SECURITY SELECTION FACTORS: NOVICE VERSUS EXPERIENCED INVESTORS

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ABSTRACT

In this study, we examine the differences in the factors perceived to be significant in the security selection process between novice and experienced investors. We apply the direct inquiry approach to two distinct groups: One group is composed of students enrolled in traditional face-to-face introductory investments classes, while the other group consists of students enrolled in the online sections of the same course. The online students tend to be generally older part-time students with greater investment experience. Based on their prior investment experience, we further break both face-to-face and online samples into two cleaner sub-samples of novice and experienced investors. We find that the novice face-to-face students tend to select variables with non-financial but firm-specific characteristics, while the novice online students select technical analysis type variables as most relevant. For the experienced students, the face-to-face classes are more similar to the online classes in their pre-course selection of variables. Both face-to-face and online experienced students identify technical analysis as well as fundamental analysis characteristics as important. The post-course survey shows that the face-to-face and online students overlap more in their highest-ranking variables compared to the pre-course survey, irrespective of their prior investment experience.

JEL: G02, G11

KEYWORDS: Investment Factors, Security Selection, Individual Investors, Experienced Investors, Novice Investors

INTRODUCTION

The investment decision-making process of investors has long been a source of interest to academic researchers. A puzzling question has been "What are the factors or variables that investors consider or perceive to be relevant in the selection of securities?" As the number of studies of investor behavior has grown, it is evident that there are various types of investors and there may be segmentation in their behavior based on their type and sub-type. For example, we have institutional investors and individual investors. This study focuses on individual investors, some of whom are experienced and others novices, along the lines of earlier studies such as that of Nagy and Obenberger (1994) and Merikas, Merikas, Vozikis, and Prasad (2004) on experienced investors, and Prasad, Freund, and Andrews (2010) on novice investors. This study expands on these studies by using a common investor cohort: students enrolled in introductory investments classes. The advantage of this common cohort is that it allows us to examine the perceptions of both experienced investors and novice investors using a more comparable common base. Further, it also allows us to examine the changes in their perceptions as formal education indirectly adds to their experience as discussed below.

One objective of an introductory investments course is to introduce students to the variables or factors that investors consider in security selection. This decision process requires consideration of both firm-specific and market-wide variables. Investors assign some level of importance to these factors and use them to make an investment choice. In a typical investment course, a considerable amount of time is devoted to stock selection techniques, which requires an introduction to fundamental and technical

analysis, the efficient market hypothesis, behavioral finance, portfolio theory, and asset valuation. These topics also appear in the financial media, so students may already have a preconceived notion of the relevant factors for stock selection. During the course, they learn some of the theories and empirical evidence that supports or dispels the relative merits of these techniques.

Asset valuation follows from modern finance and economic theory: Individual investors are rational and maximize their expected utility. Another justification for valuation is based on the idea that arbitrage conditions should not prevail. For the most part, these theories assume a fair degree of market efficiency; however, both fundamental and technical analysis requires at least a temporary suspension of market efficiency. The popularity of behavioral finance is due to a large number of anomalies unexplained by classic finance theory in a continuous efficient market. Experimental data also occasionally contradicted rational behavior, particularly under uncertainty. Fundamental and technical analyses utilize a variety of potential characteristics of stocks in the stock election process. This is true for the experienced practitioner as well as the novice investor relying on stock selection tips from the popular financial media.

The studies by Nagy and Obenberger (1994), Merikas et al. (2004), and Prasad et al. (2010), following earlier studies, use a *direct inquiry* approach for ascertaining the variables considered important by investors through a survey instrument. In this paper also, we use direct inquiry to study investment students in seven sections of an introductory investment class during the 2007-08 academic year. Four of the sections were face-to-face while three sections were online. Although the face-to-face instructor was different from the online instructor, the textbook, topics, exams, and class activities were very similar. For example, both sections supplemented the textbook with current news events and a portfolio simulation project.

Using a mix of face-to-face and online classes for this study should be acceptable based on the results of earlier studies, such as those by Warren and Holloman (2005) and Friday, Friday-Stroud, Green, and Hill (2006) on online versus in-class education. We observe the differences between the face-to-face and the online sections in the variables considered important for stock selection, both at the start and at the completion of the course. Although students taking an introductory class are generally inexperienced, we are able to separate the subsets of students that indicate that they have previously purchased securities and those who have not and therefore have personal investing experience.

The remainder of the paper is as follows: The first section reviews the relevant literature. The second section describes the data and methodology and the third section presents the results. The final section concludes the paper.

LITERATURE REVIEW

In one of the earliest theoretical expositions of investments, Fisher (1930) justifies present value as the basis for value and derives the determinants of interest rates. As described in Rubinstein (2006), Irving Fisher's theses lay the foundation for the twentieth century modern finance theory that follows. Graham and Dodd (1934) present a fundamental approach to investments that suggests a variety of factors that should be significant to the security selection problem. Rubinstein (2006) lists the shortcomings of the Graham-Dodd fundamental approach: the lack of incorporating risk, diversification, and informational efficiency in the determination of stock values. The mean-variance theory of Markowitz (1952), the capital asset pricing model (CAPM) of Sharpe (1964), and the efficient market hypothesis of Fama (1970) introduce these concepts only many years later.

In Keenan (1970), empirical research on the determinants of stock valuation based on the theoretical models developed over the prior twenty years are summarized with the conclusion that little useful information has been obtained from these tests beyond the fact that there is a positive relationship

between share prices and dividends, earnings, and growth rates. Either from estimation problems or lack of adequate data, estimated model parameters are unstable, resulting in an inability to verify asset-pricing models. Elton (1970) also states similar criticism. Since that period, less restrictive models, such as the arbitrage pricing theory of Ross (1976), or extensions to the CAPM such as the three-factor CAPM of Fama and French (1993) have been developed, along with more sophisticated estimation methods, but there is still no general agreement on the best asset pricing model.

Kahneman and Tversky (1979) introduce the psychological biases and cognitive shortcomings of individuals, and introduce behavioral economics as an alternative to neoclassical economic theory. Behavioral finance soon follows as an alternative to traditional finance theory in a pattern similar to the one in economics. However, behavioral or psychological considerations are not new for stock selection techniques. John Maynard Keynes was a proponent of utilizing crowd psychology as explained by his beauty pageant analogy (Keynes, 1936). Technical analysis, or trading rules based on historic price and volume patterns, also uses behavioral finance as a justification.

One suggestion in Keenan (1970) is to consider the formation of investor expectations through survey sampling of market participants. Baker and Haslem (1974) use the direct inquiry of brokerage customers to identify key decision variables to the investment choice problem. They administer a survey that contains 34 decision variables as well as an investor profile containing socioeconomic and behavioral attributes of the investor. They use factor analysis to identify the most meaningful factors, in which each factor consists of group of decision variables that are closely intercorrelated. They conclude that the two most important factors are dividends and future expectations for the stock. A weaker third factor is the financial stability of the firm.

Baker and Haslem (1974) also obtain socioeconomic and behavioral characteristics of investors, and find that there is a market segmentation of investor types with one group seeking dividends and another that prefers higher future expectations for the stock. In Baker, Hargrove, and Haslem (1977), the same survey reveals the ex-ante risk-return relationship of individual investors.

Lease, Lewellen, and Schlarbaum (1974) also use direct inquiry in their large sample survey of clientele of a national retail brokerage house. They find that 42% of the clientele use a fundamental approach, 4% use a technical approach, and 23% use both stock selection styles. In Cohn, Lease, Lewellen, and Schlarbaum (1975), the same sample survey of brokerage house clientele used in Lease et al. (1974) suggests that with respect to wealth, investors exhibit decreasing relative risk aversion. Continuing their research with the same data, Lease, Lewellen, and Schlarbaum (1977) show that demographic differences in age, sex, income, and education affects investors' preferences between dividends and capital gains.

Nagy and Obenberger (1994) use 34 variables in a survey of experienced investors in the USA, including some based on classical investment theory such as expected earnings, dividends, and minimizing risk, but also others that do not fit the traditional investment criteria, such as the environmental record of a firm, or perceived firm ethics. Although the classical variables ranked highest, no single wealth-maximizing criteria received the highest ranking by the majority of respondents. Using factor analysis, the authors find seven homogenous groups of variables, leading them to conclude that no single investment style is identifiable.

Clark-Murphy and Soutar (2004) use a sample of active but non-professional Australian investors to participate in a computerized questionnaire that uses an adaptive conjoint analysis to identify the most important share attributes. In Clark-Murphy and Soutar (2005), cluster analysis and discriminant analysis on the same sample shows that there exists four distinct investment styles that vary considerably in their attitudes and preferences toward share attributes. This supports the earlier findings of Nagy and Obenberger (1994), Lease et al. (1977), and Baker and Haslem (1974).

Merikas et al. (2004) conduct a survey of active investors holding shares of firms that are listed on the Athens Stock Exchange. Although they find that traditional classical investment theory variables ranked high in the survey, a number of subjective or personal attributes contributed to the second-highest factor loading, which the authors attribute to a bull-market euphoria that prevailed in Greece during the time of sample collection. Prasad et al. (2010) survey student investors and investigate how their perceptions change as they learn in a classroom setting. Using undergraduate and graduate classes as a proxy for unsophisticated and sophisticated investors, Victoravich (2010) finds that the unsophisticated investor's affective reaction to earnings announcement and associated stock valuation is greater.

Our study also uses students as surrogates for novice and experienced investors, but differentiates their experience by their degree of participation in the financial markets. We use 31 stock attributes, and compare and contrast the rankings of these attributes by the two groups as well as how perceptions change as students become more sophisticated through the educational process.

DATA AND METHODOLOGY

The focus of our study is the comparison of novice or inexperienced investors with experienced investors with respect to their choice of variables they perceive to be important in security selection. Since we administer the initial pre-course survey in the first meeting of an introductory investment class, we might expect the students to be relatively inexperienced, although some of them could be trading securities and some could be consumers of financial media consciously or unconsciously.

To obtain the data for our study, we survey 69 face-to-face students and 64 online students enrolled in an undergraduate investments course at a medium-size public university in the 2007-08 academic year. Table 1 presents the demographics of the two distinct groups of students. The first two columns show the demographic survey questions. The third and fourth columns show the responses for the face-to-face and on-line classes respectively. Item one indicates that 96% of the campus students define their academic standing as full-time, whereas 61% of the distance learners identify themselves as such. Item three indicates that 96% of the students taking the course on campus are under the age of 26, whereas 58% of the distance learners are in that same age group.

We classify students that indicate in item seven that they have not owned stocks, bonds, mutual funds, or CDs prior to this investment class as novice, and students that have purchased such securities as experienced. Item seven reveals that of the total face-to-face class population, 48% have had some prior investing experience as opposed to 67% of the online students. Item eight shows that 39% of the experienced face-to-face students indicate that their primary investment vehicle is stocks. For the experienced online students, 58% report stocks as their main investment. As shown in item nine, 79% of the campus students and 94% of the online learners are working. Item ten shows that for the employed face-to-face students, 34% invest in a retirement program, as opposed to 49% for the online students.

Item eleven indicates that only 35% of the face-to-face students watch CNBC or some other financial news shows as opposed to 59% of the distance learners. As shown in item twelve, the both student groups report reading financial publications, such as the Wall Street Journal (WSJ), at a similar percentage, but the face-to-face class had a WSJ subscription requirement as part of the course-material that might have biased this number upward. In summary, it appears that the online group is somewhat older and more part-time, which is not surprising for this delivery system. They also have more investing experience, have greater participation in retirement programs, and consume financial news at a greater rate than the face-to-face group.

The demographic data is broken down further in columns five through eight by novice versus experienced investors while continuing the face-to-face vs. online comparison. The breakdown results from item seven

Table 1: Demographics of Face-to-Face vs. Online Students

Item No.	Survey Question	Full Sample		Novice		Experienced	
		Face-to-Face n=69	Online n=64	Face-to-Face n=36	Online n=21	Face-to-Face n=33	Online n=43
1.	Enrollment: Full Time	96%	61%	100%	86%	91%	49%
2.	Gender: Male	67%	58%	67%	52%	67%	60%
3.	Age Under 26	96%	58%	97%	90%	94%	42%
	26 – 30	4%	16%	3%	5%	6%	21%
	31 – 35	0%	11%	0%	5%	0%	16%
	35 – 40	0%	9%	0%	0%	0%	12%
	Over 40	0%	6%	0%	0%	0%	9%
4.	First Time for Course	100%	94%	100%	90%	100%	95%
5.	Major: Finance	65%	28%	67%	33%	64%	26%
	Accounting	9%	14%	6%	10%	12%	16%
	Management	16%	25%	11%	24%	21%	26%
	Marketing	0%	2%	0%	5%	0%	0%
	MIS	4%	16%	6%	10%	3%	19%
	Business Minor	6%	11%	11%	14%	0%	9%
	Other	0%	5%	0%	5%	0%	5%
6.	Comfort with Computers	57%	68%	53%	38%	61%	83%
7.	Prior Purchase of Securities	48%	67%	0%	0%	100%	100%
8.	Securities						
	Purchased: Stocks	39%	58%	N/A	N/A	39%	58%
	Bonds	9%	7%			9%	7%
	Mutual Funds	18%	16 %			18%	16%
	CDs	33%	19%			33%	19%
9.	Currently Employed	79%	94%	75%	95%	84%	93%
10.	In Retirement Plan	34%	49%	20%	20%	50%	63%
11.	Watch Financial News	35%	59%	33%	57%	38%	60%
12.	Read Financial Publications	46%	44%	33%	33%	59%	49%

This Table shows the demographics of the face-to face and online students for the full sample as well as for subsets of novice and experienced students. The subsamples of novice and experienced are determined by the survey question 7: Did you ever purchase securities like stocks, bonds, mutual funds, or cd's, before taking this class?

in the survey, which asks if they have ever purchased securities like stocks, bonds, mutual funds, or CD's before taking this class. Out of the 69 students that are face-to-face, 36 (52%) are classified as novice while 33 (48%) are classified as experienced. For the 64 online students, 21 (33%) are classified as novice, while 43 (67%) are classified as experienced. From Table 1 we can ascertain that the subset of experienced online students tend to be oldest, most part-time, and have the highest comfort level with computers in the total sample. They are most likely to have a retirement plan, although their employed is at a slightly lower level than the novice online students that have no prior personal investment experience. It is possible that the investment experience comes from having a retirement plan in the first place.

Individuals are unidentified by name in the survey in order to maintain confidentiality and provide free expression of opinions. After the demographic section, the survey asks the participants to assign a level of importance to the 31 variables that they would consider as input to their selection process. Twenty of the variables are similar to the variables used by the Nagy and Obenberger (1994), Merikas et al. (2004), and Prasad et al. (2010) studies. Some of the additional variables that we use are individual specific while others reflect the current times, such as the variables related to CNBC, potential terrorism, and movements in international indices. Students are asked to assign a score based upon a six point scale ranging from "would not consider important at all" (score = 1) to "extremely important" (score = 6).

RESULTS

Table 2 presents the mean response scores to the 31 variables (items) both pre and post-course and broken down by both experience and the course delivery method. Column three and four show the scores for the pre-course survey for the novice students. The differences between the face-to-face and the online classes are statistically different for eight items. For the post-course survey, reported in columns five and six, there are ten items where there is a statistically different between face-to-face and online classes. Only four of the items that have a statistical difference between course-delivery methods are also significant in the post-course survey. The rest of Table 2 shows the same information for the experienced subset of students.

Table 3 shows the top ten pre-course variables for the novice students sorted by their mean score with the left-side panel for the face-to-face classes, and the right-side panel for the online students. For each type of class, column three of the panel shows the rank of the variable, along with the rank of the identical variable for the other type of class also shown in column four of the panel. Following the pattern established in Table 2, we continue to present data only for subsets of the whole sample, broken down by the level of experience.

Non-financial characteristics of the firm such as "the reputation of the firm", "knowledge of the firm's products and services", and "firm status in industry" dominate the top selections of the novice face-to-face students. One exception is "expected dividends", although at this point novice students may not realize that capital gains are adequate substitutes for dividends. The top selections for online classes, in the right-side panel, include technical analysis type variables such as the "past performance of the firm's stock price" and "recent price movements in firm's stock". These perceptions differ from similar studies of experienced active investors such as surveyed by Nagy and Obenberger (1994), where top choices leans toward fundamental analysis variables and concepts consistent with neoclassic finance, such as the need to diversify.

If we consider the top ten variables selected by the face-to-face classes, the online classes also select seven of these variables. Although this may indicate that the two types of classes are more similar than different, when we look at a smaller number of top ranks, we observe some differences. For example, from the top five variables selected by the face-to-face classes, only one variable is in the top five for the online classes, "current economic indicators". Further, the top three variables for the face-to-face class, "reputation of the firm" and "knowledge of a firm's products and services", and "expected dividends" appear with ranks ten, nine, and fifteen respectively for the online classes. On the other hand, items that the online class ranks relatively high, such as "recent price movements of a firm's stock", "prior experience in investing", and "affordable share price", do not even make the top-ten ranks of the face-to-face class.

In Table 4, we focus on the pre-course survey results for experienced students. One interesting finding from the subset of experienced face-to-face classes is the similarity of the top five variables with the

Table 2: Mean Response Scores to the Pre and Post-Course Survey Variables

		Novice				Experienced			
		Pre-Course Survey		Post-Course Survey		Pre-Course Survey		Post-Course Survey	
Item No.	Variable	Face-to-Face	Online	Face-to-Face	Online	Face-to-Face	Online	Face-to-Face	Online
1	Your political party affiliation	3.06	2.24**	3.08	2.38**	2.73	2.88	2.88	3.00
2	Statements from politicians	3.47	4.05	3.47	4.24***	3.82	3.91	4.09	3.86
3	Friend or coworker recommendations	3.89	3.33*	3.94	3.05**	3.94	3.72	4.06	3.28***
4	Family member opinions	4.47	3.57**	4.56	3.10***	3.94	3.86	4.24	3.40***
5	Ease of obtaining borrowed funds	3.81	4.14	4.08	4.10	3.85	3.79	4.06	4.26
6	Environmental record of the company	3.67	4.19	3.86	4.00	4.03	3.86	3.73	4.12
7	Having a "Get rich quick" scheme	3.11	2.52	3.19	2.57	3.09	2.60	2.88	2.26*
8	Past performance of the stock price	4.58	5.10**	4.47	4.86	4.82	5.02	4.61	4.72
9	Opinions of the firm's stockholders	4.58	4.62	4.31	4.57	4.52	4.51	4.67	4.51
10	Brokerage house recommendation	3.86	4.43*	3.94	4.14	4.12	3.79	4.45	3.84***
11	Perceived ethics of firm	4.25	4.38	4.28	4.48	4.55	4.56	4.45	4.65
12	Coverage in the press	4.00	4.14	3.72	4.62***	4.06	4.23	4.15	4.47
13	Affordable share price	4.33	4.90*	4.25	4.48	4.52	4.42	4.39	4.37
14	Knowledge of a firm's products	4.81	4.76	4.50	4.67	5.03	5.16	4.73	5.19**
15	Fluctuations of the markets indices	4.39	4.38	4.33	4.81*	4.82	4.37*	4.55	4.53
16	Attractiveness of non-stock investments	4.08	3.86	3.86	3.71	4.00	3.93	4.18	3.88
17	Reputation of the firm	4.94	4.76	4.47	4.90	4.73	4.84	4.94	4.95
18	Protection or not of the investor	4.54	4.81	4.28	4.71	4.58	4.30	4.48	4.58
19	Recent price movements in the stock	4.33	5.00**	4.19	4.86**	4.91	4.53*	4.48	4.65
20	Current economic indicators	4.61	5.43***	4.50	5.19	5.03	4.79	4.82	5.05
21	Firm status in industry	4.64	4.90	4.44	4.86	4.58	4.81	4.39	5.09***
22	Expected dividends	4.75	4.48	4.44	4.33	4.70	4.35	4.03	4.47
23	Your gut feeling on economy	4.00	3.86	3.64	3.90	4.39	4.14	4.15	4.07
24	The need to diversify your portfolio	4.31	4.33	4.33	4.95**	4.33	4.81*	4.09	5.00***
25	Expected corporate earnings	4.50	4.67	4.25	4.67	4.48	4.58	4.36	4.65
26	Condition of financial statements	4.61	4.90	4.47	4.67	4.70	5.00	4.82	5.09
27	Geo-Political Stability i.e. War	4.47	4.62	4.25	4.67	4.21	4.33	4.06	4.53**
28	Potential terrorist acts	4.31	4.38	4.25	4.38	4.00	4.16	3.97	4.21
29	National political elections	4.33	4.52	4.06	4.33	4.09	4.23	4.06	4.33
30	A good report on CNBC	3.92	4.19	3.31	3.95*	4.15	3.67*	3.94	3.91
31	Prior experience in investing	4.50	5.00	4.22	4.86*	4.55	4.51	4.70	4.51

*This table reports the mean response scores for both the pre and post-course survey variables for both the face-to-face and the online classes. Each variable can have a six point response ranging from 1 = "would not consider important at all" to 6 = "extremely important". The reported significance levels are for the differences between the mean response scores of the face-to-face and the online classes. ***, **, and * indicate significance at the 1, 5, and 10 percent levels respectively.*

novice online classes in Table 3, with several technical analysis variables selected by both these groups. Another interesting finding is that for the experienced online students in the right-side panel, the top five variables now include "condition of financial statements", and "the need to diversify portfolios" (tied for 5th rank) as well as. These are variables selected by the experienced traders surveyed by Nagy and Obenberger (1994). Although we again have seven variables overlap in the top-ten ranks of the face-to-face and the online students, but when we consider the top five ranks for the face-to-face class, the overlap with the online classes is only two items. Both types of classes have "knowledge of a firm's products and services" as the variable with the highest rank, the overlap with the online classes is only two items. Both types of classes have "knowledge of a firm's products and services" as the variable with the highest rank.

Tables 5 and 6 are similar tables for the post-course survey. We see more overlap in the ranks between the face-to-face and the online classes for both the novice and the experienced students. For the novice

Table 3: Top Ten Ranked Pre-Course Variables for the Novice Subset of Students

Sort by Mean Score for the Face-to-Face Class				Sort by Mean Score for the Online Classes			
Item No.	**Variable**	**Face-to-Face Rank**	**Online Rank for the Same Item**	**Item No.**	**Variable**	**Online Rank**	**Face-to-Face Rank for the Same Item**
17	Reputation of the firm	1	10	20	Current economic indicators	1	5
14	Knowledge of a firm's products	2	9	8	Past performance of the stock price	2	7
22	Expected dividends	3	15	19	Recent price movements in the stock	3	16
21	Firm status in industry	4	6	31	Prior experience in investing	4	11
20	Current economic indicators	5	1	13	Affordable share price	5	15
26	Condition of financial statements	6	7	21	Firm status in industry	6	4
8	Past performance of the stock price	7	2	26	Condition of financial statements	7	6
9	Opinions of the firm's stockholders	8	12	18	Protection or not of the investor	8	9
18	Protection or not of the investor	9	8	14	Knowledge of a firm's products	9	2
25	Expected corporate earnings	10	11	17	Reputation of the firm	10	1

This table reports the rank (by mean score) of the pre-course items for the novice students for both the face-to- face and the online classes. In the panel on the left, the sort is by the mean score of the face-to-face classes, while for the panel on the right the sort is by the mean score of the online class. For each type of class, of the 31 variables the table shows the ten highest ranked.

Table 4: Top Ten Ranked Pre-Course Variables for the Experienced Subset of Students

Sort by Mean Score for the Face-to-Face Class				Sort by Mean Score for the Online Classes			
Item No.	**Variable**	**Face-to-Face Rank**	**Online Rank for the Same Item**	**Item No.**	**Variable**	**Online Rank**	**Face-to-Face Rank for the Same Item**
14	Knowledge of a firm's products	1	1	14	Knowledge of a firm's products	1	1
20	Current economic indicators	2	7	8	Past performance of the stock price	2	4
19	Recent price movements in the stock	3	10	26	Condition of financial statements	3	8
8	Past performance of the stock price	4	2	17	Reputation of the firm	4	6
15	Fluctuations of market indices	5	14	21	Firm status in industry	5	10
17	Reputation of the firm	6	4	24	The need to diversify your portfolio	6	17
22	Expected dividends	7	15	20	Current economic indicators	7	2
26	Condition of financial statements	8	3	25	Expected corporate earnings	8	15
18	Protection or not of the investor	9	17	11	Perceived ethics of firm	9	11
21	Firm status in industry	10	5	19	Recent price movements in the stock	10	3

This table reports the rank (by mean score) of the pre-course items for the experienced students for both the face-to- face and the online classes. In the panel on the left, the sort is by the mean score of the face-to-face classes, while for the panel on the right the sort is by the mean score of the online class. For each type of class, of the 31 variables the table shows the ten highest ranked.

students, the top five variables overlapped with three for the online classes compared to only one in the pre-course survey. For the experienced students, the post-course survey also showed that the top five overlapped with three items, whereas in the pre-course survey it was an overlap of two. We observe that the experienced online students, the most experienced student investors as revealed by the demographics, have no technical analysis variables as a top choice post-course. For both groups there are less fundamental analysis variables at the top of the list compared to the active experienced investors in prior studies such as in Nagy and Obenberger (1994).

Table 5: Top Ten Ranked Post-Course Variables for the Novice Subset of Students

Sort by Mean Score for the Face-to-Face Class				Sort by Mean Score for the Online Classes			
Item No.	**Variable**	**Face-to-Face Rank**	**Online Rank for the Same Item**	**Item No.**	**Variable**	**Online Rank**	**Face-to-Face Rank for the Same Item**
4	Family member opinions	1	28	20	Current economic indicators	1	3
14	Knowledge of a firm's products	2	10	24	The need to diversify your portfolio	2	10
20	Current economic indicators	3	1	17	Reputation of the firm	3	5
8	Past performance of the stock price	4	4	8	Past performance of the stock price	4	4
17	Reputation of the firm	5	3	19	Recent price movements in the stock	5	19
26	Condition of financial statements	6	12	21	Firm status in industry	6	7
21	Firm status in industry	7	6	31	Prior experience in investing	7	18
22	Expected dividends	8	19	15	Fluctuations of market indices	8	9
15	Fluctuations of market indices	9	8	18	Protection or not of the investor	9	13
24	The need to diversify your portfolio	10	2	14	Knowledge of a firm's products	10	2

This table reports the rank (by mean score) of the post-course items for the novice students for both the face-to- face and the online classes. In the panel on the left, the sort is by the mean face-to-face classes, while for the panel on the right, the sort is by the mean score of the online class. For each type of class, of the 31 variables the table shows the ten highest ranked.

Table 6: Top Ten Ranked Post-Course Variables for the Experienced Subset of Students

Sort by Mean Score for the Face-to-Face Class				Sort by Mean Score for the Online Classes			
Item No.	**Variable**	**Face-to-Face Rank**	**Online Rank for the Same Item**	**Item No.**	**Variable**	**Online Rank**	**Face-to-Face Rank for the Same Item**
17	Reputation of the firm	1	6	14	Knowledge of a firm's products &	1	4
20	Current economic indicators	2	4	21	Firm status in industry	2	14
26	Condition of financial statements	3	3	26	Condition of financial statements	3	3
14	Knowledge of a firm's products &	4	1	20	Current economic indicators	4	2
31	Prior experience in investing	5	15	24	The need to diversify your portfolio	5	21
9	Opinions of the firm's stockholders	6	14	17	Reputation of the firm	6	1
8	Past performance of the stock price	7	7	8	Past performance of the stock price	7	7
15	Fluctuations of market indices	8	12	11	Perceived ethics of firm	8	12
18	Protection or not of the investor	9	11	19	Recent price movements in the stock	9	10
19	Recent price movements in the stock	10	9	25	Expected corporate earnings	10	15

This table reports the rank (by mean score) of the post-course items for the experienced students for both the face-to- face and the online classes. In the panel on the left, the sort is by the mean face-to-face classes, while for the panel on the right, the sort is by the mean score of the online class. For each type of class, of the 31 variables the table shows the ten highest ranked.

Anecdotal evidence suggests that after an introductory investments course certain variables should hold less perceived importance to investors when they consider the security selection process. For example, "having a get rich quick scheme" became less important to both the face-to-face and online students after taking the course. Interestingly some factors that one would think may decrease in perceived significance actually increased; "friend or coworker recommendations" and "family member opinions" increased in importance somewhat for the face-to-face cohort yet decreased in perceived significance for the online cohort of students. Perhaps this is because the online class was slightly more experienced prior to the start of the investment course.

CONCLUSION

The motivation for our study is to increase our understanding of unsophisticated investor behavior by identifying the key variables that fledgling investors perceive to be important for their security selection.

We apply the direct inquiry approach, and use a survey instrument to ask individuals to assign a score on a six-point scale to 31 variables with respect to their importance to the investment decision-making process. Our sample is comprised of students in an introductory investment class at a medium-sized state university subdivided into two distinct cohorts: One group consists of 69 students who took the course in a traditional face-to-face format while the second group consists of 64 students who took the equivalent course online.

The online group is older and a greater percentage of the students are employed and taking courses full-time. They also have more investing experience, participate in a retirement program, and watch CNBC or other financial news at a greater rate than the face-to-face group. We further break the sample into subgroups, and classify students that have purchased financial securities as "experienced". The experienced online students tend to be the oldest, with the greatest percentage of part-time enrollment. They also have the highest comfort level with computers and are most likely to participate in a retirement plan.

Compared to the results of earlier studies of experienced active investors, the perceptions of the important variables differ, at least with regard to the top choices. The experienced investors in Nagy and Obenberger (1994) lean more toward fundamental analysis variables and concepts consistent with neoclassic finance, such as the need to diversify. In contrast, this study finds that both student groups in our study value the firm's reputation, current economic indicators, and technical analysis variables as important to the security selection process. For the most part, this perception did not change even after the exposure to the introductory course.

Comparing the face-to-face classes with the online classes, we find that in the pre-course survey there is very little overlap in their highest rated variables, with the face-to-face classes favoring the non-financial characteristics of the firms and the online students favoring technical analysis type variables immediately after their top choice of "current economic indicators". When we consider the subset of experienced student investors, the overlap is much greater between the two groups. The experienced face-to-face students tend also to consider similar variables to the novice online students, while the experienced online students do include some of the fundamental analysis and neoclassic finance variables of the investors in Nagy and Obenberger (1994).

The post-course surveys show that the dispersion of top-rank variables has narrowed slightly between the face-to-face students and the online students. Although there are a few exceptions, it seems that experiencing one semester of an introductory investment class does influence the choices of investment variables and bring students of varying backgrounds slightly closer toward agreement.

One limitation of our present study is the relatively low number of observations in our sample. We are constrained, in part, by our desire to compare and contrast face-to-face and online classes during the same academic period. We are planning a future study with more than double the number of observations of the present study, which will focus on the homogenous group of face-to-face classes and the impact of the course on the factors perceived to be significant in the security selection process.

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