

Confidence, opinions of market efficiency, and investment behavior of finance professors

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Abstract

We identify finance professors' opinions on the efficiency of the stock markets in the United States and assess whether their views on efficiency influence their investing behavior. Employing a survey distributed to over 4,000 professors, we obtain four main results. First, most professors believe the market is weak to semi-strong efficient. Second, twice as many professors passively invest than actively invest. Third, our respondents' perceptions regarding market efficiency are almost entirely *unrelated* to their trading behavior. Fourth, the investment objectives of professors are, instead, largely driven by the same behavioral factor as for amateur investors—one's confidence in his own abilities to beat the market, *independent* of his opinion of market efficiency.

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1. Introduction

One of the most fundamental questions related to investing is whether one should actively or passively invest. Presumably, the first factor to consider in making this decision is the efficiency of the market in which one is considering investing. Actively investing in a

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perfectly efficient market will not yield consistent abnormal returns, so why bother? Many studies address market efficiency, with inconclusive results.

There is, however, very little empirical evidence corroborating or refuting the notion that an investor's decision to actively or passively invest is strongly influenced by his perception of market efficiency. We take a unique approach to provide evidence on this issue. We survey the experts in the field—finance professors—to assess (a) their views of the actual efficiency of stock markets in the United States and (b) whether their propensity to actively or passively invest is influenced by their perceptions of market efficiency.

We find that finance professors strongly agree that the market is not strong form efficient. To a slightly lesser degree they also concur that the market is weak form efficient. However, they show little agreement regarding the semi-strong form market efficiency. Despite their ostensible disagreement, their investing objectives suggest they generally believe that markets are semi-strong form efficient; twice as many of them passively invest as actively invest.

We also come to the surprising conclusion that a finance professor's opinion of market efficiency has little influence on his decision to actively or passively invest. Instead, they largely base their investing decisions on their confidence in their own abilities to beat the market, independent of their opinion about market efficiency. This contradicts the fundamental notion that the active versus passive decision is driven by an assessment of the market's efficiency. This finding adds to the practical importance of studies on market efficiency, highlights the importance of investor behavior, and motivates further work on confidence in investing.

The remainder of the study proceeds as follows. We describe the subjects, survey, and response rate in Section 2. We present finance professors' explicit opinions about market efficiency in Section 3. In Section 4 we analyze professors' opinions of market efficiency through an analysis of their investing objectives. We explore the question of whether a respondent's decision to actively or passively invest is related to his perceptions of market efficiency in Section 5. We conclude with Section 6.

2. Subjects, surveys, and response rates

Recently, surveys have gained greater acceptance in finance, exploring topics on executives' motives for taking the firm public, share-repurchase decisions, and the disclosure of earnings.¹ Closely related to our approach is a study by Welch (2000), who surveyed academics to assess their prediction for the equity premium over a set of future horizons. As a secondary matter, he also surveyed academics on a broad range of topics. Included was a question about the efficiency of stock markets, which led him to conclude, "financial economists feel that, by and large, financial markets are efficient."²

The subjects of our study are finance professors in the US. To identify the professors for the survey, we use the list of all regionally accredited US universities compiled by the University of Texas.³ For each four-year university or college, we hand collect the names

¹There are noted problems using survey data and methodology. See, for example, Welch (2000). However, this is the only way to obtain the desired data for our study.

²Other studies using survey methodology in finance include Pinegar and Wilbricht (1989), Trahan and Gitman (1995), Graham and Harvey (2001), Krigman et al. (2001), Jorgensen and Wingender (2004), Hartikainen and Torstila (2004), Brav et al. (2000), Graham et al. (2005), and Brau and Fawcett (2006).

³<http://www.utexas.edu/world/univ/>

and email addresses of all finance professors from their academic college and department websites. They are the target population for this survey for two main reasons. First, they are most familiar with the concept of market efficiency and tend to have informed and somewhat polarized opinions on the degree of market efficiency. Second, they are familiar with the evidence on market anomalies and the potential for taking advantage of these anomalies. This allows us to gather results from informed respondents on their views of market efficiency and how they invest relative to their opinion.

The survey contains questions in the following five categories: conditioning variables (mostly comprised of demographic variables), indicators of opinion on market efficiency, opinion on market efficiency, propensity to passively invest, and investment strategies. We primarily focus on the portions dedicated to the opinion of market efficiency and propensity to passively invest. A copy of the full survey is in the Appendix A.

We distributed the survey electronically to 4,525 professors.⁴ Sixty of the email addresses were invalid. 1,183 professors began the survey, which is a started response rate of 26.49%. 870 professors completed the survey (i.e., they answered the final question on the survey) representing a completion rate of 73.54% and a completed response rate of 19.48%. This response rate compares favorably with [Graham and Harvey \(2001\)](#), 9%; [Brav et al. \(2000\)](#), 16%; and [Brau and Fawcett \(2006\)](#), 18%. In order to enter the final data set, we require a respondent to meet five criteria: (1) s/he must answer yes to the consent question; (2) s/he must be a finance professor, thus eliminating professors in other disciplines;⁵ (3) s/he must hold a Ph.D. or DBA; (4) s/he must be of the rank of assistant professor, associate professor, full professor, endowed chair, or eminent scholar; and (5) s/he must answer at least one of the five questions on the last page of the survey.

[Table 1](#) presents the summary statistics on the survey responses. The final data set consists of 642 useable respondents. Of the 642, 197 are assistant professors, 197 are associate professors, 171 are full professors, 71 are endowed chairs, and 6 are eminent scholars. Almost 15% of the respondents are female. Slightly more than 83% are married. The median age of respondents is between 40 and 49. The median 9-month salary is \$110,000 to \$119,999. Respondents have an average of 13.37 articles published in peer-reviewed journals and an average of 1.84 articles published in the *Journal of Business*, *Journal of Finance*, *Journal of Financial Economics*, *Journal of Financial and Quantitative Analysis*, or *Review of Financial Studies*.

3. Opinions of market efficiency

Although [Welch \(2000\)](#) asks two questions to financial economists about their opinion on market efficiency, it is not his primary focus. Our survey expands his analysis in three primary ways. First, our sample size of 642 respondents represents a broad cross-section of demographic and individual characteristics such as rank, gender, age, and publication record. Second, we ask professors to identify their area of research focus, which allows us to analyze separately those professors who specialize in market efficiency. Third and most importantly, we ask five questions related to market efficiency. In order to gauge their

⁴Copies of the emails inviting participation in the survey and the dates sent are available upon request.

⁵Some of the websites from which email addresses were collected made it impossible to distinguish finance professors from professors of other fields, such as business law and economics. Because of this, the survey was sent to and completed by some professors of other disciplines.

Table 1
Summary statistics.

Descriptive stats	Raw number	Responses as a percentage of			
		Emails sent	Valid emails	Useable responses	Subgroup total
Emails Sent	4,525				
Valid Emails	4,465	98.7%			
Surveys Started	1,183	26.1%	26.5%		
Surveys Completed	870	19.2%	19.5%		
Total Useable Responses	642	14.2%	14.4%		
Rank (# of Responses)	642			100.0%	
Assistant	197			30.7%	30.7%
Associate	197			30.7%	30.7%
Full	171			26.6%	26.6%
Endowed Chair	71			11.1%	11.1%
Eminent Scholar	6			0.9%	0.9%
Gender	631			98.3%	
Female	92			14.3%	14.6%
Male	539			84.0%	85.4%
Marital Status	632			98.4%	
Single-Never Married	60			9.3%	9.5%
Single-Previously Married	43			6.7%	6.8%
Married	529			82.4%	83.7%
Median Age Range	40–49				
Median Salary Range	\$110–120 K				
Mean # of Total Publications	13.37				
Mean # of Top Publications	1.84				

This table presents summary statistics of the responses to the survey and the demographics of the respondents to the survey. The number of responses is presented in the first column. The second column contains the breakdown of useable responses by rank, gender, and marital status. The third through seventh columns present the responses in columns one or two as a percentage of emails sent, valid emails, useable responses (columns five and six), and subgroup total, respectively.

opinions of the efficiency of U.S. stock markets, we ask respondents to indicate how strongly they agree or disagree with the following statements. The scale is from 1 (strongly agree) to 7 (strongly disagree):

- (1) It is possible to predict future returns to U.S. stocks using only past returns.
- (2) It is possible to predict future returns to U.S. stocks using only past returns and publicly available information.
- (3) It is possible to predict future returns to U.S. stocks using only past returns, publicly available information, and private information.
- (4) Investment returns are solely a compensation for risk.
- (5) Investment strategies exist that consistently beat average market returns without taking above-average risk.

As a part of the survey, we ask respondents to indicate their areas of specialty. One of the options is “market efficiency and anomalies to market efficiency.” We expect those

finance professors who specialize in market efficiency to be the most informed on the subject. Thus, in much of what follows we report the responses of this group as well as those of the overall sample.

Table 2 reports the percentage of our subjects who responded 1 through 7 to the five statements for four different response groups: (1) the overall sample; (2) respondents who specialize in market efficiency; (3) respondents with incomes in the top 25% of our sample (greater than \$150,000 per year); and (4) respondents whose number of top publications rank in the top 30% of our sample (two or more top publications). Table 2 also categorizes the respondents as either generally agreeing (responding 1 or 2), being neutral (responding 3, 4, or 5), or generally disagreeing (responding 6 or 7) with each of the five statements. For each of the categories (1–7 and generally agreeing vs. generally disagreeing) and for each of the response groups we test whether the percentage of respondents in that particular response group and category is significantly different, at the 10% level, from its counterpart response group and category. For instance, we test whether the responses of market efficiency specialists differ significantly from the responses of those not specializing in market efficiency. Results that are significant at the 10% are marked with an asterisk.

Table 2 shows that the majority of the overall sample accepts U.S. stock markets as weak form efficient (59% generally disagree with the statement that returns can be predicted using past returns, while only 8% generally agree). However, the majority of the overall sample does not accept markets as strong form efficient (10% generally disagree, while 57% generally agree that returns can be predicted using past returns, publicly available information, and private information). For semi-strong form efficiency, the overall sample seems largely neutral, but markedly leaning toward the side of markets being semi-strong form efficient (33% generally disagree with the statement that returns can be predicted using only past returns and publicly available information, while 16% generally agree with the statement). The overall sample appears largely neutral regarding the other two questions as well.

The sub-set of finance professors specializing in market efficiency aligns somewhat with the overall sample, but these professors seem to perceive that U.S. stock markets are less efficient than the overall sample; 14% of market efficiency specialists compared to 8% of the overall sample generally agree that returns can be predicted using only past returns. 29% of market efficiency specialists compared to only 16% of the overall sample generally agree that returns can be predicted using past returns and publicly available information; and 67% of market efficiency specialists compared to 57% of the overall sample generally agree that returns can be predicted using past returns, publicly available information, and private information.⁶ Further, several of the responses of market efficiency specialists are significantly different than the responses of their counterparts who do not specialize in market efficiency. The same perception tendencies apply to the other two subsets. Both top earners and publishers perceive markets to be less efficient than the overall sample.

⁶We estimate ordered Probit regressions of weak and semi-strong efficiency opinions on past publication records and control variables. Those that publish in the top five journals and/or publish articles refuting market efficiency tend to believe the weak and semi-strong forms are false. Those that publish behavioral finance studies also have a low opinion of market efficiency. Thus, there is consistency between how authors publish and their views of market efficiency. These results are available on request.

Table 2

The overall sample's and market efficiency specialists' opinions on market efficiency.

Please indicate how strongly you agree or disagree with the following statements	Strongly agree	Neutral						Strongly disagree	Agree	Neutral	Disagree
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	6 (%)	7 (%)		Σ(1–2) %	Σ(3–5) %	Σ(6–7) %
It is possible to predict future returns to U.S. stocks using only past returns											
Overall Sample Percent	3.0	5.4	11.0	9.9	11.8	27.9	31.0		8	33	59
Market Efficiency Specialists	6.5*	7.4	18.5*	5.6*	13.0	28.7	20.4*		14*	37	49*
Earnings in Top 25%	7.5*	9.6*	11.6	13.7*	10.3	18.5*	28.8		19*	35	46*
# of Top Journals Publications in Top 30%	5.6*	9.3*	11.2	10.3	13.6	22.9*	27.1		16*	35	50*
It is possible to predict future returns to U.S. stocks using only past returns and publicly available information											
Overall Sample Percent	4.2	12.1	16.0	15.3	19.8	18.7	13.8		16	51	33
Market Efficiency Specialists	8.3*	21.1*	19.3	9.2*	18.3	15.6	8.3*		29*	47	24*
Earnings in Top 25%	9.5*	15.6	10.9*	17.7	17.0	13.6*	15.6		27*	45*	29
# of Top Journals Publications in Top 30%	7.9*	14.0	14.0	14.9	19.5	15.3	14.4		22*	48	30
It is possible to predict future returns to U.S. stocks using only past returns, publicly available information, and private information											
Overall Sample Percent	32.8	24.6	14.5	11.7	6.3	6.0	4.1		57	32	10
Market Efficiency Specialists	49.5*	17.4*	12.8	5.5*	5.5	5.5	3.7		67*	24*	9
Earnings in Top 25%	39.5*	19.0*	9.5*	16.3*	6.1	6.1	3.4		59	31	9
# of Top Journals Publications in Top 30%	36.7	25.1	11.6	12.6	5.6	5.1	3.3		62	30	8
Investment returns are solely a compensation for risk											
Overall Sample Percent	3.9	15.2	16.7	13.3	24.3	15.6	10.9		19	54	27
Market Efficiency Specialists	0.98	13.8	19.3	5.5*	25.7	19.3	15.6*		15	50	35*
Earnings in Top 25%	5.5	17.1	15.1	12.3	26.0	12.3	11.6		25	52	23
# of Top Journals Publications in Top 30%	7.1*	16.1	13.7	13.3	25.6	11.4*	12.8		25*	51	24
Investment strategies exist that consistently beat average market returns without taking above-average risk											
Overall Sample Percent	5.2	11.6	15.5	16.0	15.7	23.7	12.4		17	47	36
Market Efficiency Specialists	8.3	10.1	22.9*	11.0	17.4	20.2	10.1		18	51	30
Earnings in Top 25%	6.0	10.7	18.0	13.3	11.3*	24.0	16.7*		17	43	41
# of Top Journals Publications in Top 30%	4.7	9.3	15.3	15.3	17.2	24.2	14.0		14	48	38

This table reports the percentage of respondents that answered 1–7 for each of the five questions in the survey related to market efficiency. Participants were presented five statements regarding the efficiency of U.S. stock markets and asked to indicate how strongly they agreed or disagreed with the statements. The scale is from 1 (strongly agree) to 7 (strongly disagree). Results are presented for the overall sample and for three subsets: (1) the subset that specializes in market efficiency; (2) the subset with annual incomes in the top 25% (above \$150,000); and (3) the subset with the number of top publications in the top 30% (2 or more top journal publications). For each of the three subsets, we determined whether their responses were significantly different from their counterparts. Results significant at the 10% level are marked with an asterisk.

Response differences from counterparts among these subsets of our sample are generally significant for weak and semi-strong form efficiency.

Both the overall sample and the market efficiency specialists show a slight tendency to disagree that investment returns are solely a compensation for risk, while high earners and top publishers are almost perfectly neutral on the questions. However, all groups show a tendency to disagree with the notion that strategies exist that consistently beat average market returns without taking above average risk. None of the subset categories significantly differ from their counterparts on this last point. We interpret the responses to the last two statements to mean that respondents believe that mis-pricing does exist in the market, but they also believe that either the mis-pricing is corrected too quickly to profit from it or that other obstacles, such as transaction and information costs, make it infeasible to profit from the mis-pricing.

4. Assessing views of market efficiency based on investing objectives

We next examine how the respondents’ views on market efficiency correspond to investing behavior. We expect that finance professors who passively invest are more convinced of market efficiency than those who actively invest. We ask the following question to determine their propensity to passively or actively invest. “Please indicate how

Table 3
Respondents’ propensities to actively invest by specialty.

Please indicate how strongly you agree or disagree with the following statement: When I invest, my goal is to beat the market.	Strongly agree	Neutral			Strongly disagree			Agree	Neutral	Disagree
Specialty	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	6 (%)	7 (%)	Σ(1–2) (%)	Σ(3–5) (%)	Σ(6–7) (%)
Overall Sample	7.9	10.3	15.8	14.4	9.9	18.8	23.0	18	40	42
Asset Pricing	8.4	12.6	16.8	12.6	5.9	22.7	21.0	21	35	44
Behavioral Finance	11.8	12.9	20.4	11.8	12.9	16.1	14.0*	25*	45	30*
Capital Structure	5.8	5.8*	17.4	15.7	10.7	15.7	28.9*	12*	44	45
Corporate Governance	6.3	9.1	14.7	15.4	9.1	16.1	29.4*	15	39	45
Derivatives	16.7*	15.6*	14.4	12.2	8.9	17.8	14.4*	32*	36	32*
Market Efficiency	8.3	12.0	15.7	11.1	13.0	19.4	20.4	20	40	40
Income in Top 25%	5.4	7.4	11.5	14.9	10.1	18.9	31.8*	14*	36	50*
Top Publications in Top 30%	5.7	8.0	11.8*	15.1	10.4	19.8	29.2*	15*	37	48*

This table reports the percentage of respondents who responded 1–7 to the question of the survey inquiring about their personal investment objectives. Participants were asked to indicate how strongly they agreed or disagreed with the following statement: “When I invest, my goal is to beat the market.” The scale is from 1 (strongly agree) to 7 (strongly disagree). Results are presented for the overall sample and for eight subsets: the subsets that specializes in asset pricing, behavioral finance, capital structure, corporate governance, derivatives, and market efficiency, respectively; the subset with annual incomes in the top 25% (above \$150,000); and the subset with the number of top publications in the top 30% (2 or more top journal publications). For each of the eight subsets, we determined whether their responses were significantly different from their counterparts. Results that are significant at the 10% level are marked with an asterisk.

strongly you agree or disagree with the following statement: When I invest, my goal is to beat the market.” The scale is from 1 (strongly agree) to 7 (strongly disagree).

Table 3 reports the percentage of our subjects who responded 1 through 7 to this statement for nine different response groups: (1) the overall sample; those specializing in (2) asset pricing, (3) behavioral finance, (4) capital structure, (5) corporate governance, (6) derivatives and (7) market efficiency; (8) respondents with incomes in the top 25% of our sample; and (9) respondents whose number of top publications rank in the top 30% of our sample. We include these other research specialties as unique response groups because asset pricing, behavioral finance, and derivatives are closely related to market efficiency, while corporate governance and capital structure seem less related to efficiency. Those dealing more directly with market efficiency and investments may have stronger opinions about them since they are more inclined to teach and research this area. Similar to Table 2, for each of the categories (1–7 and generally agreeing vs. generally disagreeing) and for each of the response groups we test whether the percentage of respondents in that particular response group and category is significantly different, at the 10% level, from its counterpart response group and category. In all groups we report whether the category response is significantly different, at the 10% level, from its counterpart. Like Table 2, Table 3 categorizes the respondents as either generally agreeing (responding 1 or 2), being neutral (responding 3, 4, or 5), or generally disagreeing (responding 6 or 7) with the question.

Forty-two percent of the overall sample generally disagrees with the statement that their investing goal is to “beat the market,” while only 18% of the overall sample generally agrees with the statement. This suggests that twice as many finance professors admit to passively investing than those who admit to actively investing.⁷ While professors’ stated opinions analyzed earlier seem somewhat unclear regarding their perception of the semi-strong form efficiency of the markets, their propensity to passively invest suggests they largely accept markets as semi-strong form efficient.

Respondents specializing in fields less related to market efficiency (capital structure and corporate governance) show a somewhat stronger propensity to passively invest than the overall sample. Three times as many professors in these fields passively invest than those who actively invest. The percentages strongly disagreeing (response = 7) are significantly different from the counterparts. Professors specializing in behavioral finance and derivatives, however, show a stronger propensity to actively invest than the overall sample. Several response categories show significant differences from their counterparts. In unreported results, we also find they are less neutral in their opinions compared to their counterparts in fields more distant from market efficiency. These results are intuitive given the nature of the derivatives and behavioral literature.

Professors who specialize in market efficiency behave much like the whole sample; twice as many passively invest as actively invest, and 40% are neutral. There are no significant differences with counterparts. Top earners and publishers are much more likely to passively invest than the overall sample. Several categories show significant differences from their counterparts. The results for these last two categories are very consistent with those in Table 2.

⁷This result is also consistent across professor rank.

Table 4
The congruence of respondents' opinions and investment objectives.

Panel A: Raw Numbers

		STRONGLY AGREE (believe markets are not efficient)	Average response to the 3 statements about weak, semi-strong, and strong form efficiency of US stock markets					STRONGLY DISAGREE (believe markets are efficient)	Total
			1	2	3	4	5	6	
Strongly Agree	1	3	10	11	6	12	5	3	50
When I invest, my goal is to beat the market	2	2	15	8	20	13	4	2	64
	3	3	14	26	31	15	7	3	99
	4	2	10	13	23	28	9	6	91
	5	2	7	4	25	14	9	2	63
	6	3	11	16	27	40	19	2	118
Strongly Disagree	7	5	12	13	30	59	17	10	146
Total		20	79	91	162	181	70	28	631

(Gray)
264

(Black)
137

Panel B: As Percentage of Grouped Respondents

Disagree with Market Efficiency Try to Beat the Market (Quadrant A)	Agree with Market Efficiency Try to Beat the Market (Quadrant B)	Disagree with Market Efficiency Not Trying to Beat the Market (Quadrant C)	Agree with Market Efficiency Not Trying to Beat the Market Quadrant (D)	Neutral on Either
14.58%	10.14%	11.57%	27.26%	36.45%
χ^2 test of equal proportions = 448.02 (p -value <.001)				

This table reports the number and percentage of respondents in the sample who fall into subcategories created by a double sort of two questions on the survey. Respondents are sorted based on their responses to the statement, “When I invest, my goal is to beat the market,” and by their average response to the three statements on the survey regarding the weak form, semi-strong form, and strong form efficiency of U.S. stock markets. Response scales to the statements are 1 (strongly agree) to 7 (strongly disagree). Respondents who strongly agree (respond 1) with the market efficiency questions are indicating they agree returns can be predicted using the information indicated. For example, a respondent who responds 1 to the statement about weak form efficiency is indicating he strongly agrees that returns can be predicted using only past returns. Thus, respondents responding 1 to those questions are strongly agreeing markets are *not* efficient. Respondents in the subcategories shaded in gray are those whose investment objectives are highly consistent with their opinions of market efficiency, while respondents in the subcategories shaded in black are those whose investment objectives are inconsistent with their opinions of market efficiency. A chi-squared test is performed against the null that the number of respondents trying to beat the market would be unrelated to their opinion of market efficiency.

5. Market efficiency opinions and passive or active investing

The first factor a rational investor should consider in making the active versus passive investing decision is the efficiency of the market. If market efficiency matters to finance professors, then their investment objectives should be strongly correlated with their views of efficiency. In Table 4 we group respondents by double sorting their opinions of market efficiency and investment objectives. To represent opinions of market efficiency, we take the average of the participants' responses to the three questions related to weak, semi-strong, and strong form efficiency. To represent investment objectives, we use participants' response to the statement, "When I invest, my goal is to beat the market." Panel A reports raw numbers, while Panel B reports grouped percentages. The portions of the table shaded in gray (Quadrants A and D) represent respondents whose investment objectives are highly congruent with their opinions of market efficiency.⁸ The portions shaded in black (Quadrants B and C) represent respondents whose investment objectives are highly incongruent with their opinions of market efficiency.⁹

The portion of respondents whose investment objectives are congruent with their opinions of efficiency is much higher than the portion whose objectives are incongruent. The investment objectives of 264 (42%) respondents are highly congruent with their opinions of market efficiency, while the investment objectives of only 137 (22%) are incongruent with their opinions of market efficiency. A chi-squared test of proportions rejects a null of equality between these two groups. Thus, a respondent's opinion of market efficiency is correlated with his investment objectives.

However, some of the sample (21.71%) behaves incongruently with its opinion of market efficiency. While a professor who believes markets are inefficient may not feel he can capitalize on the inefficiencies (Quadrant C), this only explains 11.57% of the 21.71% whose investing behavior is inconsistent with their opinions of market efficiency, leaving 10.14% of the sample whose behavior is inconsistent with their opinions in a manner that is difficult to explain. The finding that over 10% of our sample tries to beat a market they believe is efficient (Quadrant B) warrants further investigation into what is driving our sample's propensity to actively or passively invest. Prior studies find that gender, age, marital status, income, education, financial knowledge, and overconfidence influence the risk tolerance and investing behavior of individuals.¹⁰

We explore which variables explain our sample's propensity to actively or passively invest. To assess respondents' confidence in their investing abilities, we asked them how strongly they agreed or disagreed with the following statement, "Given sufficient time and resources, I could implement an investing strategy that would consistently beat the market."¹¹

⁸Those who believe markets are inefficient and are trying to beat the market or those who believe markets are efficient and are not trying to beat the markets.

⁹Those who believe markets are efficient and yet are trying to beat the market or those who believe markets are inefficient but are not trying to beat the markets.

¹⁰See, for example, Grable (2000), Barber and Odean (2001), Hirshleifer (2001), and Statman et al. (2007).

¹¹Some suggest that the wording of the statement should have been, "Given sufficient time and resources, I could implement an investing strategy that would consistently beat the market with taking above average risk." We recognize the merit of changing the statement to focus on return per unit of risk, but we believe the statement as it was presented to respondents still captures the spirit of how confident they are in their own investing abilities.

It is important to note that this statement includes the phrase, “Given sufficient time and resources.”¹²

We double sort respondents based on their opinions of market efficiency and their belief in their own abilities to implement an investing strategy that would consistently beat the market. For each subgroup, we report the mean response to the statement, “*When I invest, my goal is to beat the market.*” This allows us to relate investing goals to confidence and views on efficiency. We expect those who believe markets are inefficient and who believe they could personally implement a market-beating strategy are the most likely to try to beat the market. Conversely, we expect those who believe markets are efficient and who do not believe they could implement a market-beating strategy are the most likely to passively invest. In each case, the respondents’ beliefs and confidence are highly consistent with their investment objectives.¹³

Table 5 reports the results. Panel A (B) uses the response to the question about the weak (semi-strong) form efficiency of U.S. markets as the measure of each respondent’s opinion of market efficiency. The results show a professor’s opinion on market efficiency has marginal influence on his investment objectives relative to confidence in his own abilities. Within confidence groupings (columns), there is little dispersion in a professor’s investment goals as his opinion of weak form efficiency changes. For semi-strong form efficiency, there is some monotonic ordering. By comparison, within the opinion groupings (rows), there is a general monotonic relation in a professor’s investment goals as his confidence in investing abilities changes; greater confidence in one’s ability to beat the market leads to a higher propensity to attempt to beat the market. These patterns are particularly clear when viewing the row and column totals. Panel C tests the differences in the mean responses when respondents strongly agree or disagree with either market efficiency or their confidence. The tests show that both confidence differences are highly significant, while differences in opinion on market efficiency are significant for only the semi-strong form. However, the mean difference on semi-strong efficiency is half that of the confidence mean difference. This suggests that a respondent’s opinion of market efficiency has less to do with his decision of whether to actively or passively invest. What matters more is an investor’s confidence in his own abilities. The importance of the degree of confidence in abilities in actual investment decisions is consistent with findings by Hirshleifer (2001), Barber and Odean (2001), and Statman et al. (2006).

To add statistical strength to the descriptive statistics presented in Table 5, and to explore the importance of the other explanatory variables presented above, we estimate three different models and present the results in Table 6. The dependent variable is the

¹²We examine differences in responses to this question between men under 40 years of age and women over 40. Barber and Odean (2001) show that young men are more confident in their investing abilities than are older women. We find a significant difference, at the 5% level, between the responses of the two groups. This shows that our overconfidence measure captures the known gender and age differences. These results are available upon request.

¹³We examine relations of our confidence and investing goals proxies with the propensity to passively invest to determine if the two goals are merely substitutes. After double sorting, we find that there is a difference in the allocation of passively managed funds between those that have a goal of beating the market and those that do not. There is no difference in the allocation of passively managed funds between those that believe they can beat the market and those that do not. This suggests the two measures do not capture the same underlying characteristic. These results are available on request.

Table 5
Respondents' investment objectives as a function of their opinions and confidence.

Panel A: Opinion = Weak Form Efficiency										
		Strongly Agree	Given sufficient time and resources, I could implement a strategy that would consistently beat the market						Strongly Disagree	Total
			1	2	3	4	5	6		
Strongly Agree (Not Efficient)	1	2.7	2.0	3.0	5.5	5.0	6.3	5.5	4.3	
It is possible to predict future returns to U.S. stocks using only past returns	2	4.0	3.0	4.4	5.5	3.0	5.8	6.0	4.1	
	3	1.5	2.8	3.3	5.6	4.0	4.0	4.4	3.6	
	4	1.6	3.4	3.3	4.3	5.0	6.4	6.6	4.3	
	5	4.0	2.8	4.1	4.3	5.1	5.8	6.3	4.7	
	6	1.8	3.5	3.8	3.9	4.6	5.0	5.8	4.5	
Strongly Disagree (Efficient)	7	3.2	3.9	3.4	4.1	5.2	5.1	6.1	5.1	
Total		2.6	3.3	3.6	4.4	4.8	5.1	6.0	4.6	

Panel B: Opinion = Semi-Strong Form Efficiency										
		Strongly Agree	Given sufficient time and resources, I could implement a strategy that would consistently beat the market						Strongly Disagree	Total
			1	2	3	4	5	6		
Strongly Agree (Not Efficient)	1	2.9	2.8	3.0	5.5	3.5	5.2	4.0	3.7	
It is possible to predict future returns to U.S. stocks using only past returns and publicly available information	2	3.0	3.0	4.1	5.0	4.0	4.3	5.3	3.9	
	3	2.4	2.9	3.5	5.0	5.3	4.9	5.3	4.0	
	4	2.0	3.4	3.3	4.1	5.2	5.5	6.0	4.6	
	5	1.5	4.5	3.7	4.7	4.4	5.3	6.0	4.8	
	6	4.0	4.5	3.3	3.6	4.9	5.0	6.1	4.8	
Strongly Disagree (Efficient)	7	2.6	3.2	4.3	4.2	5.3	5.3	6.4	5.3	
Total		2.6	3.2	3.6	4.4	4.8	5.1	6.0	4.6	

Panel C: Tests of Differences									
Opinion of weak-form inefficiency		Mean Response	N		Confidence/Beat Market		Mean Response	N	
Strongly Agree (1)		4.26	19		Strongly Agree (1)		2.632	38	
Strongly Disagree (7)		5.08	198		Strongly Disagree (7)		6.007	137	
difference		0.81			difference		3.375		
p-value		0.15			p-value		<0.001		

Opinion of semi-strong form inefficiency		Mean Response	N		Confidence/Beat Market		Mean Response	N
Strongly Agree (1)		3.703	27		Strongly Agree (1)		2.632	38
Strongly Disagree (7)		5.329	88		Strongly Disagree (7)		6.007	137
difference		1.626			difference		3.375	
p-value		0.001			p-value		<0.001	

This table reports the mean response to the statement: “When I invest, my goal is to beat the market” for subcategories of respondents created by a double sort of two questions on the survey. Respondents are sorted based on their responses to the statement, “Given sufficient time and resources, I could implement a strategy that would consistently beat the market” and by their responses to the statements on the survey regarding the efficiency of U.S. stock markets. Response scales to all the statements in the table are 1 (strongly agree) to 7 (strongly disagree). Panel A reports the mean responses for the subcategories created using participants' responses to the question about weak form efficiency as a measure of their opinion regarding market efficiency. Panel B reports the mean responses for the subcategories created using participants' responses to the question about semi-strong form efficiency as a measure of their opinion regarding market efficiency. Panel C reports the differences in means between strongly agree and strongly disagree across the total row (opinion of efficiency) and the total column (confidence) for both weak and semi-strong forms of efficiency.

response to the statement, “When I invest, my goal is to beat the market.” Recall, the scale is from 1 (strongly agree) to 7 (strongly disagree). The three models we estimate are an ordered Probit model, an ordinary least squares model (OLS), and a Probit model where the dependent variable is transformed into a binary variable equal to zero for responses to the above statement of 1–3 and equal to 1 for responses of 5–7.

An independent variable is the response to the statement, “Given sufficient time and resources, I could implement an investing strategy that would consistently beat the market.” Independent variables also include responses to the two statements about weak and semi-strong form efficiency; gender and marital status binary variables; rank, age, salary (measured using a discrete ordered scale),¹⁴ total number of published articles, and total number of published articles in top five journals; and binary variables indicating if the respondent specializes in asset pricing, behavioral finance, capital structure, corporate finance, derivatives, or market efficiency. The variables related to specialty are included because those whose research specialties closely relate to market efficiency may have higher “financial knowledge” on the subject.

We estimate five specifications of each of the three models. The first includes all the independent variables listed above except market efficiency opinions. The second adds the opinion of weak form efficiency, in the third we add the opinion of semi-strong form efficiency, and in the fourth we add both. The fifth specification adds interaction terms where a participant’s response to the statement about confidence in his ability to implement a market beating strategy is interacted with his responses to the weak and semi-strong form efficiency questions.

The results across the different models, reported in [Table 6](#), are very similar and consistent with earlier conclusions.¹⁵ Given this similarity, we discuss the results for the ordered Probit model, and then identify any differences for the others. At a 5% significance level, opinions of weak form efficiency, either alone or when interacting with confidence in ability to beat the market, are unrelated to investment objectives. Opinions of semi-strong efficiency do matter, however. At a 5% significance level, they are directly related to one’s propensity to attempt to beat the market in the third and fourth specifications, and in the fifth specification when interacting with confidence in ability (this last result does not hold in the Probit model). While a respondent’s opinion of semi-strong form efficiency is significantly related to his investment objectives in the third and fourth specifications, it is negative and insignificant when the interaction terms are added. This suggests that all of the influence of a respondent’s opinion about semi-strong form efficiency on his investing objectives is dependent on his confidence in his abilities to beat the market.

A respondent’s investment objectives are consistently and robustly driven by his confidence in his abilities to beat the market, independent of his opinion of market efficiency. In all specifications, the coefficient is significant at better than the 1% level, even in the presence of the interaction terms, suggesting a person’s confidence in his own abilities to beat the market is the major driver of his investment objectives, regardless of his market efficiency opinion. Our results indicate that those who do not try to beat the

¹⁴Tests were also conducted with salary as a binary variable, where any salary above \$150,000 was given a value of one. The results are unchanged.

¹⁵We also examined specifications with a continuous variable representing the degree of the respondents’ beliefs in efficient markets. Results are extremely similar to those reported in [Table 6](#).

Table 6
Explaining investment objectives.

Independent variable	Ordered Probit					OLS Regression					Probit Analysis				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Confidence in Own Ability to Beat the Market	0.336 (<.0001)	0.321 (<.0001)	0.312 (<.0001)	0.311 (<.0001)	0.254 (0.001)	0.535 (<.0001)	0.509 (<.0001)	0.494 (<.0001)	0.493 (<.0001)	0.468 (<.0001)	0.392 (<.0001)	0.373 (<.0001)	0.363 (<.0001)	0.366 (<.0001)	0.355 (0.002)
Opinion of Weak Form Efficiency		0.062 (0.036)		−0.003 (0.939)	0.156 (0.107)		0.095 (0.039)	0.000 (0.000)	−0.003 (0.964)	0.211 (0.165)		0.075 (0.075)		−0.032 (0.585)	0.109 (0.475)
Opinion of Semi-Strong Form Efficiency			0.089 (0.002)	0.092 (0.019)	−0.161 (0.097)			0.134 (0.003)	0.138 (0.025)	−0.151 (0.322)			0.130 (0.002)	0.152 (0.008)	−0.029 (0.852)
Confidence × Opinion of Weak Form					−0.034 (0.084)					−0.046 (0.136)					−0.029 (0.344)
Confidence × Opinion of Semi-Strong Form					0.055 (0.004)					0.062 (0.039)					0.038 (0.207)
Gender (0 = Female/ 1 = Male)	−0.002 (0.985)	0.024 (0.859)	0.043 (0.748)	0.043 (0.749)	0.051 (0.702)	0.064 (0.758)	0.105 (0.614)	0.131 (0.526)	0.131 (0.528)	0.135 (0.514)	0.074 (0.697)	0.114 (0.550)	0.155 (0.423)	0.151 (0.434)	0.157 (0.418)
Marital Status (0 = Single/ 1 = Married)	−0.006 (0.964)	−0.016 (0.900)	−0.006 (0.964)	−0.006 (0.961)	−0.001 (0.995)	0.064 (0.752)	0.051 (0.801)	0.069 (0.731)	0.068 (0.734)	0.078 (0.696)	0.225 (0.209)	0.216 (0.231)	0.237 (0.193)	0.241 (0.186)	0.246 (0.179)
Rank	−0.007 (0.927)	−0.018 (0.811)	−0.021 (0.781)	−0.023 (0.766)	−0.003 (0.970)	0.010 (0.936)	−0.005 (0.963)	−0.009 (0.940)	−0.010 (0.930)	0.013 (0.914)	−0.018 (0.870)	−0.028 (0.794)	−0.044 (0.687)	−0.044 (0.686)	−0.028 (0.796)
Age	0.003 (0.962)	0.002 (0.968)	−0.003 (0.965)	−0.001 (0.982)	−0.014 (0.813)	−0.003 (0.976)	−0.002 (0.983)	−0.010 (0.917)	−0.008 (0.928)	−0.021 (0.819)	0.047 (0.573)	0.043 (0.603)	0.044 (0.601)	0.045 (0.594)	0.037 (0.659)
Annual Compensation	0.029 (0.068)	0.032 (0.048)	0.034 (0.038)	0.033 (0.040)	0.033 (0.044)	0.045 (0.068)	0.050 (0.045)	0.053 (0.035)	0.052 (0.037)	0.052 (0.038)	0.041 (0.077)	0.047 (0.048)	0.052 (0.032)	0.050 (0.038)	0.050 (0.039)
Total Number of Published Articles	−0.002 (0.644)	−0.003 (0.597)	−0.003 (0.533)	−0.003 (0.544)	−0.004 (0.392)	−0.005 (0.532)	−0.006 (0.464)	−0.006 (0.405)	−0.006 (0.413)	−0.008 (0.312)	−0.005 (0.495)	−0.005 (0.503)	−0.005 (0.474)	−0.005 (0.477)	−0.006 (0.416)
	0.028	0.032	0.032	0.031	0.029	0.033	0.040	0.038	0.037	0.034	0.018	0.020	0.019	0.017	0.016

Table 6 (continued)

Independent variable	Ordered Probit					OLS Regression					Probit Analysis				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Total Number of Published Articles in Top 5 Journals	(0.101)	(0.061)	(0.064)	(0.074)	(0.093)	(0.190)	(0.118)	(0.136)	(0.148)	(0.194)	(0.491)	(0.433)	(0.475)	(0.510)	(0.542)
Asset Pricing Binary	0.077 (0.546)	0.100 (0.434)	0.079 (0.536)	0.082 (0.522)	0.098 (0.442)	0.108 (0.587)	0.143 (0.475)	0.114 (0.564)	0.118 (0.555)	0.135 (0.498)	0.002 (0.993)	0.021 (0.907)	0.004 (0.981)	−0.002 (0.990)	0.010 (0.959)
Behavioral Finance Binary	−0.219 (0.103)	−0.172 (0.205)	−0.194 (0.150)	−0.191 (0.162)	−0.201 (0.146)	−0.271 (0.200)	−0.204 (0.340)	−0.235 (0.264)	−0.232 (0.277)	−0.229 (0.287)	−0.107 (0.579)	−0.057 (0.770)	−0.072 (0.714)	−0.082 (0.676)	−0.083 (0.677)
Capital Structure Binary	0.145 (0.233)	0.153 (0.207)	0.148 (0.222)	0.150 (0.217)	0.159 (0.192)	0.173 (0.361)	0.179 (0.343)	0.171 (0.362)	0.173 (0.358)	0.181 (0.336)	0.176 (0.326)	0.192 (0.288)	0.213 (0.242)	0.213 (0.242)	0.219 (0.230)
Corporate Governance Binary	−0.024 (0.831)	−0.031 (0.781)	−0.030 (0.790)	−0.028 (0.808)	−0.029 (0.795)	−0.075 (0.671)	−0.085 (0.631)	−0.082 (0.640)	−0.079 (0.651)	−0.085 (0.628)	−0.066 (0.691)	−0.074 (0.656)	−0.075 (0.653)	−0.072 (0.669)	−0.071 (0.670)
Derivatives Binary	−0.374 (0.005)	−0.395 (0.003)	−0.378 (0.005)	−0.376 (0.005)	−0.350 (0.010)	−0.549 (0.010)	−0.570 (0.007)	−0.541 (0.010)	−0.539 (0.011)	−0.507 (0.017)	−0.332 (0.083)	−0.349 (0.073)	−0.313 (0.108)	−0.298 (0.130)	−0.273 (0.168)
Market Efficiency Binary	0.103 (0.421)	0.106 (0.411)	0.138 (0.285)	0.128 (0.323)	0.149 (0.250)	0.155 (0.443)	0.166 (0.414)	0.209 (0.299)	0.199 (0.326)	0.223 (0.272)	0.111 (0.544)	0.108 (0.557)	0.143 (0.438)	0.142 (0.442)	0.152 (0.412)

This table reports the results from estimating five specifications of three models. The dependent variable in all specifications is a participant's response to the statement: "When I invest, my goal is to beat the market." The scale for this variable is from 1 (strongly agree) to 7 (strongly disagree). The three models we estimate are an ordered Probit model, an ordinary least squares model (OLS), and a Probit model where the dependent variable is transformed into a binary variable equal to zero for responses to the above statement of 1–3 and equal to 1 for responses of 5–7. The independent variables are the participant's response to the question about his confidence in his own abilities to beat the market; the participant's responses to the two questions about the weak and semi-strong forms of market efficiency; terms that interact the participant's confidence on his opinions about market efficiency; gender and marriage binary variables (1 = male and 1 = married); the respondent's rank, age, annual compensation, total number of published articles, and total number of published articles in top 5 journals; and binary variables indicating the respondent specializes in asset pricing, behavioral finance, capital structure, corporate governance, derivatives, or market efficiency. In the first four specifications the interaction variables are omitted. In the fifth specification they are included in the model. Coefficients are presented with *p*-values in parentheses.

market are employing a passive strategy primarily because they do not believe they can beat the market, regardless of time and resource constraints.

There is limited explanatory power for the remaining independent variables. Higher annual income is associated with a higher propensity to passively invest. Since there is also marginal positive significance for the number of articles published in the top five journals, these results may be related to the quality of the degree granting or current institution of the respondents. Specializing in derivatives research is also significant and is associated with a higher propensity to actively invest (this result is not significant in the Probit model).¹⁶ Given that a significant proportion of derivative literature addresses model-misspecification and pricing, it may motivate respondents to use this knowledge for trading purposes.

6. Conclusion

We use a comprehensive survey distributed to over 4,000 finance professors in the U.S. to assess their opinions on market efficiency and explore the idea that the decision to actively or passively invest is strongly influenced by an investor's perception of the efficiency of the market. The 642 respondents seem to agree that the stock market is not strong form efficient and is weak form efficient. However, they seem undecided about semi-strong form efficiency. Market efficiency specialists believe more strongly than their counterparts that the market is not efficient.

We also analyze respondents' investment objectives and behavior to gain a deeper understanding of how they truly perceive market efficiency. We find that twice as many respondents passively invest than actively invest, suggesting that although they may be conflicted about market efficiency, they generally behave as if they accept markets as efficient. Alternatively, this result could mean that they choose to passively invest even if they believe in inefficient markets due to time, resource, or skill restraints. Respondents who specialize in market efficiency manifest similar investment objectives as that of the overall sample.

Regarding our second objective, we find that investment behavior has very little to do with a respondent's opinions about market efficiency. Instead, investment objectives and behavior are driven by individuals' confidence in their own abilities to beat the market, regardless of their opinions about market efficiency. Despite our respondents' education and sophistication, they seem to set investment objectives and make trades largely based on the same behavioral factor that drives amateur investors—confidence. Opinions of efficiency do not seem to affect investing decisions, while confidence does.

This paper represents the first essay of Colby Wright's dissertation. We thank Gary Benesh, Mike Brady, Prithviraj Banerjee, Jim Brau, Ronnie Clayton, Michael Ehrhardt, Campbell Harvey, Matthew Spiegel, Tom Noe, and Brian Tarrant for their insightful suggestions. We also thank an anonymous reviewer and the editor, Eugene Kandel, for very helpful comments and direction. Additionally, we thank Misty Wright for her expert assistance in collecting the data for this study. All errors in the paper are our own.

¹⁶To analyze the robustness of our results, we used structural equation modeling (SEM), which is a widely-used methodology to analyze survey data. See [Hair et al. \(2006\)](#) for a discussion of SEM. Our results confirm the notion that an investor's level of confidence substantially influences his investing objectives. It also suggests that views of market efficiency are of little importance to investors when determining their investment strategies.

Appendix A. The Survey

Below is the survey, which was sent to all finance professors in our sample.

This survey is being conducted as a part of a dissertation of a doctoral candidate in the Department of Finance at Florida State University. No identifying information of respondents to the survey will be used in the dissertation. Florida State University requires that all participants involved in studies affiliated with the university consent to participation in the study. Please indicate your consent by responding to the following statement:

By answering one or more of the following questions, I consent to participate in this study:

Yes No

Which of the following best describes your current position as a faculty member?

Adjunct Lecturer	Assistant Professor	Associate Professor	Full Professor	Endowed Chair	Eminent Scholar	Other
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Which of the following best describes your general area of specialty?

Economics	Finance	Law	Real Estate	Other
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What graduate and/or professional degrees do you hold? Please select all that apply

DBA	JD	MBA	MA	MS	PhD	Other - Business Related
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What are your specific areas of specialty? Please select all that apply. (To select more than one hold the control button while clicking on all that apply)

Approximately how many articles have you authored or co-authored that have been published or accepted for publication at a peer-reviewed journal (scale is 0—more than 50)?

Approximately how many of your articles published in peer-reviewed journals are consistent with the efficient market hypothesis (scale is 0—more than 50)?

Approximately how many of your articles published in peer-reviewed journals refute the efficient market hypothesis (scale is 0—more than 50)?

Approximately how many articles have you authored or co-authored that have been published or accepted for publication at any one of the following journals (scale is 0—more than 25)?

- Journal of Financial Economics (JFE)
- Journal of Finance (JF)
- Review of Financial Studies (RFS)
- Journal of Business (JB)
- Journal of Financial and Quantitative Analysis (JFQA)

Approximately how many of your articles published in JFE, JF, RFS, JB, or JFQA are consistent with the efficient market hypothesis (scale is 0—more than 25)?

Approximately how many of your articles published in JFE, JF, RFS, JB, or JFQA refute the efficient market hypothesis (scale is 0—more than 25)?

Please indicate the degree to which your findings and conclusions support or refute the efficient markets hypothesis (7 point scale from strongly supports market efficiency to strongly refutes market efficiency).

- The collective body of all my published research generally:
- My most recently published journal article:
- My most recent unpublished working paper(s):

Please indicate how strongly you agree or disagree with the following statements (7 point scale from strongly agree to strongly disagree)

- It is possible to predict future returns to U.S. stocks using only past returns.
- It is possible to predict future returns to U.S. stocks using only past returns and publicly available information.
- It is possible to predict future returns to U.S. stocks using only past returns, publicly available information, and private information.
- Investment returns are solely a compensation for risk.
- Investment strategies exist that consistently beat average market returns without taking above-average risk.
- Given sufficient time and resources, I could implement an investing strategy that would consistently beat the market.
- When I invest, my goal is to beat the market.

Excluding your primary residence, approximately what percentage of your total personal wealth is currently invested in the following types of investments (11 point ordinal scale from 0–100%)?

- Bonds or Other Fixed-Income (Interest Bearing) Investments
- Individual U.S. Stocks
- Individual Foreign Stocks or ADRs
- Actively-Managed (Load) Mutual Funds
- Passively-Managed (No-Load) Mutual Funds (Including Index Funds)
- Exchange Traded Funds
- Real Estate (Including Investment Properties and REITs)
- Hedge Funds
- Derivatives (Futures and Options)
- Commodities (Gold, Wheat, Energy, Etc.)

How frequently do you buy the following investment vehicles (scale = more than once a day, daily, weekly, monthly, yearly, less than once a year)?

- Bonds or Other Fixed-Income (Interest Bearing) Investments
- Individual U.S. Stocks
- Individual Foreign Stocks or ADRs
- Actively-Managed (Load) Mutual Funds
- Passively-Managed (No-Load) Mutual Funds (Including Index Funds)
- Exchange Traded Funds

- Real Estate (Including Investment Properties and REITs)
- Hedge Funds
- Derivatives (Futures and Options)
- Commodities (Gold, Wheat, Energy, Etc.)

How frequently do you sell the following investment vehicles (scale = more than once a day, daily, weekly, monthly, yearly, less than once a year)?

- Bonds or Other Fixed-Income (Interest Bearing) Investments
- Individual U.S. Stocks
- Individual Foreign Stocks or ADRs
- Actively-Managed (Load) Mutual Funds
- Passively-Managed (No-Load) Mutual Funds (Including Index Funds)
- Exchange Traded Funds
- Real Estate (Including Investment Properties and REITs)
- Hedge Funds
- Derivatives (Futures and Options)
- Commodities (Gold, Wheat, Energy, Etc.)

When you are considering buying or selling stock, how important in making your decision are the following stock valuation models?

- The Constant Growth Dividend Valuation Model
- The Variable Growth Dividend Valuation Model
- The PE Multiple Valuation Model
- Other Multiples Valuation Models (such as Price-to-Cash Flow and Price-to-Sales)

When you are considering buying or selling stock, how important in making your decision are the following asset-pricing and return-explaining models?

- Capital Asset Pricing Model (CAPM)
- Arbitrage Pricing Theory
- Fama and French's 3—Factor Model
- Carhart's 4—Factor Model

When you are considering buying or selling a stock, how important in making your decision is the stock's correlation with or loading on the following factors?

- The Market
- Fama and French's Size Factor (SMB)
- Fama and French's Value Factor (HML)
- Carhart's Momentum Factor (UMD)

When you are considering buying or selling a stock, how important are the following financial ratios and firm characteristics in making your decision?

- Market Capitalization
- Book-to-Market Ratio
- Dividend Yield
- Price-to-Earnings Ratio

When you are considering buying or selling a stock, how important in making your decision are past returns to each of the following over the period indicated?

- The stock over the past six months.
- The stock's industry over the past six months.
- The stock over the past year.
- The stock's industry over the past year.
- The stock over the past three to five years.
- The stock's industry over the past three to five years.

When you are considering buying or selling a stock, how important are the following in making your decision?

- Analyst buy and sell recommendations.
- Analyst earnings estimates.
- Analyst target prices.
- Changes to analyst buy and sell recommendations.
- Changes to analyst earnings estimates.
- Changes to analyst target prices.
- The qualitative content of analyst reports.
- The dispersion in analyst earnings forecasts or target prices.

When you are considering buying or selling a stock, how important are the following corporate events in making your decision?

- Stock Splits
- Stock Repurchases
- Initial Public Offerings
- Seasoned Equity Offerings
- Listing Switches
- Dividend Increases or Initiations
- Mergers and Acquisitions

When you are considering buying or selling a stock, how important are the following in making your decision?

- The stock's 52-week high.
- The stock's 52-week low.
- The stock's most recent earnings announcement compared to analyst expectations.
- The month of the year.
- The day of the week.
- Investors sentiment measures (e.g., consumer confidence).

- Purchased an individual stock
- Purchased an exchange traded fund (ETF)
- Purchased an individual stock or ETF on the margin
- Short sold an individual stock or ETF
- Purchased an individual call option contract
- Purchased an individual put option contract
- Written a call option contract
- Written a put option contract
- Entered into a futures contract

Under 30 30–39 40–49 50–59 60–69 Over 69

Male

Single—Never Married Single—Previously Married Married

Please indicate your total 9-month salary relative to your peers (colleagues of the same rank, in the same department, and with the same number of years at your or a similar university or college) (7 point scale from far below average to far above average).

Barber, B., Odean, T., 2001. Boys will be boys: gender, overconfidence, and common stock investment. *Quarterly Journal of Economics* 116, 261–292.

Brau, J., Fawcett, S., 2006. Initial public offerings: an analysis of theory and practice. *Journal of Finance* 61, 399–436.

Brav, A., Graham, J., Harvey, C., Michaely, R., 2000. Payout policy in the 21st century. *Journal of Financial Economics* 77, 483–527.

Grable, J., 2000. Financial risk tolerance and additional factors that affect risk taking in everyday money matters. *Journal of Business and Psychology* 14, 625–630.

Graham, J., Harvey, C., 2001. The theory and practice of corporate finance: evidence from the field. *Journal of Financial Economics* 60, 187–243.

Graham, J., Harvey, C., Rajgopal, S., 2005. The economic implications of corporate financial reporting. *Journal of Accounting and Economics* 40, 3–73.

- Hair, J., Black, B., Babin, B., Anderson, R., Tatham, R., 2006. *Multivariate Data Analysis*, sixth ed Prentice Hall, Englewood Cliffs, NJ.
- Hartikainen, O., Torstila, S., 2004. Job-related ethical judgment in the finance profession. *Journal of Applied Finance* 14, 62–76.
- Hirshleifer, D., 2001. Investor psychology and asset pricing. *Journal of Finance* 56, 1533–1597.
- Jorgensen, R., Wingender, J., 2004. A survey on the dissemination of earnings information by large firms. *Journal of Applied Finance* 14, 77–84.
- Krigman, L., Shaw, W., Womack, K., 2001. Why do firms switch underwriters?. *Journal of Financial Economics* 60, 245–284.
- Pinegar, J., Wilbricht, L., 1989. What managers think of capital structure theory: a survey. *Financial Management* 18, 82–91.
- Statman, M., Thorley, S., Vorkink, K., 2006. Investor overconfidence and trading volume. *Review of Financial Studies* 19, 1531–1565.
- Trahan, E., Gitman, L., 1995. Bridging the theory-practice gap in corporate finance: a survey of chief financial officers. *Quarterly Review of Economics and Finance* 35, 73–87.
- Welch, I., 2000. Views of financial economists on the equity premium and on professional controversies. *The Journal of Business* 73, 501–537.