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Confidence mediates how investment knowledge influences investing self-efficacy

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ABSTRACT

A comprehensive investment literacy questionnaire surveyed potential sources (viz., knowledge, confidence) of investing self-efficacy in a large sample of working adults. As expected, the effect of investment knowledge on belief in one's future capability of orchestrating a plan to achieve investment goals was mediated by confidence. Overall, employees' applied investment knowledge accuracy was low: 57%. In general, investment knowledge was reliably related to confidence. However, confidence and investment knowledge accuracy were completely independent for 9 of 21 items, implying an inability to inhibit poor investment decisions or an inability to exploit investment opportunities. A policy of required investment training could be implemented so as to not impede individuals' freedom of choice, which would likely help the truly uninformed to become more informed and ultimately successful investors.

1. Introduction

Few domains of knowledge have the potential to be so literally enriching as investing. Yet, as is the case for most topics falling under the rubric of personal finance, investing knowledge is a cognitive accomplishment for which, like language, most people receive no direct formal instruction. Unlike language, where universal acquisition is the norm, most adults fail to acquire competency in investment knowledge (e.g., Benish, 1998; Landstrom, 1995). Previous studies have surveyed the stock market knowledge and stock holding of adults in general (e.g., Bertaut, 1998), revealed gender differences in financial literacy (e.g., Goldsmith, Goldsmith, & Heaney, 1997; Kirchler & Hubert, 1999), and examined how financial expertise affects investing decisions (e.g., Hershey, Walsh, Read, & Chulef, 1990). For the present study, an original investment literacy questionnaire was developed to evaluate working adults' applied investment knowledge, as well as their self-reported level of

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confidence about the accuracy of this knowledge. The questionnaire also measured participants' investing self-efficacy – belief in one's capability in achieving one's ultimate financial goals.

1.1. Investment literacy surveys

Chen and Volpe (1998) developed a personal finance questionnaire which they sent to 1800 college students at 14 different college campuses (51% response rate). The questionnaire surveyed college students' knowledge about personal finance (24 items) and investing (7 items). Interestingly, the questionnaire solicited participants' personal finance opinions and decisions. One closed-ended 5-point rating scale item measured participants' opinion about the desirability of "planning and implementing a regular investment program." Thus, Chen and Volpe were able to determine the relationship of personal finance and investment knowledge to personal finance opinions and decisions. Overall, the mean proportion of correct responses to the personal finance questions was low (0.56); the mean proportion of correct responses to the investment questions was even lower (0.42). Furthermore, the researchers found that participants' level of personal finance knowledge reliably influenced their investing opinions and decisions.

But what about the relationship between investment knowledge and investment behavior? Van Rooij, Lusardi, and Alessie (2007) developed a financial knowledge questionnaire which measured participants basic investment numeracy (five items; e.g., "*Suppose you had €100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?*") as well as their general investment knowledge (11 items; e.g., "*Stocks are normally riskier than bonds. True or false?*"). They used the instrument to survey financial knowledge and stock market participation in a large sample of adults representative of the Dutch population. Forty percent of the respondents correctly answered all five basic investment numeracy questions, whereas merely 5% of the respondents correctly answered all 11 investment knowledge questions. Overall, respondents correctly answered 79% of basic investment numeracy items, but only 54% of the investment knowledge questions. These findings accord with other investment knowledge surveys commissioned by the financial services industry (e.g., KPMG, 1995; Vanguard Group/Money Magazine, 1997) that have focused on issues such as indexing, mutual funds, diversification, asset allocation, and retirement shelter participation. Typically, these surveys targeted working adults and found that participants answered fewer than 60% of the items correctly.

Overall, stock market participation among participants in the van Rooij et al. (2007) survey was low, which accords with reported low levels of direct stock ownership among adults in the United States and Europe (e.g., Guiso, Haliassos, & Jappelli, 2002). Van Rooij et al. also found that stock ownership was positively related to investment knowledge. Forty-four percent of participants scoring in the highest quartile of investment knowledge reported stock ownership, whereas merely 7.5% of participants scoring in the lowest quartile of investment knowledge reported owing stocks. The relationship between investment knowledge and direct stock market participation held after van Rooij et al. controlled for variables such as age, education, gender, income, and wealth. Nonetheless, even after controlling for numerous demographic characteristics, investment knowledge accounted for only 12% of the variability in stock ownership.

One assumption underlying much of the investing literacy literature of which we are aware is that investing knowledge is an independent, virtually unmediated determinant of some objective investing behavior or outcome (e.g., defined contribution plan participation, stock ownership). Moreover, much of the research in this area confounds knowledge with literacy, often using both terms as equivalent synonyms. However, investment knowledge refers to participants' score on questionnaires designed to assess investment terms and concepts. Investment literacy refers to the uses knowledge is put (viz., regularly contributing to one's defined contribution plan, evaluating intrinsic value, buying and selling stocks).

In numerous content domains (e.g., ecology, humor, logical reasoning, medicine) participants' knowledge is influenced by confidence in their performance on a wide variety of tasks (e.g., Ginkel, 2009; Kruger & Dunning, 1999). In these studies, confidence is directly measured. Typically, participants answer knowledge questions (e.g., Bornstein, 1999), or predict the likelihood of future events (e.g., Paese & Sniezek, 1991), then rate the probability (confidence) that their answers or predictions are accurate. Interest focuses on determining the extent to which people's subjective judgments of accuracy exceed or fall below their observed accuracy.

Within the domain of investing literacy, previous studies have measured confidence indirectly by operationalizing confidence as different outcomes across experimental conditions (e.g., Rubaltelli, Rubichi, Savadori, Tedeschi, & Ferretti, 2005), or by inferring confidence from observations of brokerage account activity (e.g., Odean, 1999). Metacognitive skill in accurately assessing the level of one's performance distinguishes the competent from the incompetent (Kruger & Dunning, 1999). The capacity to distinguish accurate from inaccurate investment knowledge may be an essential characteristic of successful investors. Therefore, unlike previous research, the present study directly measured confidence by asking participants to self-report how confident they were that their responses to investment knowledge questionnaire items were accurate.

Also unlike previous surveys of investment knowledge, the ILQ developed for the present study was designed to measure applied investment knowledge that could be used to improve an individuals' investment returns. Some of the investment knowledge items used in previous research appear to instead have surveyed participants' awareness of macroeconomic issues affecting mutual fund returns (e.g., "If other factors remain the same, US dollar value of a Japan fund will be . . .," Chen & Volpe, 1998), their regard for the credentials of financial advisors (e.g., "If a financial planner's business card says that he or she is a Registered Investment Advisor, the planner . . .," (Volpe, Chen, & Pavlicko, 1996)), or whether participants conceive risk as stock price volatility (e.g., van Rooij et al., 2007). In the present study, items used to survey mutual fund knowledge focused on the inverse relationship between fund fees and fund returns, how turnover adversely affects returns, and the