

Consumer information search when making investment decisions

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Abstract

We discuss the characteristics of investment decisions and identify the factors that affect consumers’ information search behavior when they make investment decisions. Using the 2000 to 2001 MacroMonitor data set, we find that subjective knowledge, amount of investment, risk tolerance, age, education, and income influence both the extent of information search and the use of specific information sources, including literature, media, the Internet, friends/family, and professional services. © 2004 Academy of Financial Services. All rights reserved.

JEL classification: D83; E21

Keywords: Information search; Information sources; Investment; Financial services

1. Introduction

The investment service industry has experienced phenomenal growth over the past decade. In 1992, there were 17,787 securities brokerages, dealers and flotation companies. The number of establishments increased 37.4% to 24,431 by the end of 1997, and annual sales increased from \$14,806 million to \$52,941 million during the same period (U.S. Census Bureau, 1997). Accordingly, there has been an increasing demand for investment information from consumers who are potential investors. Information plays an essential role in any purchasing decision, including the choice of investment products.

Investment products have several distinct characteristics. First, they are intangible goods.¹

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Investments are classified as goods, because they have value and exist independently of producers and buyers, ownership belongs to the investors who purchase them, and they can be further traded at different times and locations. Investment products are intangible, because their value is the invisible right of ownership of the subsequent benefits.

Second, investors have to predict the unknown realization of market outcomes at the time of purchase (Strassl, 1986). The performance of investment products depends on the performance of the parties who produce the products, for example, the company who issues the stocks, which is further affected by micro- as well as macro-economic factors. When making investment decisions investors evaluate the predicted investment income and losses, both of which can only be realized when the return or loss actually takes place.

By searching for information, consumers may find products with greater benefits per dollar spent, increase satisfaction with the products and/or the decisions (Bettman, 1979; Punj and Staelin, 1983), and/or reduce risk (Bennett and Harrell, 1975). Consumers tend to engage in more extensive search activities when purchasing products that are more expensive or carry more risk (Beatty and Smith, 1987; Capon and Burke, 1980; Cunningham, 1967; Moore and Lehmann, 1980; Srinivasan, 1987). Investment generally involves substantial amount of money and risk, and information search is therefore an important activity for many consumers before making investment decisions.

Even though numerous studies have investigated consumer information search behavior, consumer information search for investment decisions have not received much attention. In this study, we propose to contribute to this aspect of the literature. Using data from the 2000 to 2001 MacroMonitor Survey, a comprehensive database of consumer attitudes, behaviors and motivations associated with financial products, we empirically investigate the determinants of consumers' information search behavior when making investment decisions.

2. Literature review

Stigler (1961) proposes the theory of imperfect market information in his seminal article on the economics of information. Since then, consumers' information search behavior has been explained in terms of the costs and benefits associated with a search. Grossman and Stiglitz (1980) have also noted that there does not exist a competitive equilibrium. Prices serve a role in conveying the information from the informed individuals to uninformed ones but only partially reveal the information about the true value of the assets because information is costly. Under such price system, those who seek information will receive compensation for their effort by obtaining better positions in the market than uninformed individuals.

When applied to investing, this theory implies that the benefits of searching include purchasing products with better appreciation potential that enable a higher potential return, reducing risk, increasing satisfaction with the decision, or accumulating investing experience that contributes to one's stored knowledge. The costs associated with information search for investment include both monetary and time costs. For example, do-it-yourself investors must purchase informational materials and spend a lot of time observing market changes, while investors who are customers of financial advisors must pay for the services they receive.

Previous literature identifies the following as the factors influencing consumers' infor-

mation search when making investment decisions: subjective knowledge, amount of investments, risk tolerance, and demographic characteristics. First, Brucks (1985) argues that more knowledgeable consumers tend to engage in more information search than less knowledgeable consumers, as they have both the knowledge structure to process new information and the confidence to engage in information search. Subjective knowledge may also influence the use of specific information sources. For example, consumers with greater subjective knowledge are more likely to search independently using literature, the media and the Internet, whereas consumers may choose professional investment advisors when they are not confident of their own investment knowledge.

Second, past research has found that consumers engage in more search activities when purchasing foods with higher prices (Schmidt and Spreng, 1996). This positive relationship between price and search activities exists across a variety of products, so for investment products we expect a positive relationship between the amount of the investment and the extent of information search.

Third, risk tolerance refers to the degree of risk that an investor is willing to take or tolerate (Hanna and Chen, 1997). Dowling and Staelin (1994) suggest that, to reduce their risk, consumers who are less risk tolerant engage in more information search than those who are more risk tolerant.

Fourth, several researchers find an inverted-U-shaped relationship between income and external search: the extent of search increases at first and decreases as income increases (Carlson and Gieseke, 1983; Morgan, 1988; Ratchford, 1988). As income is a good proxy for a consumer's opportunity costs of time, we propose that income has a negative relationship with the use of more time-intensive information sources, such as reading books and surfing on the Internet, compared to more resource-intensive information sources, such as professional financial planners.

Fifth, education level has been found to be positively associated with search activities (Andreasen and Ratchford, 1976; Claxton, Fry, and Portis, 1974; Hempel, 1969; Newman and Staelin, 1972; Schaninger and Sciglimpaglia, 1981), as better-educated consumers have a more extensive knowledge structure and are more capable of identifying, locating, and assimilating relevant information (Schmidt and Spreng, 1996). Therefore, consumers with a higher education level would be able to search using sources that require more knowledge, such as books, newspapers, or the Internet. Moreover, consumers with higher educational levels may be more realistic about their own ability to invest and more open-minded toward professional service providers.

Finally, age has been identified as an influential factor in consumer information search. On one hand, several researchers find that as consumers age, their information search abilities decline, in terms of both intensity and accuracy (Cole and Balasubramanian, 1993; Lehmann and Moore, 1980; Schaninger and Sciglimpaglia, 1981). On the other hand, older consumers have accumulated knowledge and experience of investing over time and therefore have reduced needs for information search. In terms of specific sources of information, the elderly have a tendency to rely on mass media in making purchasing decisions (Barry and Bearden, 1978; Phillips and Sternthal, 1977), while Internet usage is the lowest among older people (Bucy, 2000). It is also found that older consumers rely on neither the experience of others

(Lumpkin and Festervand, 1987) nor their broker's advice for portfolio choices (Lease, Lewellen, and Schlarbaum, 1976).

3. Methods

3.1. Data

Data from the 2000 to 2001 MacroMonitor survey are used in this study. MacroMonitor is a comprehensive survey of consumer attitudes, behaviors, and motivations related to financial products. The Consumer Finance Decision section of SRI Consulting Corporation has conducted the survey every other year since 1978. The 2000 to 2001 MacroMonitor includes survey responses from 3,759 financial decision-makers nationwide. More information about the MacroMonitor data set can be found on the Internet at <http://future.sri.com/CFD/proposals/2000proposal.pdf>.

Participants are recruited via two-stage random sampling, with a stratified disproportionate random sample at the first stage followed by a simple random sample of all households at the second. To obtain a larger proportion of affluent households and owners of low-incidence products, households with greater income or assets (i.e., with a more than \$100,000 annual income or more than \$500,000 total assets, excluding the primary residence) are oversampled. In our analysis, the oversampled households are weighted back to the proper proportions in the population they represent.

3.2. Measurements

The extent of information search for investments is conceptualized as the effort that a consumer devotes to information search activities. A number of researchers have adopted a composite measure of the extent of information search—the number of various search activities engaged in, counting all the external sources of information used (Claxton, Fry, and Portis, 1974; Duncan and Olshavsky, 1982; Punj and Staelin, 1983; Srinivasan and Ratchford, 1991). Using a similar measurement, in this study we count the number of sources each consumer used within the twelve months preceding the survey.² There are 120 respondents whose response is recorded as zero. It is not clear whether they did not answer the question or they did not seek information from any of the sources. These observations are excluded from further analyses.

For this study, we classified the information sources in the questionnaire into five categories: literature (i.e., books, consumer magazines, other magazines, newspaper articles, financial newsletters, and financial institution brochures/written materials), media (i.e., radio programs, broadcast TV programs, education TV programs, cable TV program, radio advertisements, TV advertisements, daily newspaper or magazine advertisements, or financial newspaper or magazine advertisements), the Internet, friends/family (i.e., friends/relatives and persons at workplace), and professional financial service providers (i.e., financial institution personnel and seminars). We examine consumers' use of each of these five types

Table 1
Results of factor analysis using varimax rotation: Risk tolerance and subjective knowledge

	Risk tolerance	Subjective knowledge	Final community
My household knows how to choose the financial products and services that are best for us.	0.0229	0.6255	0.3917
I consider myself a sophisticated investor.	0.3626	0.6252	0.5223
I need help selecting savings and investment products that are best suited to meet my financial goals.	0.0346	0.7214	0.5215
I feel qualified to make my own investment decisions.	0.1918	0.7639	0.6203
I do not need advice on investment options.	-0.0628	0.6774	0.4628
*Where would you prefer to put most of your household's savings and investments?	0.7256	-0.0083	0.5265
It's very important to me to have both a guaranteed interest rate and federal insurance on my savings.	0.5616	0.1512	0.3383
I am willing to accept some risk of losing money if an investment is likely to come out ahead of inflation in the long run.	0.7204	-0.0300	0.5198
It is wise to put some portion of savings in uninsured investments to get a high yield.	0.6755	0.0187	0.4566
I am willing to take substantial risks to realize substantial financial gains from investments.	0.7402	0.1639	0.5748
Eigen-value	3.0760	1.8587	4.9347
Variance explained	3.0760	1.8587	
Variance explained (%)	30.76%	18.59%	49.35%

Note. All responses except * are on a four-point scale (1 = mostly agree, 2 = somewhat agree, 3 = somewhat disagree, and 4 = strongly agree).

* Responses to this question are on a five-point scale (1 = a very low return with a very low risk of loss, 5 = a very high return with a very high risk of loss).

of information sources, represented in a set of binary variables (1 = used a particular information source, 0 = didn't use).

Subjective knowledge is defined as one's self-assessment of the adequacy of one's knowledge about investment products and investing. To uncover a respondent's subjective knowledge about investments, this study adopts a Likert scale comprising five questions. This is similar to Brucks' (1985) and Srinivasan's (1987) subjective knowledge measures. Specific questions used are listed in Table 1.

The amount of investments is a continuous variable indicating the total amount of a respondent's financial assets in dollars, including savings, stocks, mutual funds, bonds, trusts, and annuities.

Risk tolerance represents the risk preference of an individual. A five-item scale, similar to Moorthy, Ratchford and Talukdar's (1997) measure, is adopted in this study. Specific questions used are listed in Table 1.

Age is included as a continuous variable. Education level is a categorical variable, including less than high school, high school diploma, some college or technical school, and

college degree or higher. Income is recorded as the amount of total household income before tax. To avoid potential multicollinearity with the amount of investments and to examine the potential non-linearity of income, respondents' incomes are further divided into four levels: less than \$35,000, \$35,000 to \$59,999, \$60,000 to \$99,999, and \$100,000 or more.

3.3. *Analyses*

First, we conduct a factor analysis to identify two constructs, subjective knowledge and risk tolerance. Orthogonal factors are obtained using the principal component method with varimax rotation, and resulting factor scores are used as independent variables in hypothesis testing.

Second, we examine the effects of potential determinants of the extent of information search. The dependent variable, the number of information sources used, is an ordinal variable ranging from 1 to 19. Thus, we employ an ordered probit regression because it has the properties of a normal distribution and avoids the issue of independent irrelevant alternatives. We further check the robustness of the ordered probit regression by comparing its results with that of ordinary least squares (OLS) analysis, as an ordered probit regression is sensitive to misspecification of the model.

Third, we conduct a set of probit regression analyses to examine the likelihood that a consumer will use each type of information source, namely literature, media, the Internet, friends/family, or professional services. Correlation coefficients among the independent variables are examined to ensure a lack of multicollinearity in this step.

4. Results

The MacroMonitor data set includes 3,759 respondents, representing all consumers in the United States. Among respondents, 46.2% reported that they obtained investment information from at least four sources. Regarding the type of information sources, 60.4% of the respondents searched for information in literature, followed by 42.5% from the media, 39.8% from friends or family members, 28% on the Internet, and 25.3% from professional service providers.

4.1. *Factor analysis*

Table 1 presents the results of the factor analysis of the independent variables that are measured by multiple items. Using principle factor analysis, two factors emerge. Factor 1 represents risk tolerance, and Factor 2 reflects subjective knowledge. The Eigen values, which are 3.08 and 1.86, respectively, suggest a two-factor solution. The factors explain 30.8% and 18.6% of total variance, respectively, which is 49.4% of the total variance. Factor scores resulting from the factor analysis are used in further analyses.

Correlation analysis is employed to examine the interdependencies among the independent variables. Correlation among the continuous variables are fairly weak, given that the coefficients are all less than 0.20.

Table 2
Results of ordered probit regression analysis for the extent of information search

Independent variables	Estimated coefficient	Standard error	χ^2	p-value
Subjective knowledge	-0.1395	0.0198	49.47	<.0001
Amount of investment	-0.0002	0.0001	1.32	0.2513
Risk tolerance	-0.1702	0.0212	64.70	<.0001
Age	0.0034	0.0014	6.05	0.0139
Education				
Less than high school	-0.1052	0.1137	0.86	0.3551
High school	(reference group)			
Some college	-0.2058	0.0686	9.01	.0027
BS or more	-0.4005	0.0685	34.19	<.0001
Income				
Less than \$35,000	0.1146	0.0636	3.25	0.0715
\$35,000–\$59,999	(reference group)			
\$60,000–\$99,999	-0.1199	0.0589	4.15	0.0416
\$100,000 or more	-0.1765	0.0580	9.27	0.0023
Intercept 1	-1.0178	0.0986	106.62	<.0001
Intercept 2	0.5924	0.0260		
Intercept 3	1.0099	0.0304		
Intercept 4	1.3854	0.0331		
Intercept 5	1.7169	0.0352		
Intercept 6	1.9692	0.0371		
Intercept 7	2.2497	0.0394		
Intercept 8	2.4767	0.0419		
Intercept 9	2.6900	0.0448		
Intercept 10	2.9129	0.0488		
Intercept 11	3.0490	0.0519		
Intercept 12	3.2172	0.0566		
Intercept 13	3.3533	0.0613		
Intercept 14	3.4832	0.0668		
Intercept 15	3.6365	0.0749		
Intercept 16	3.7305	0.0809		
Intercept 17	3.8701	0.0918		
Intercept 18	4.0858	0.1146		
Pearson Chi-square	57596			0.899

4.2. Ordered probit regression analysis

The results of the ordered probit analysis are presented in Table 2. The model provides a good fit, as the Pearson χ^2 test for lack of fit is not statistically significant. As a robustness check, we conduct OLS analysis and its results are in Table 3. As shown in Tables 2 and 3, the results from both analyses are consistent, suggesting the stability of specified model.

Results indicated by the estimated model are as follows: subjective knowledge, risk tolerance, age, education and income have statistically significant effects on the extent of consumers' information search, while the amount of investments is not found to be a significant predictor. Consumers who engage in information search to a greater extent have a higher level of subjective knowledge, are more risk tolerant, and are younger. Compared to high school graduates, those with less than a high school education do not demonstrate any

Table 3
Results of regression using OLS

Independent variable	Coefficient	Standard error	<i>t</i> value	<i>p</i> -value
Subjective knowledge	0.4534	0.0598	7.58	<.0001
Amount of investment	0.0006	0.0005	1.21	0.2257
Risk tolerance	0.4569	0.0638	7.16	<.0001
Age	−0.0096	0.0042	−2.28	0.0227
Education				
Less than high school	0.5179	0.3377	1.53	0.1252
High school graduate	(reference group)			
Some college	0.4764	0.2053	2.32	0.0204
BS or more	1.0616	0.2054	5.17	<.0001
Income				
Less than \$35,000	−0.1712	0.1909	−0.90	0.3699
\$35,000–\$59,999	(reference group)			
\$60,000–\$99,999	0.3633	0.1783	2.04	0.0417
\$100,000 or more	0.5066	0.1761	2.88	0.0041
Intercept	4.1949	0.2892	14.51	<.0001
<i>F</i> value = 31.78				<.0001

significant difference in the extent of information search, while those with some college education and those with a college degree are more likely to search for information to a greater extent. Compared to consumers whose household income is between \$35,000 and \$59,999, those with a household income less than \$35,000 are very similar to the reference group in the extent of search, while consumers whose households earn more than \$60,000 are more likely to engage in a number of search activities. The findings that consumers who engage in more information search activities are more risk tolerant and have a higher level of household income are not consistent with the literature based on searching for information on tangible products. This suggests we should not assume that the findings from the literature necessarily apply to consumer information search for investment products.

4.3. Probit regression analyses

Five models are established to investigate consumers' use of different sources of information. We examined the use of each information source (literature, media, the Internet, friends/family, and professional financial services) using probit regression. The results of the analyses are reported in Table 4. All five models provide good fit, as the Pearson χ^2 test for lack of fit is not statistically significant.

The probability of searching for information in literature is significantly related to subjective knowledge, risk tolerance, education level and income level. Consumers with a higher level of subjective knowledge and more risk tolerance are more likely to seek information from literature. Compared to consumers who graduate from high school, those with at least a college degree are more likely to use literature. Compared to consumers with a household income ranging from \$35,000 to \$59,999, those whose households earn less than \$35,000 are less likely to search literature for information; those whose households earn

Table 4
Results of probit regression analysis of consumers' use of information sources

Independent Variables	Use of literature			Use of media			Use of the internet		
	Estimated coefficient	Standard error	χ^2	Estimated coefficient	Standard error	χ^2	Estimated coefficient	Standard error	χ^2
Intercept	0.3159	0.1289	6.01*	-0.3193	0.1185	7.26**	0.6619	0.1353	23.92***
Subjective knowledge	0.1302	0.0289	20.32***	0.1474	0.0247	35.48***	0.2457	0.0272	81.49***
Amount of investment	0.0009	0.0005	3.88*	0.0002	0.0002	0.86	0.0001	0.0002	0.60
Risk tolerance	0.1713	0.0306	31.43***	0.1404	0.0264	28.37***	0.2359	0.0288	66.89***
Age	0.0036	0.0020	3.26	0.0053	0.0017	9.56**	-0.0301	0.0021	209.83***
Education									
Less than high school	-0.1724	0.1395	1.53	0.1523	0.1380	1.22	0.0579	0.1823	0.01
High school	(reference group)								
Some college	0.1579	0.0877	3.24	0.0422	0.0837	0.25	0.2803	0.0999	7.87**
BS or more	0.3120	0.0895	12.15***	0.0928	0.0837	1.23	0.4216	0.0983	18.40***
Income									
Less than \$35,000	-0.1737	0.0814	4.55*	0.1577	0.0779	4.10*	-0.3222	0.0938	11.80***
\$35,000–\$59,999	(reference group)								
\$60,000–\$99,999	0.1270	0.0807	2.48	0.0986	0.0729	1.83	0.1986	0.0799	6.18*
\$100,000 or more	0.2618	0.0839	9.74**	0.1270	0.0722	3.09	0.2864	0.0781	13.46***
Pearson χ^2 (p-value)	2942.39 (0.25)			2904.97 (0.43)			2889.42 (0.51)		
Use of friends/family									
Intercept	1.0380	0.1208	73.81***	-1.4241	0.1302	119.57***			
Subjective knowledge	-0.0997	0.0248	16.19***	-0.1205	0.0258	21.80***			
Amount of investment	-0.0001	0.0002	0.53	0.0002	0.0002	1.58			
Risk tolerance	-0.0507	0.0263	3.72	0.0947	0.0276	11.81***			
Age	-0.0206	0.0018	134.97***	0.0155	0.0018	71.60***			
Education									
Less than high school	-0.0425	0.1400	0.09	-0.2648	0.1638	2.61			
High school	(reference group)								
Some college	0.0192	0.0851	0.05	0.1626	0.0927	3.08			
BS or more	0.1013	0.0852	1.41	0.2568	0.0917	7.84**			
Income									
Less than \$35,000	0.0279	0.0793	0.12	-0.2974	0.0863	11.86***			
\$35,000–\$59,999	(reference group)								
\$60,000–\$99,999	-0.0248	0.0739	0.11	0.0541	0.0759	0.51			
\$100,000 or more	-0.0260	0.0730	0.13	0.0398	0.0746	0.28			
Pearson χ^2 (p-value)	2906.13 (0.42)			2916.53 (0.37)					

* $p < .05$; ** $p < .01$; *** $p < .001$

more than \$100,000 are more likely to search in literature. The amount of investments also has a positive influence on the probability of using literature as an information source.

The probability of consumers' use of the media as an information source is significantly associated with subjective knowledge, risk tolerance, age, and income level. Respondents who are more likely to use the media are those with a higher level of subjective knowledge and more risk tolerance and those who are older. Consumers with a household income less than \$35,000 are less likely to get information from the media than those with a higher household income.

The probability of using the Internet is significantly related to subjective knowledge, risk tolerance, age, education level, and income level. Respondents are more likely to search for information on the Internet if they have a higher level of subjective knowledge, are more risk tolerant, and are younger. Respondents with some college education or higher are more likely to search on the Internet than those with a high school diploma or less. Compared to respondents whose households earn between \$35,000 and \$59,999, those who earn less than \$35,000 annually are less likely to search on the Internet; those with a household income above \$60,000 are more likely to obtain information from the Internet.

The probability of obtaining information from friends or family members is significantly associated only with subjective knowledge and age. Respondents who are younger and consider themselves less knowledgeable are more likely than their counterparts to consult their friends or family.

The probability of consumers' use of professional services as a source of information is significantly related to subjective knowledge, risk tolerance, age, education level, and income level. The probability of seeking information from professional service providers increases for older respondents who have a lower level of subjective knowledge and who are more risk tolerant. The likelihood of consulting paid professionals is not significantly different among respondents who have an education level less than high school, high school graduates or those with some college education, but it is greater for college graduates or higher. The results show that low-income respondents whose households earn less than \$35,000 annually are less likely to turn to professional service providers for information than those whose households earn between \$35,000 and \$59,999. The likelihood is not significantly different among respondents with a household income of \$35,000 and higher.

5. Implications

This study provides insights for marketers of investment products and financial service providers. First, it is important to differentiate active searchers from passive searchers and to develop different strategies targeting different types of searchers. Further, the findings that different types of searchers use different types of information sources suggest some important considerations. For example, marketers of high-risk/high-return investment products should focus on consumers who are more risk tolerant and provide information related to these investment products through various information sources, since risk-taking consumers are likely to search using all information sources except friends/family. For investment

products designed for older consumers, the most effective way to market is through media or professional financial service providers; Internet advertising will be a wasted effort.

Different information providers shall also find useful hints for understanding their clients from the analysis of information sources in this study. Marketers of financial literature, such as books and financial magazines, should target consumers of all ages, focusing on those who are more risk tolerant, have a higher household income, and possess a large amount of investments. These marketers should be aware that most of their audience has at least a bachelor's degree, so the reading level of the information conveyed in the literature could be set accordingly. Similarly, distributors of financial media programs should be prepared to make their products accessible to consumers across all income ranges and education levels who consider themselves knowledgeable risk-takers; these programs should be especially accessible to older consumers. The focus of the Internet information providers, such as online service providers, should be on consumers who have a high level of subjective knowledge and are more risk tolerant, those who are young and well educated, and those whose household income is above \$35,000. Professional financial service providers should particularly target older, well-educated consumers who have low levels of subjective knowledge and are risk takers.

The results of this study are also meaningful for consumer educators. One important implication is that it is vital to teach consumers to correctly assess their level of investment knowledge, because it affects the extent of their information search. In particular, those who underestimate their own knowledge tend to engage in less information search and may make risky investment decisions without sufficient information. Consumer educators should encourage them to search for more information to make informed investment decisions. Consumer educators should also teach them various information search skills, such as where to find the information and how to assess the value of different information sources.

6. Conclusions

This study empirically investigates factors that influence the extent of consumers' information search and their use of different information sources when making investment decisions. Along with the literature on the nature of investment decisions and consumer information search, the results of this study contribute to our understanding of two fundamental issues of information search—how extensively consumers search for information about investment products and what sources they use.

Many households actively search for information when making their investment decisions. Active information searchers tend to be those who believe they are knowledgeable about investments, those who are more risk tolerant and expect greater returns from their investments, those who have a higher household income, and those who are better educated.

Consumers obtain information from a variety of sources, including literature, media, the Internet, friends/family and professional financial service providers. These sources differ in terms of their values and costs. Whether or not consumers use a particular information source is affected by their subjective knowledge, risk tolerance, age, educational level, and income level as discussed in the results.

Results of this study provide insights for marketers of investment products and financial services on targeting consumers; for information providers on understanding their audience; for consumer educators on helping consumers making informed investment decisions. The findings of this study also suggest that what we have learned about information search for tangible goods is not directly applicable to the understanding of consumer information search for intangible goods. The topic of consumers' information search behavior for intangible goods, such as investment products, needs more research attention.

As a preliminary effort, this study examines consumers' likelihood of choosing a certain type of information source versus not choosing that source. Considering the interaction effects among information sources (Lee and Hogarth, 2000), further studies should examine the effect of using a particular information source on the usage of other information sources. Comparing the relative importance of various information sources would further contribute to our understanding of information search behavior.

Notes

1. Hill (1999) argues that the distinction between goods and services is erroneous and confusing and should be replaced by a new taxonomy consisting of tangible goods, intangible goods, and services.
2. Information sources listed in the questionnaire include: (1) books, (2) consumer magazines, (3) other magazines, (4) newspaper articles, (5) financial newsletters, (6) financial institution brochures/written materials, (7) radio programs, (8) broadcast TV programs, (9) education TV programs, (10) cable TV program, (11) radio advertisements, (12) TV advertisements, (13) daily newspaper or magazine advertisements, (14) financial newspaper or magazine advertisements, (15) friends/family, (16) persons at workplace, (17) financial institution personnel, (18) seminars, and (19) Internet/online services.

Acknowledgments

The authors would like to express sincere gratitude to Larry Cohen at Consumer Finance Decision for sharing the MacroMonitor data set. This paper is based on the first author's master's thesis, which was recognized with the 2003 American Council on Consumer Interest's best thesis award. The authors thank Q.C. Lin's thesis committee members, Dr. Brenda Cude and Dr. Joan Koonce, for their helpful comments on an earlier version of this paper.

This paper was presented at the 2003 meeting of American Council on Consumer Interest.

References

- Andreasen, A. R., & Ratchford, B. T. (1976). Factors affecting consumers' use of information sources. *Journal of Business Research*, 4, 197–212.

- Barry, M. J., & Bearden, W. O. (1978). Profiling the shopping behavior of the elderly consumers. *The Gerontologist*, 18, 454–461.
- Beatty, S. E., & Smith, S. M. (1987). External search effort: An investigation across several product categories. *Journal of Consumer Research*, 14, 83–95.
- Bennett, P. D., & Harrell, G. D. (1975). The role of confidence in understanding and predicting buyers' attitudes and purchase intentions. *Journal of Consumer Research*, 2, 110–117.
- Bettman, J. R. (1979). *An Information Processing Theory of Consumer Choice*. Reading, MA: Addison-Wesley Publishing Company.
- Brucks, M. (1985). The effect of product class knowledge on information search behavior. *Journal of Consumer Research*, 12, 1–16.
- Bucy, E. P. (2000). Social access to the Internet. *Harvard International Journal of Press/Politics*, 5, 50–61.
- Capon, N., & Burke, M. (1980). Individual, product class, and task-related factors in consumer information processing. *Journal of Consumer Research*, 7, 314–326.
- Carlson, J. A., & Gieseke, R. J. (1983). Price search in a product market. *Journal of Consumer Research*, 9, 357–365.
- Claxton, J. D., Fry, J. N., & Portis, B. (1974). A taxonomy of prepurchase information gathering patterns. *Journal of Consumer Research*, 1, 35–42.
- Cole, C. A., & Balasubramanian, S. K. (1993). Age differences in consumers' search for information: Public policy implications. *Journal of Consumer Research*, 20, 157–169.
- Cunningham, S. M. (1967). Perceived risk as a factor in informal consumer communications. In D. F. Cox (ed.), *Risk Taking and Information Handling in Consumer Behavior* (pp. 265–288). Boston: Harvard University.
- Dowling, G. R., & Staelin, R. (1994). A model of perceived risk and intended risk-handling activity. *Journal of Consumer Research*, 21, 119–134.
- Duncan, C. P., & Olshavsky, R. W. (1982). External search: The role of consumer beliefs. *Journal of Marketing Research*, 19, 32–43.
- Grossman, S. J., & Stiglitz, J. E. (1980). On the impossibility of informationally efficient markets. *The American Economic Review*, 70, 393–408.
- Hanna, S., & Chen, P. (1997). Subjective and objective risk tolerance: Implications for optimal portfolios. *Financial Counseling and Planning*, 8, 17–26.
- Hempel, D. J. (1969). Search behavior and information utilization in the home buying process. In P. R. McDonald (ed.), *Marketing Involvement in Society and the Economy* (pp. 241–249). Chicago: American Marketing Association.
- Hill, P. (1999). Tangibles, intangibles and services: A new taxonomy for the classification of output. *The Canadian Journal of Economics*, 32, 426–446.
- Lease, R. C., Lewellen, W. G., & Schlarbaum, G. G. (1976). Market segmentation: Evidence on the individual investor. *Financial Analysts Journal*, 32, 53–60.
- Lee, J., & Hogarth, J. M. (2000). Consumer information search for home mortgages: Who, what, how much, and what else? *Financial Services Review*, 9, 277–293.
- Lehmann, D. R., & Moore, W. L. (1980). Validity of information display boards: An assessment using longitudinal data. *Journal of Marketing Research*, 17, 450–459.
- Lumpkin, J. R., & Festervand, T. A. (1987). Purchasing information sources of the elderly. *Journal of Advertising Research*, 27, 31–43.
- Moore, W. L., & Lehmann, D. R. (1980). Individual differences in search behavior for a nondurable. *Journal of Consumer Research*, 7, 296–307.
- Moorthy, S., Ratchford, B. T., & Talukdar, D. (1997). Consumer information search revisited: Theory and empirical analysis. *Journal of Consumer Research*, 23, 263–277.
- Morgan, J. N. (1988). Consumer choice is more than search. In E. S. Maynes (ed.), *The Frontier of Research in the Consumer Interest* (pp. 277–306). Columbia, MO: American Council on Consumer Interests.
- Newman, J. W., & Staelin, R. (1972). Prepurchase information seeking for new cars and major household appliances. *Journal of Marketing Research*, 9, 249–257.

- Phillips, L. W., & Sternthal, B. (1977). Age differences in information processing: A perspective on the aged consumers. *Journal of Marketing Research*, 14, 444–457.
- Punj, G. N., & Staelin, R. (1983). A model of consumer information search behavior for new automobiles. *Journal of Consumer Research*, 9, 366–380.
- Ratchford, B. T. (1988). The economics of information: The views of a marketing economist. In E. S. Maynes (ed.), *The Frontier of Research in the Consumer Interest* (pp. 265–269). Columbia, MO: American Council on Consumer Interests.
- Schaninger, C. M., & Sciglimpaglia, D. (1981). The influence of cognitive personality traits and demographics on consumer information acquisition. *Journal of Consumer Research*, 8, 208–216.
- Schmidt, J. B., & Spreng, R. A. (1996). A proposed model of external consumer information search. *Journal of the Academy of Marketing Science*, 24, 246–256.
- Srinivasan, N. (1987). *A Casual Model of External Search for Durables: A Particular Investigation in the Case of New Automobiles*. Unpublished doctoral dissertation, State University of New York.
- Srinivasan, N., & Ratchford, B. T. (1991). An empirical test of a model of external search for automobiles. *Journal of Consumer Research*, 18, 233–242.
- Stigler, G. J. (1961). The economics of information. *Journal of Political Economy*, 69, 213–255.
- Strassl, W. (1986). Keynes on expectations and uncertainty: Rational expectations equilibria with asymmetric information. *Bulletin of Economic Research*, 38, 137–159.
- United States Census Bureau. (1997). *1997 Economic Census*. [On-line] Available: <http://www.census.gov/epcd/www/97EC52.htm>.