investors from 25 randomly selected brokerage houses registered with the Dhaka Stock Exchange, Bangladesh were surveyed using a structured questionnaire. Analyses reveal that most investors were young and inexperienced but educated, with shortages of skills and income. The investors put the strongest emphasis on effective investment analysis, followed by ease of the transaction process, effective information management and timely risk management. The trading experience of these investors was used as a moderating variable to investigate the impact of demographic variables and found to be insignificant. The study suggests the importance of effective regulation, disclosure requirements to ensure a supply of quality information, investor education and technology driven trading in brokerage houses for overall investor satisfaction.

Keywords: retail investors, satisfaction, structural efficiency, Bangladesh

INTRODUCTION

Investment in stocks is a high-risk, information-sensitive professional task that has a considerable impact on investors' lifestyle (Murphy & Soutar, 2004; Nagy & Obenberger, 1994). Retail stock investors have been found to have a shortage of professional skills and knowledge relevant to collecting and managing investment information (Wang, Shi & Fan, 2006) and therefore carry a large chance of misvaluation as a result of financial and non-financial investment attributes (Hirshliefer, 2001; Nagy & Obenberger, 1994). Compared to the neo-classical market efficiency theories (Fama, 1965; 1970), the behavioral finance theories (Hirshliefer, 2001; Ritter, 2003) argued that investors are largely

irrational when making investment decisions, and a lack of proper investment policies, efficient and timely government intervention, and proper information disclosure in emerging countries exacerbate this irrationality (Wang et al., 2006). Thus, investors behave like a *short-run* speculators and aggressive traders (Bloomfield, Libby & Nelson, 1998; Potter, 1971), which could cause severe socio-economic consequences in the developing countries. As a result, many retail investors have recently been seen protesting on the streets in front of stock exchanges in Bangladesh and India.

Satisfaction studies are common in marketing. However, stock investors are also engaged in significant purchase decisions given the wide variety of products available in today's financial markets (Solomon, 1999; Thaler, 1980). Similar to a supermarket customer, an individual stock investor is significantly affected by various financial and non-financial factors in the course of making an investment decision (Potter, 1971; Baker & Haslem, 1973). Studies have found that investors strongly emphasise recent trading experience and personal preferences, which are largely affected by their level of satisfaction (Murphy & Soutar, 2004; Antonides & Van-Der Sar, 1990; Ritter, 2003). The decision criterias used by retail investors, such as the dividend growth rate, efficiency of the firm's management and even the firm's social performance, are highly information sensitive. Even though various efficient market theories rationalise the impact of available information on asset pricing, studies on the availability, accessibility and active use of the information that is causing frequent errors in judgment are still sparse (Schmeling, 2009).

Recent stock market activity on the Dhaka Stock Exchange (DSE) (2008, 2009) in Bangladesh showed tremendous growth in retail investment activity (BOX 1). In the central depository system, which allows investors access to an over-the-counter trading facility, there was a 28% increase in investor accounts from June 2007 to June 2008. Within the same period, over 300 million shares were added to the Central Depository System (CDS). Total market capitalisation and total volume traded started increasing after January 2008. From January 2009 to September 2009, ten companies issued Initial Public Offerings (IPO), and another eight new prospectuses have been approved by the Securities and Exchange Commission (SEC). These trends show an increased amount of investor activity at the retail level. Under these circumstances, sufficient rules, effective regulation and a robust institutional framework must be in place to educate and serve knowledgeable investors.

This study explores retail investors' satisfaction with the structural efficiency of the market. Structural efficiency refers to the presence of an effective regulation that welcomes high-quality stocks to the market, ensures effective information disclosure and brokerage infrastructure, regulates investors' education programs,

and provides a modern, technology driven transaction processing system and access to plenty of quality information that will lead to good decision making by the nominal investors. Failures in these areas cause dissatisfaction among stock investors. Various studies on investor satisfaction and the impact of investor demographics (such as age, trading experience, education and preferred investment sector) on the success of investment decisions have been carried out in the developed Western countries (Baker & Haslem, 1973; Lease, Lewellen & Schlarbaum, 1974; Loibl & Hira, 2009; Mittal & Vyas, 2007). However, developing countries have suffered from investors protests due to dissatisfaction with investment decisions (Wang et al., 2006). This study aims to partially fill this gap by surveying investors in the capital city of Bangladesh about their level of satisfaction with the structural efficiency of the market.

LITERATURE REVIEW

Satisfaction with economic agents is predicted by various models of consumer satisfaction in a broad marketing context. As a continuous process, satisfaction starts with the presence of very basic facilities (Kano, Seraku, Takahashi & Tsuji, 1984; Brandt, 1988; Llosa, 1999; Venkitaraman & Jaworski, 1993; Parasuraman, Zeithaml & Berry, 1988) that fulfil the needs of any economic agent in a consumer shop, a bank or an investment market. These models point out that satisfaction is measured through a quantum from a service purchase expectation to satisfactory meeting and surpassing of the customer's expectations. Holbrook and Hirschman (1982) and Engel, Blackwell, and Miniard (1995) found that preliminary information availability, collection and processing affect the extent of customer satisfaction in a competitive marketplace.

Customers who are dissatisfied by deficient service quality, service structure and/or infrastructure would tell seven to twenty people about their negative experience, whereas a satisfied customer would only tell three to five people about his or her positive experiences (Kan, 1995). A similar rule applies to retail stock investors. Their satisfaction with the availability of basic components of the market structure affects sustainable stock market development (Baker & Haslem, 1973). Therefore, from a stock investment perspective, satisfaction refers to the basic experience of investors with the market process, transaction system, brokerage environment and other components of market structure.

Market efficiency is defined in terms of how quickly the available information can be incorporated into securities prices (Fama, 1965; 1970), which is informally called *informational efficiency*. However, the availability of information is strongly affected by the structural efficiency of the market (Wang et al., 2006; Ahmed, Huda & Rashid, 2009). Various stock market innovations,

such as superannuation and mutual funds, and diverse regulatory incentive programs such as tax rebates on investments in eligible securities are motivating the increasing density of retail investors in the market (Murphy & Soutar, 2004; Ariel & Schwab, 2007). As a result, more retail investors are investing directly in the stock market and confronting various issues that affect their level of satisfaction.

Evidence of investors' satisfaction with the stock market has followed two broad patterns in the academic literature; factors affecting the success of investment decisions and demographic impact on the decision criteria. Stock markets in developing countries are largely managed by stockbrokers. Retail investors are strongly influenced by the advice provided and actions taken by brokerage houses (Lewellen, Lease & Schlarbaum, 1977). However, retail investors have to take charge of their own financial futures, as many developing countries' governments offer few financial benefits (Murphy & Soutar, 2004); as a result, anybody can become an *aggressive trader* without the necessary skills and experiences (Bloomfield et al., 1998; Wang et al., 2006). Western studies have shown that retail investors normally invest over the long-term (Potter, 1971; Baker & Haslem, 1973), consider mean-variance optimisation principles (Green & Maheshwari, 1969), do not speculate (Lease et al., 1974) and trade on their recent experience (Antonides & Van-Der Sar, 1990).

In their recent Australian study, Murphy and Soutar (2004) confirmed the findings of other Western studies. However, studies of Asian markets have yielded the opposite results. Wang et al. (2006) found that the average Chinese investors are speculators, carry a low level of risk perception, are deficient in investment knowledge and skill, and are strongly affected by structural deficiency. The study concluded that many aspects of Chinese stock markets are still developing and that investors are partly dissatisfied with the institutional framework for provision of investment services. Similar to Wang et al. (2006), various earlier studies argued that professional services by brokerage houses, the institutional framework presenting the investment services and effective government regulation are significant controlling factors behind successful retail investment (Shefrin, 2000; Shleifer, 2000; Potter, 1971). Moreover, structural efficiency brings investors and borrowers to the capital markets. Many developing countries have noticed that large multi-national corporations (MNCs) are not willing to enter their stock markets because of a lack of confidence in the market as well as in its supervisors, which severely hampers market efficiency.

Higher satisfaction increases the confidence of retail investors. Satisfied investors bring new investors to the market, educate themselves on trading and information management, make the market competitive and bring new issuers (borrowers) to the market (Wilcox, 1999; Ahmed et al., 2009). Studies by Potter (1971), Baker

and Haslem (1973), Blume and Friend (1978) and Nagy and Obenberger (1994) revealed important elements of retail investors' satisfaction with their investment decisions. These elements include financial factors, such as dividend growth rate, Price to Earnings (P/E) ratio, and recent stock price performance, and non-financial factors, such as information management, risk perception, behaviour of the brokerage house and effective government regulation. Additionally, these studies have found an influence of investors' demographic characteristics on the success of the investment decision. In a recent study, Mittal and Vyas (2007) argued that demographic variables such as age, marital status and prior trading experience have significant impacts on investors' information processing and ultimate investment decision making.

In efficient market theory, Fama (1965, 1970) stressed the importance of the level, accuracy and speed of available information for securities prices. In the current technologically driven marketplace, the speed and accuracy with which information will be reflected in prices is dictated by the presence or absence of an effective infrastructure in the market. Investors with and without accurate information will have different investment outcomes and therefore different satisfaction levels (Loibl & Hira, 2009; Bloomfield et al., 1998). Because information quality and availability are highly questionable in developing countries (Schwartz, 2009) and information management depends heavily on investors' skills, which are generally poor in developing countries, retail investors' satisfaction level is largely affected by their perceived ability of and trust in the brokerage houses. Because retail investors rely heavily on brokers' advice, the transaction processing system and behaviour of brokerage house staff play vital roles in investor satisfaction. If anything goes wrong with the brokerage houses, it is difficult to shift to another broker easily, and investors may instead consider leaving the stock market (Brown, 2004).

Investor satisfaction is fundamentally related to the availability of accurate information and the ability to make quick decisions based on that information. The stock market requires efficient information management (Schwartz, 2009), and analysis of industry specific economic and other information is also vital for making correct decisions (Guiso & Jappelli, 2004). Free flow of quality information reduces uncertainty (Grossman & Stiglitz, 1980). Wealthier investors are better informed than poorer investors and therefore wealthier investors benefit better from the availability of diversified financial information (Verrecchia, 1982). Investors also consider the source of information to be important. Brokerage firms, investment analysts, financial intermediaries, newspapers and electronic media have been found to be the most popular sources of investment information (Guiso & Jappelli, 2004).

Satisfaction in one's investment is partially dictated by various demographic characteristics. These variables sometimes moderate and sometimes mediate between components of structural efficiency and investors' satisfaction. Among the moderating variables, investors' age (Baker & Haslem, 1973; Mittal & Vyas, 2007) and gender (Baker & Haslem, 1973) are frequently studied. Among the mediating variables, household financial expenses and personal financial planning (Merton, 1987; Ravi & Narayana, 1996; Ariel & Schwab, 2007); investment time horizon (Ravi & Narayana, 1996; Malkiel, 1996; Morris, Siegel & Morris, 1995); domestic economic condition (Schroder Individual Investor Survey, 2008); transaction costs (Merton, 1987); changes in securities regulation (Brown, 2004) and stability in government policies (Duflo & Saez, 2002) are frequently studied in the academic and professional literatures.

Bangladesh is an emerging market with two stock exchanges, DSE and the Chittagong Stock Exchange (CSE). Though there is no consensus available, more than 55% of investors in these exchanges are directly participating in the market process, and these parties' investments are considered small (*DSE Weekly Review,* 2008). DSE is the larger of the two, with 252 companies (395 securities) currently listed (*DSE Weekly Review,* 2009). The SEC of Bangladesh is the formal regulatory authority overseeing the stock market. Surveys of investors are still nonexistent in Bangladesh. Ahmed et al. (2009) surveyed student investors in the DSE using both open-ended and yes-no questions to collect information about fundamental stock market prices among young investors. The important limitations of stock market development in Bangladesh that were raised in this survey were as follows:

1. investors are basically traders and investing for short-run gains;
2. information processing skill is lacking for a majority of investors;
3. a large portion of the investors have adopted stock market investment as their profession;
4. investors believe that effective government action is totally absent in the market; and lastly,
5. investors lack faith in brokerage houses.

These findings clearly indicate a satisfaction gap among the investors and call for further study, which has stimulated the present large-scale survey.

HYPOTHESIS DEVELOPMENT, DATA COLLECTION AND ANALYSIS

Conceptual Framework and Hypotheses

The stock market is a highly fluid situation, and successful stock investment depends on quick market entry, information processing, decision-making and choosing the proper actions. Miller and Modigliani (1961) argued that the value of a firm rationally depends on what future opportunities are associated with investment in it. The future opportunities of any firm are challenged by firm-specific industry, economic, political and global financial and non-financial updates. Companies may also enjoy good news due to the defeat of their competitors. Therefore, a rigorous analysis yielding information on the promised benefits of the company is expected for successful investment. Investment analysis covers a wide variety of topics, including company management, economic prospects, government reforms and regulations, industry outlook, macroeconomic agendas such as inflation, foreign direct investment (FDI), employment, export potentials, recent stock market performance and gross domestic product (GDP) growth rate (Murphy & Soutar, 2004; Schroder Individual Investor Survey, 2008). However, investors in developing countries are deprived of such insightful analysis, and the stock exchange does not always provide and/or update the information for precise analysis. On the DSE website, the last update of Bangladesh's economic and general information took place in June 2007. However, the current market information was updated through 2009, requiring investors to act on current stock trading information only.

H_1: The quality of investment analysis is positively correlated with investor satisfaction.

How does a prospective investor learn where to start in the market? The DSE website provides no information about how to begin investing in stocks. As a result, retail investors ask personal acquaintances for this information and process the information they receive in the easiest way they can. Around 70% of equity investors do not know the procedure for opening an account with a brokerage firm; 34% do not have sufficient information on specialist brokerage houses; and 88% have never heard about training programs undertaken by the DSE (Ahmed et al., 2009). Hence, the investors cannot make their own decisions and must rely on the brokerage houses for many decisions. To facilitate stock market transactions, SEC Bangladesh has permitted online trading of stocks through Central Depository Bangladesh Limited (CDBL). Various initiatives are being adopted to diversify the trading locations throughout the country for nation wide investor participation. However, sudden changes in transaction norms, for instance, margin rules and transaction costs, do not encourage the smooth operation of a transaction system (Merton, 1987; Brown, 2004). A poorly

operating transaction system confuses retail investors, causing them to rely on stock market information from unreliable sources and to act irrationally.

H_2: Ease of transaction system operation is positively correlated with investor satisfaction.

Better information management differentiates between a good and a bad investor (Loibl & Hira, 2009; Bloomfield et al., 1998). Better management of collected information can reduce behavioural irrationality (Hirshleifer, 2001; Ritter, 2003). Studies have shown inconclusive results concerning how investors manage information and whether they search for alternative sources for better information; however, researchers generally agree that better information management results in better investor satisfaction (Schmeling, 2009). Moreover, information collection and management are costly. Therefore, for the sake for an efficient market, market participants should have access to less costly information.

H_3: Better information management is positively correlated with investor satisfaction.

Evidence in the extant literature shows that investors rely heavily on the mean-variance optimisation rule, and risk perception of the investment is one of the strong determinants of the investment decision (Baker & Haslem, 1973; Blume & Friend, 1978; Green & Maheshwari, 1969). However, inconclusive results have been found on whether investors have well-diversified portfolios (Blume & Friend, 1978; Lease et al., 1974). Adequate information is not available on the use of statistical tools and help from professional risk managers by retail investors; however, Blume and Friend (1978) and Baker and Haslem (1973) showed that investors are willing to take greater risks provided that there is a possibility of an increased return available. These studies also showed that investors put greater importance on risk management. Ahmed et al.'s (2009) survey of the DSE showed that retail investors are scared of the possibility of a stock market crash.

H_4: Quality of risk management is positively correlated with investor satisfaction.

Satisfaction with these four elements—information management, ease of transaction, information management and risk management—can be affected by investors' demographic characteristics. Past studies have found a considerable impact of investors' demographic characteristics, such as age, gender, prior trading experience and education, as moderating factors (Baker & Haslem, 1973; Mittal & Vyas, 2007). In this study, we argue that investors' age and experience

of the investors should be positively correlated and that experience is much important for rational expectation than age is. Thus, we would like to see a moderating effect of experience (Figure 1).

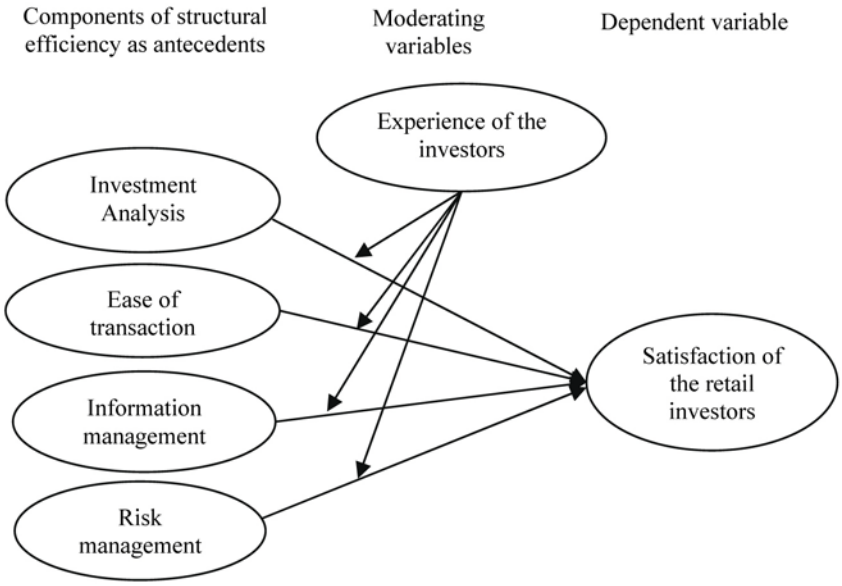

Figure 1. Conceptual framework of the relationship between structural efficiency and the satisfaction of retail investors, moderated by experience of the investors.

H_5: Investors' experience moderates the relationship between the four structural efficiency components (information management, ease of transaction, information management and risk management) and investors' satisfaction. The correlation should be low for investors with high experience and vice versa.

Structural efficiency helps investors to make informed decisions, which increases their satisfaction. Therefore, the nature of the relationship is clear. Investors' satisfaction increases when they can maximise the value of their investment by making timely and appropriate investment decisions. Therefore, we should look for and test the factors that influence investors in the course of a complete investment decision. The current significant growth of stock market activity in both developed and emerging markets reflects the contributions of technological innovations and changes in investment fundamentals. Indeed, innovation within securities markets has been very dramatic, as witnessed, for example, by the development of alternative trading systems designed to challenge the dominance of the traditional stock exchange (Schwartz, 2009). Many changes have been

undertaken in securities regulation and transaction processing norms to recover from the historical crises. Despite these changes, investors' satisfaction remains at its initial level. This study explores how four components of structural efficiency are related to investor satisfaction.

Data, Sampling and Survey

We had conducted a survey on individual investors in the DSE, Bangladesh. We randomly selected 25 brokerage houses located in Dhaka city and surveyed a total of 300 retail investors. Due to missing answers, the final sample included 287 respondents. The questionnaire included three types of questions: 9 demographic questions, 45 questions on structural issues of the stock exchange and 4 questions on overall satisfaction. All of the satisfaction–related questions (45 + 4 = 49) were coded with 7-point Likert scales, where 1 represents "very dissatisfied" with any variable and 7 represents "very satisfied".

Table 1
Respondents' profile

Variable	Frequency	Percent
Age		
Less than 30 years	100	34.8
30 to 40 years	111	38.7
41 to 50 years	48	16.7
More than 50 years	28	9.8
Years of Trading Experience with DSE		
Less than 5 years	193	67.2
5 to 10 years	46	16.0
More than 10 years	44	15.3
Professional Background		
Financial Institute	24	8.4
Academics	16	5.6
Corporate (salaried)	36	12.5
Student	71	24.7
Government officials	11	3.8
Self-employed	74	25.8
General investors	48	16.7
Others	5	1.7
Monthly Income of the Respondents (US$1 = BDT 68)		
Below $300	144	50.2
$300 to $600	74	25.8
$600 to $900	33	11.5
Above $900	35	12.2

(continued)

Table 1 *(continued)*

Variable	Frequency	Percent
Educational Background		
No education	1	.3
Bachelor's/ first degree complete	171	59.5
Master's/MBA Complete	95	33.1
Above Master's/ PhD	19	6.6
Other	1	.3
Preferred Sector of Investment		
Financial institutes	107	37.28
Engineering, telecom, technology	8	2.84
Power, oil, gas	46	16.03
Investments	14	4.88
Pharmaceuticals	20	6.97
Textiles	6	2.09
Others	86	29.97

Table 1 provides demographic attributes of the respondents to the survey. Over 70% of the respondents were less than 40 years old, and about 67% of the respondents entered the DSE less than 5 years ago. Around 15% of the respondents had been trading on the DSE for more than 10 years. Around 26% of the respondents were running a "self-owned business"; 25% were students (probably graduate students); about 17% were general investors; and approximately 13% were corporate salaried employees. Around 50% of the investors were earning less than US$300 per month, and another 26% were earning less than US$600 per month. This means that the majority of the investors who participated in the survey were small investors. About 26% of the sample had completed their Bachelor's degree; 23% had not completed their Bachelor's degree; 24% had completed their Master's degree; and about 7% of the respondents had a doctorate degree. Different investors prefer to invest in different segments of the market (Lease et al., 1974; Nagy & Obenberger, 1994; Loibl & Hira, 2009). The highest proportion of them, approximately 37%, invested preferentially in the financial sector, whereas 16% were investing in the power, oil and gas sector, 7% in pharmaceuticals and 30% in other areas. Banks are at the top of the list in terms of market capitalisation and pay a decent return to the investors (*DSE Yearly Review,* 2008).

METHODOLOGY

The factors were built from a number of variables. Table 2 shows the descriptive and reliability statistics, and Table 3 shows the factor analysis results. Table 2 shows that both the dependent (overall satisfaction) and the four independent factors retained had Cronbach's alpha values higher than 0.70, as suggested by

Nunnally (1978). The factor analysis output in Table 3 shows that the variables with factor loadings of 0.50 or more were retained. The number of variables under the four independent factors decreased to 37 from 45 in two stages of analysis; first, in the factor analysis due to low factor loadings and second, in reliability analysis due to lower alpha value composition. The four factors together represent 78.21% of the variance, which is roughly double the value obtained by Wang et al. (2006). The mean values of the four independent factors were also ranked to obtain a better understanding of the influence of each factor in the overall setup.

Table 2
Descriptive and reliability statistics of the factors

Mean rank	Constructs	No. of items remain	Items dropped	Cronbach's alpha	Mean	Std. Dev.	N
	Overall satisfaction	4	–	0.739	4.27	.767	287
1	Investment analysis	13	2	0.896	4.78	1.004	287
3	Ease of transaction	11	1	0.759	3.82	.904	287
4	Information management	7	1	0.753	3.66	1.003	287
2	Risk management	7	1	0.797	4.25	1.045	287

Table 3
Results of the factor analysis

Variables	Components			
	1	2	3	4
Efficiency of the company	**0.732**	0.207	0.123	–0.162
Inflation rate	**0.711**	0.036	0.230	0.014
GDP growth rate	**0.709**	0.258	0.065	0.018
Current economic scenarios	**0.699**	0.218	0.116	0.024
Government reforms	**0.664**	0.073	–0.157	0.193
More foreign investment	**0.632**	0.067	0.387	0.146
Larger number of stocks	**0.624**	0.073	0.135	0.248
Higher industrial growth rate	**0.620**	0.133	0.089	0.291
Prospect of the industry in near future	**0.617**	–0.268	0.254	0.004
Larger amount of FDI	**0.591**	0.251	0.076	0.241
Possibility of new export	**0.587**	0.227	0.117	0.104

(continued)

Table 3 *(continued)*

Variables	Components			
	1	2	3	4
New restrictions and regulations	**0.586**	0.109	–0.293	0.179
Recent stock market performance	**0.584**	0.208	–0.038	0.136
Easy and quick transaction	0.308	**0.721**	0.167	0.339
Transaction cost	0.107	**0.718**	0.172	0.057
Transaction settlement process	0.132	**0.687**	0.155	0.190
Online trading by CDBL	0.156	**0.683**	0.209	0.257
Sufficient computers in brokerage houses	0.204	**0.629**	0.128	0.038
Transaction from remote locations	0.251	**0.622**	0.293	0.197
Easy process of opening brokerage account	0.101	**0.609**	0.271	0.085
Upgraded transaction system	0.176	**0.594**	0.135	0.321
Adequate existing government supervision	0.232	**0.591**	0.338	0.087
Standby protection mechanism for retail investors	0.243	**0.564**	0.396	–0.009
Adequate education programs for retail investors	0.085	**0.507**	0.315	0.232
Access to company, economy and industry information	0.081	0.181	**0.712**	0.035
Quality of information	0.025	0.151	**0.704**	0.025
Cost of information	0.026	0.118	**0.662**	0.264
Use of tools for analysing data	0.272	0.177	**0.646**	0.005
Use of financial/statistical tools to manage information	0.266	0.292	**0.643**	0.053
Professional companies assisting in managing information	0.222	0.118	**0.599**	0.077
Account coverage of brokerage firms	0.001	0.350	**0.580**	0.082
Prior knowledge of securities market	0.130	0.206	0.163	**0.705**
Use of diversification strategy	0.094	0.142	0.217	**0.701**
Industry risk analysis	0.233	0.244	0.123	**0.658**
Use of statistical tools to risk analysis	0.173	0.139	0.285	**0.649**
Perception of stock market crash risk	0.082	0.113	0.045	**0.648**
Professional companies assisting in managing risk	0.257	0.292	0.301	**0.534**
Willing to take risk for extra returns	0.085	0.315	0.232	**0.507**
Eigenvalue	3.04	2.51	2.36	**2.15**
Variance Explained (%) – (Total 78.21%)	29.01	22.15	15.04	12.01

Note: KMO = 0.892, Varimax Rotation, Principle Component Factoring

Structural efficiency is affected by the presence of prudential regulations in the market, which will ensure better information disclosure, making entry easier for the investors in terms of opening investment accounts and monitoring the roles of market makers (Bloomfield et al., 1998). Wealth maximisation is one of the major objectives of investment. The net positive result of cost and return motivates investors, and as a result, new investment will be added in market capitalisation. Consequently, new issuers will be motivated to offload their shares. Therefore, the cost-return tradeoff is a key issue behind investors' sentiment (Ariel & Schwab, 2007). The dependent variable "overall satisfaction" was combined with reliability measurement tools from four items/questions. These questions concerned the level of investors' satisfaction with the overall regulatory framework of the market, the cost-return tradeoff, whether the respondents would suggest that other investors invest in this market and whether they are happy with the supply of stocks in the market. These questions were coded on 7-point Likert scales.

Using the four independent structural efficiency factors (investment analysis, ease of transaction, information management and risk management) and the dependent factor (overall satisfaction), we ran a regression analysis to investigate the model fit and the importance of individual factors in the model (H_1 through H_4). The results of the regression analysis are shown in Table 4. The second objective of this study is to investigate the moderating effect of investors' experience on the relationships between the four structural efficiency factors and investors' satisfaction. To accomplish this goal, we had conducted a hierarchical regression, the results of which are shown in Table 5.

RESEARCH FINDINGS

The factor analysis output shown in Table 3 yielded four factors. Based on the meanings of the variables and their theoretical underpinnings, the four factors can be renamed investment analysis, ease of transaction, information management and risk management, respectively. These four independent variables and overall satisfaction, the dependent variable, were used to run a multiple regression analysis, which is shown in Table 4. The F value of the model, 128.701, is significant at $p<0.01$ with an R^2 of 0.646 and adjusted R^2 of 0.641. The adjusted R^2 value is promising compared to the findings of recent studies (Wang et al., 2006; Schmeling, 2009). Investment analysis is the most influential variable, with the highest standardised beta of 43.3%, followed by ease of transaction (std. beta = 21.8%), information management (std. beta = 18.2%) and risk management (std. beta = 17.2%), respectively. All four variables were significant at $p<0.01$, which indicates the presence of strong relationships between the four variables and the overall satisfaction of investors. The findings of the regression analysis

are similar to the findings of Murphy and Soutar (2004), Potter (1971), and Nagy and Obenberger (1994).

Table 4
Results of regression analysis

	Std. Beta	t-value
Independent variables		
Investment analysis	0.433	8.749***
Ease of transaction	0.218	5.062***
Information management	0.182	3.667***
Risk management	0.172	3.087***
F value	128.701***	
R^2	0.646	
Adjusted R^2	0.641	

Note: *** p<0.01

The extant literature shows that demographic characteristics have a significant impact on the investment decision making, sentiments and satisfaction of retail investors (Mittal & Vyas, 2007). We argue that the relationship between structural efficiency and investors' satisfaction is moderated by the experience of the retail investors. Universally, the more experienced the investor is, the higher the possibility that he or she will make an informed decision, which eventually leads to higher satisfaction. Table 5 shows this moderating effect. However, the result is opposite what would be expected according to the universal theory. The experience of the investor as a moderator increases the adjusted R^2 of the model (R^2 change is 0.6%), but the standardised beta is –0.081. A negative standardised beta indicates that highly experienced investors are less satisfied with the structural efficiency of the stock market.

Inclusion of the interaction effect, slightly changes the overall impact of investors' experience in the model. Investment analysis (std. beta = 0.738) becomes the most important variable, followed by ease of transaction (std. beta = 0.355) and experience of the investors (std. beta = –0.084). None of the interaction terms were significant. Information management and risk management became statistically insignificant. Therefore, experience of the investors is not a significant moderator of the relationship between satisfaction of the investors and components of structural efficiency. Finally, from the regression analysis, it is clear that investors would be satisfied if the market provide opportunities for analysis, easy access to fundamental, industrial and economic information and an easy transaction settlement procedure. Additional statistics on multi-collinearity in the regression analysis (tolerance and variance inflation factor, VIF) were found to be under satisfactory control. Durbin-Watson

is below two (1.242), which is acceptable because the data are not fully time series.

Table 5
Hierarchical regression results using experience of the investors as a moderator in the relationship between structural efficiency and investors' satisfaction

Independent variables	Std. Beta Step 1	Std. Beta Step 2	Std. Beta Step 3
Model variables			
Investment Analysis	0.428***	0.440***	0.738***
Ease of Transaction	0.221***	0.219***	0.355***
Information Management	0.180***	0.193***	0.210
Risk Management	0.174***	0.184***	0.040
Moderating variables			
Experience of the investors		–0.081**	–0.084**
Interaction terms			
Investment Analysis*Experience			–1.054
Ease of Transaction*Experience			–0.357
Information Management*Experience			–0.030
Risk Management*Experience			–0.339
R^2	0.641	0.647	0.663
Adjusted R^2	0.636	0.640	0.652
R^2 Change	0.641	0.006	0.016
Sig. F Change	0.000	0.036	0.012
Durbin-Watson	1.242	1.242	1.242

*Note:*** $p < 0.05$, *** $p < 0.01$

DISCUSSION OF THE FINDINGS

Investment analysis, ease of conducting transactions, information management and risk management all affect the satisfaction level of stock investors in Bangladesh. This final discussion does not include a discussion of the moderating effect of investors' experience because the effect is not statistically significant. However, future studies could investigate the impact of demographic variables on the satisfaction level of investors in developing countries.

Investment analysis is the most significant factor, with the highest standardised beta of 0.433, meaning that 43.3% of the change in investor satisfaction is explained by the factor. Investment analysis includes the capability of, opportunities for and difficulties of doing research on short- and long-term prospects. In Table 3, under investment analysis (component 1), the most influential variables are efficiency of the company, macroeconomic outlook (GDP, inflation and FDI) and long-term investment performance. These results

are similar to those of Murphy and Soutar (2004) and Potter (1971) except for one issue. Retail investors in DSE put less emphasis on recent stock market performance, which contradicts Murphy and Soutar (2004). This contradiction of results might be due to the unique developing country investment market characteristics; in contrast, Murphy and Soutar (2004) conducted their study in Australia. Another important issue that can be deemed positive is that investors in this survey placed more emphasis on fundamentals than on only price and volume information (recent stock market information). Investment analysis based on economic and corporate fundamentals is a good sign for any emerging market (Wang et al., 2006).

Ease of transaction is affected by two major issues: the availability of quick and inexpensive transactions and the roles of the government (regulatory procedures) and brokerage houses. This factor accounted for the second highest standardised beta of 0.218. The findings on the attitudes of brokerage house staff regarding making the investment process easier are similar to Potter's (1971). Lewellen et al. (1977) argued that investors can form better portfolios with the help of professional brokerage services; however, it cannot be guaranteed that the investors develop their portfolios based only on the suggestions given by the brokerage firms, meaning that there are other important factors. Wang et al. (2006) had provided support for developing a better regulatory framework for quick and less costly transaction processing in the Chinese capital market. However, more research is expected on the cost-return trade-off considered by emerging market investors.

Information is a weapon in the investment field. The third important factor (with a standardised beta of 0.182) yielded by the analysis is information management, which comprises the availability, management, quality and cost of information. Most extant studies have concluded that investors cannot manage information because of a shortage of necessary skills (Wang et al., 2006) and poor disclosure requirements (Bloomfield et al., 1998). In a perfect market situation, information is assumed to be available at no cost. However, in a developing country context, quality information systems are still under developed. Similar to the findings of Murphy and Soutar (2004), Potter (1971), and Baker and Haslem (1973), retail investors in this survey put the greatest emphasis on access to high-quality economic, industry and company information, which indicates the need for better disclosure requirements. As opposed to the studies done by Green and Maheshwari (1969) and Blume and Friend (1978) in developed countries, this study reveals that investors do not employ the mean-variance frontier approach. Here, perception plays a bigger role than the mean-variance frontier. The reason for this logic is that most retail investors lack the skill and knowledge to rationally forecast their investments' outcomes based on mean-variance frontiers.

Risk management was the final important factor (standardised beta of 0.172). Table 3 shows the important variables of risk management, which include identification, measurement and management of risk. Investors concentrate more on their prior experience when collecting risk information and diversifying their portfolios. Blume and Friend (1978) and Baker and Haslem (1973) described a fallacy of *fear* among retail investors in the developed world due to various negative ideas about stock market volatility and crashes. This study describes a similar phenomenon in a developing country context. Investors give great importance to the possibility of a stock market crash. Even though investors agreed that they were willing to take extra risk for extra return, which is a common characteristic of the neo-classical assumption, this variable was the least important factor under the construct of risk management.

Implications for Regulators and Issuers

The behaviour and satisfaction of retail investors have significant implications for regulators (Schwartz, 2009). Regulators should initiate necessary actions to make available better investment analysis, quick transaction processing, correct information and regular marketing and investor education programs. Wang et al. (2006) argued that regulators' role in an emerging stock market is primarily to guide the market toward better and rational investment decision making, which will be possible if quality information is available in the market and investors are given the necessary education to analyse that information. On the other hand, the issuer wants a good value for their equity holder. Any uncertainty in information may drastically reduce the market value of the issuing company. Preventing this requires dissemination of correct and timely company, industry and product-specific information to investors. Out of the four factors investigated in this study, two factors—investment analysis and information management—are closely related to issuers. The stock issuing company should put more emphasis on following disclosure norms to ensure the supply of higher-quality information to investors.

Limitations and Future Research Directions

Investor satisfaction studies are still at the embryonic stage in developing countries. Financing in developing countries is largely dominated by banks, and most existing satisfaction studies were conducted on bank customers. Studies of retail investors are practically nonexistent. Due to the behavioural irrationality caused by retail investors and its subsequent impact on market efficiency, various investors' sentiment indices are under development. The first problem involved in developing an index involves the development of an appropriate questionnaire. Earlier studies by Blume and Friend (1978), Schmeling (2009), Wang et al., (2006), and Nagy and Obenberger (1994) used a mix of survey and economic

data to determine the sentiments and satisfaction of investors. Most of the studies took place in developed Western countries, so they cannot be extended to developing countries (Mittal & Vyas, 2007). Therefore, future studies in this area should develop a more appropriate scale by which to measure structural efficiency and investor satisfaction. It would also be worth while to develop an investors' sentiment index in a developing country context.

This study has determined one demographic variable, the experience of the investor, to be a moderator. Future studies may investigate not only demographic variables, but also the economic and industrial segments favoured by the investors and their satisfaction with the market as possible moderators and mediators. This is stressed in a recent study by Loibl and Hira (2009). For instance, DSE is largely dominated by financial and power (oil, gas) sector investments (Table 1). Therefore, the satisfaction of investors in the financial or power sector might be different than that of investors in other sectors. Investment education and the development of an electronic communications network should be studied further. The process of investment education in universities should be open to all students irrespective of academic background and specialisation. One of the major problems faced by developing countries is the widespread dissemination of technology, which can make stock investment much easier and more investor friendly. Future studies should explore how new technology could help to develop stable financial markets in developing countries.

CONCLUSION

Behavioural finance is increasingly becoming a focus of modern finance research as it has converged with real market trading mechanisms (Ritter, 2003). Investment has become a highly competitive, information-sensitive decision with plenty of available options. Social status and planned benefits from the government motivate retail investors towards this competitiveness. Individuals searching for an alternative source of investment have started to invest in the stock market through brokerage firms, dealers and portfolio managers, which has created newer challenges to market regulation and created a need for changes in the transaction system, online technology and overall economic stability (Schwartz, 2009). Under these circumstances, studies of the preferences, satisfaction, sentiments and attitudes of investors are of great importance, especially in developing countries, where a lack of structural efficiency has limited the informational efficiency of the market. This study has explored the factors of structural efficiency that are responsible for satisfactory stock investment among retail investors in Bangladesh.

Retail investors are vital components of the stock market. A large proportion of company IPOs are targeted towards public issue, which eventually results in their being traded among retail investors in secondary markets. Therefore, satisfaction of the investor is closely associated with stability of both the primary and secondary markets. Eventually, unsatisfactory investment experiences create a barrier preventing larger financing opportunities in development projects. Developing countries must pay specific attention to the satisfaction of the retail investors to increase market stability and to collect financing from a wide variety of investors. Consequently, development projects would be partly financed with equity in addition to debt financing. Regulators must ensure effective surveillance of structural efficiency so that retail investors can easily enter the market, access quality information, gather sufficient accurate knowledge to manage information and make a quick investment decision.

This study was initiated to test the relationship between the satisfaction of retail investors and the structural efficiency of the market. Factor analysis resulted in four factors—investment analysis, ease of transaction, information management and risk management—as the components of structural efficiency. The regression results show that the most important variables are investment analysis, where investors are dissatisfied if the market issuing company and regulatory frameworks cannot provide an integrated framework for investment analysis. Investors leave the market for alternatives if the market cannot ensure easy entry and exit. Quick and less costly investment processing have a positive impact on investors' satisfaction. Quality information is investors' best weapon. Investors will be satisfied if quality information is available and they are provided with the necessary education to analyse the information. Information cost is negatively related to investors' satisfaction. Finally, investors invest based on their experience and perception. In developing counties, the traditional mean-variance analysis and use of advance tools to measure risk remain unpractised. Regulators should run marketing campaigns to reduce the level of uncertainty carried by retail investors in developing countries.

People invest in resources to gain economic prosperity for themselves, which also has positive effects for the country. If, for any reason, this process of resource mobilisation is threatened, investors become fearful and begin seeking safe alternatives, such as banks. As a result, investment dries up, production drops and socio-economic crises start. In most cases, the crisis starts due to misinterpretation of the available information, which is caused by an inappropriate information management infrastructure. If regulators can ensure the presence of an appropriate infrastructure, which we call structural efficiency, retail investors will be better able to make informed decisions. Ultimately, the market will be efficient.

Highlights of progress of CDS	June 2004	June 2005	June 2006	June 2007	June 2008
Investor accounts set up in the CDS	6,347	360,908	792,463	1,385,144	1,777,334
Depository participants (equity market)	60	159	202	222	250
Equity securities in CDS – issuers	15	61	100	118	150
Number of equity shares in CDS (in millions)	10	196	462	714	1098

Note: CDS = Central Depository System

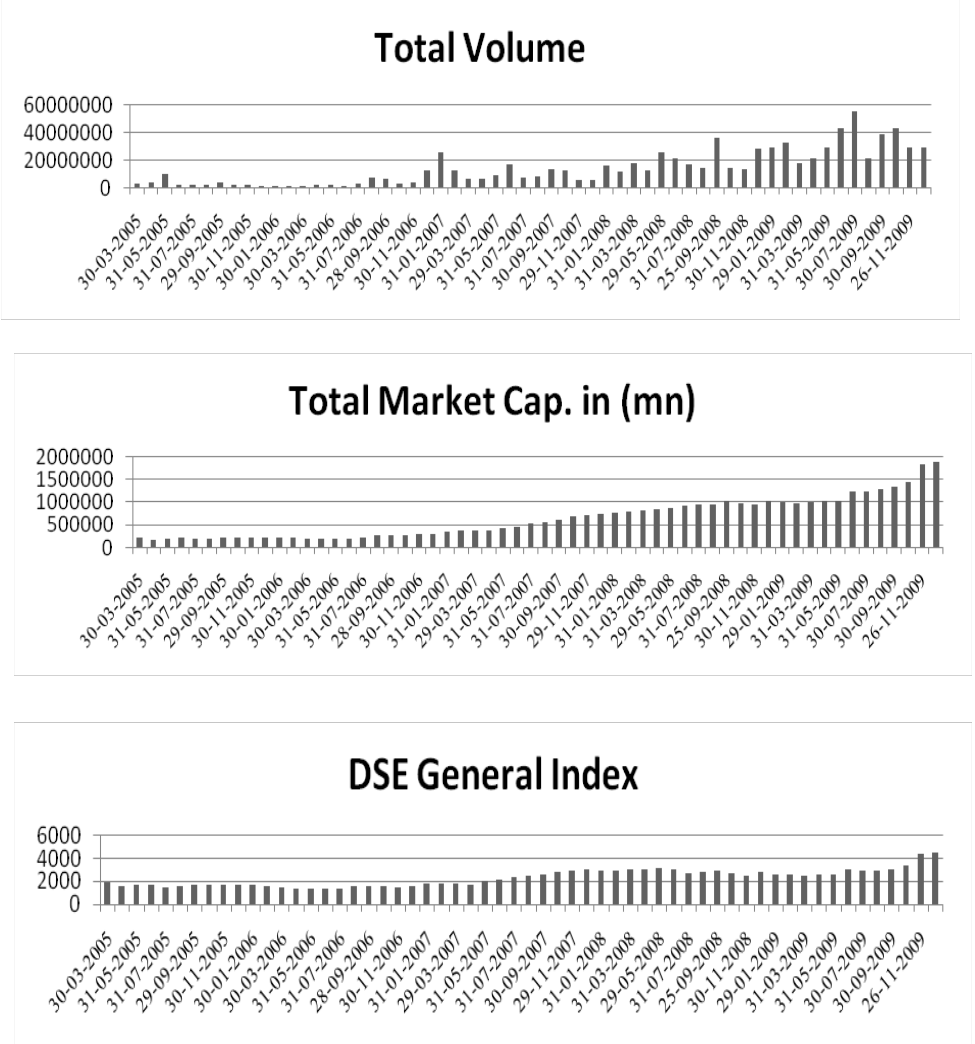

Figure 2. Recent statistics from Dhaka Stock Exchange

Source: Dhaka Stock Exchange Research Division

REFERENCES

Ahmed, J., Huda, S. & Rashid, M. (In press). An evaluation of the attitude towards investment: A survey over Dhaka City. *Journal of Business Studies, 31*(2).

Antonides, G., & Van-Der Sar, N. L. (1990). Individual expectations, risk perception and preferences in relation to investment decision making. *Journal of Economic Psychology*, *11*, 227–245.

Ariel & Schwab. (2007). The Ariel & Schwab Black Investor Survey: Saving and investing among higher income African-Americans and White Americans. Retrieved 14 March 2009, from http://www.arielinvestments.com/repository/func,download/filecatid, 159

Baker, H. K., & Haslem, J. A. (1973). Information needs of individual investors. *Journal of Accountancy, 136*(5), 64–69

Bloomfield, R. J., Libby, R., & Nelson, M. W. (1998). Confidence and the welfare of less-informed investors. Retrieved 14 March 2009, from SSRN: http://ssrn.com/abstract=72068 or DOI:10.2139/ssrn.72068.

Blume, M. E., & Friend, I. (1978). *The changing role of the individual investor: A twentieth century fund report*. New York: Wiley.

Brandt, D. R. (1988). How service marketers can identify value-enhancing service elements. *Journal of Services Marketing, 2*(3), 35–41.

Brown, S. K. (2004). Investor perceptions and preferences toward selected stock market conditions and practices: An AARP survey of stock owners ages 50 and older. *AARP Knowledge Management*. Washington DC, USA.

Duflo, E., & Saez, E. (2002). Implications of information and social interactions for retirement saving decisions. *Pension Research Council Working Paper*. The Wharton School, University of Pennsylvania, No. PRC WP 2003-13, Retrieved 11 March 2009, from http://elsa.berkeley.edu/~saez/duflo-saezWP2003-13.pdf

DSE Weekly Review. (2009). Week 2 review of Dhaka Stock Exchange, Bangladesh; http://www.dsebd.org (accessed as on April 2009).

_____. (2008). Yearly market review of Dhaka Stock Exchange, Bangladesh; http://www.dsebd.org (accessed as on April 2009).

Engel, J. F., Blackwell, R. D., & Miniard, P. W. (1995). *Consumer behavior* (8th ed.). New York: The Dryden Press.

Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *Journal of Finance*, *25*(2), 383–417.

_____. (1965). The behavior of stock market prices. *Journal of Business*, *38*(1), 34–105.

Green, P. E., & Maheshwari, A. (1969). Common stock perception and preference: An application of multidimensional scaling. *Journal of Business*, *42*, 439–457.

Grossman, S. J., & Stiglitz, J. E. (1980). On the impossibility of informationally efficient market. *American Economic Review*, *70*, 393–408.

Guiso, L., & Jappelli, T. (2004). Awareness and stock market participation. Center for Studies in Economics and Finance, Working Paper No. 110. Uniersita Degli Studi Di Salerno.

Hirshleifer, D. (2001). Investor psychology and asset pricing. *Journal of Finance, 64,* 1533–1597.

Holbrook, M. B., & Hirschman, E. C. (1982). The experiential aspects of consumption: Consumer fantasies, feelings, and fun. *Journal of Consumer Research, 9*(September), 132–140.

Kan, S. (1995). *Metrics and models in software quality engineering*. Boston: Addison Wesley.

Kano, N., Seraku, N., Takahashi, F., & Tsuji, S. (1984). Attractive quality and must be quality (in Japanese). *Journal of the Japanese Society for Quality Control, 14*(2), 39–48.

Lease, R. C., Lewellen, W. G., & Schlarbaum, G. C. (1974). The individual investor: Attributes and attitudes. *Journal of Finance, 11,* 413–438.

Lewellen, W. G., Lease, R. C., & Schlarbaum, G. G. (1977). Patterns of investment strategy and behavior among individual investors. *Journal of Business, 50,* 296–333.

Llosa, S. (1999). Contributions to the study of satisfaction in services. AMA SERVSIG Service Research Conference, New Orleans, 10–12 April, 121–123.

Loibl, C., & Hira, T. K. (2009). Investor information search. *Journal of Economic Psychology, 30,* 24–41.

Malkiel, B. G. (1996). *A random walk down Wall Street: Including a life-cycle guide to personal investing* (6th ed.). New York: Norton.

Merton, R. C. (1987). A simple model of capital market equilibrium with incomplete information. *Journal of Finance, 42,* 483–510.

Miller, M. H., & Modigliani, F. (1961). Dividend policy, growth, and the valuation of shares. *The Journal of Business, 34*(4), 411–433.

Mittal, M., & Vyas, R. (2007). Demographics and investment choice among Indian investors. *The ICFAI Journal of Behavioral Finance, 4*(4), 51–65.

Morris, K. M., Siegel, A. M., & Morris, V. B. (1995). *The Wall Street Journal Guide to planning your financial future.* New York: Lightbulb Press.

Murphy, M. C., & Soutar, G. N. (2004). What individual investor value: Some Australian evidence. *Journal of Economic Psychology, 25,* 539–555.

Nagy, R. A., & Obenberger, R. W. (1994). Factors influencing individual investor behavior. *Financial Analysts Journal, 50*(4), 63–68.

Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing. 64*(1), 12–37.

Potter, R. E. (1971). An empirical study of motivations of common stock investors. *Southern Journal of Business, 6,* 41–48.

Ravi, J., & Narayana, R. K. (1996). Why should older people invest less in stocks than younger people? *Federal Reserve Bank of Minneapolis Quarterly Review, 20*(3), 11–23.

Ritter, J. R. (2003). Behavioral finance. *Pacific-Basic Finance Journal, 11*(4), 429–437.

Schmeling, M. (2009). Investor sentiment and stock return: Some international evidence, *Journal of Empirical Finance, 16*, 394–408.

Schroder Individual Investor Survey. (2008). Schroder's survey: US individual investors believe international markets will outperform US on recession fears in 2008. Retrieved 11 March 2009, from http://www.schroders.com/staticfiles/Schroders/Sites/Americas/SchrodersSurvey ReleaseJan2008.pdf

Schwartz, L. P. (2009). Objectives, outcomes and performance measures in securities regulation. A research study for the expert panel on securities regulation in Canada. Retrieved 11 March 2009, from http://www.expertpanel.ca/eng/reports/finalreport/appendix3.html.

Shefrin, H. (2000). *Beyond greed and fear.* Boston: Harvard Business School Press.

Shleifer, A. (2000). *Inefficient markets: An introduction to behavioral finance.* Oxford: Oxford University Press.

Solomon, M. R. (1999). *Consumer behavior: Buying, having and being* (4th ed.). Englewood Cliffs, NJ: Prentice-Hall.

Thaler, R. (1980). Toward a positive theory of consumer choice. *Journal of Economic Behavior and Organization, 1*, 39–60.

Venkitaraman, R. K., & Jaworski, C. (1993). Restructuring customer satisfaction measurement for better resource allocation decisions: An integrated approach. Fourth Annual Advanced Research Techniques Forum of the American Marketing Association, June, 1993.

Verrecchia, R. E. (1982). Information acquisition in a noisy rational expectations economy. *Econometrica. 50*, 1415–1430.

Wang, X. L., Shi, K., & Fan, H. X. (2006). Psychological mechanisms of investors in Chinese stock markets. *Journal of Economic Psychology*, *27*, 762–780.

Wilcox, R. T. (1999). Efficient fee structures for mutual funds. In *Sawtooth software conference proceedings* (pp. 71–97). San Diego, CA: Sawtooth Software.