Lisbon School of Economics & Management
Universidade de Lisboa

MASTER IN MANAGEMENT (MIM)

MASTERS FINAL WORK

DISSERTATION

FINANCIAL LITERACY AND THE REGULATED-UNREGULATED SOURCE RELIANCE TRADE-OFF IN RETAIL INVESTING

PHILIPP BORKERS

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GLOSSARY

AI – Artificial Intelligence

CL scale – Cumurović-Lusardi scale

ETF – Exchange Traded Fund

EU – European Union

FL – Financial Literacy

GL-RTS – Grable-Lytton Risk Tolerance Scale

HFCS – Eurosystem Household Finance and Consumption Survey

IE – Investment Experience

MAR – Market Abuse Regulation

MiFID – Markets in Financial Instruments Directive

PSC – Perceived Source Credibility

RSR – Relative Source Reliance

RT – Risk Tolerance

SCF – Survey of Consumer Finance

ABSTRACT

Retail investors rarely rely on a single source when preparing investment decisions. Instead, they navigate information environments ranging from institutionally supervised channels to social media, personal networks, and other sources subject to limited formal accountability. In this setting, financial literacy may matter not only for understanding financial products but also for identifying, evaluating, and selecting among information sources. Accordingly, this thesis examines objective financial literacy as an information-processing resource associated with how investors structure their pre-investment information environment.

Data were obtained through a cross-sectional online survey of 103 retail investors. Source-use frequencies were aggregated into a measure of relative reliance on regulated versus unregulated sources. Hierarchical multiple regression examined whether objective financial literacy remained associated with relative source reliance after accounting for risk tolerance, investment experience, and demographic characteristics. Bootstrapped mediation and sensitivity analyses assessed the role of perceived credibility and the robustness of the source classification.

Respondents used a mixed portfolio of regulated and unregulated sources, with neither category dominating overall. Nevertheless, objective financial literacy emerged as the strongest positive predictor of relative reliance on regulated sources, and the association remained robust across the adjusted regression and alternative classification. Higher risk tolerance was associated with comparatively greater reliance on unregulated sources, whereas investment experience showed a weaker positive association. Although relative credibility was positively associated with relative source use, it did not statistically explain the association between financial literacy and source reliance.

The findings indicate that financial literacy is associated not only with investors' knowledge but also with their selection of information sources before investing.

KEYWORDS: Financial Literacy, Retail Investors; Information Source Selection

RESUMO

Os investidores de retalho raramente recorrem a uma única fonte de informação quando preparam decisões de investimento. Em vez disso, navegam por ambientes informativos que abrangem desde canais sujeitos a supervisão institucional até redes sociais, contactos pessoais e outras fontes com reduzida responsabilização formal. Neste contexto, a literacia financeira pode ser relevante não apenas para compreender produtos financeiros, mas também para identificar, avaliar e selecionar diferentes fontes de informação. Assim, esta dissertação analisa a literacia financeira objetiva enquanto recurso de processamento de informação associado à forma como os investidores estruturam o seu ambiente informativo antes de investir.

Os dados foram recolhidos através de um inquérito online transversal a 103 investidores de retalho. As frequências de utilização das fontes foram agregadas numa medida do recurso relativo a fontes reguladas em comparação com fontes não reguladas. Uma regressão múltipla hierárquica avaliou se a literacia financeira objetiva permanecia associada à utilização relativa das fontes após considerar a tolerância ao risco, a experiência de investimento e características sociodemográficas. Análises de mediação com bootstrap e de sensibilidade avaliaram o papel da credibilidade percebida e a robustez da classificação das fontes.

Os participantes utilizaram uma combinação de fontes reguladas e não reguladas, sem que nenhuma categoria predominasse globalmente. Ainda assim, a literacia financeira objetiva revelou-se o preditor positivo mais forte do recurso relativo a fontes reguladas, mantendo-se esta associação robusta no modelo ajustado e na classificação alternativa. Uma maior tolerância ao risco esteve associada a um recurso comparativamente superior a fontes não reguladas, enquanto a experiência de investimento apresentou uma associação positiva mais fraca. Embora a credibilidade relativa estivesse positivamente associada à utilização relativa das fontes, não explicou estatisticamente a associação entre literacia financeira e seleção de fontes.

Os resultados mostram que a literacia financeira é relevante não apenas para aquilo que os investidores sabem, mas também para as fontes a que recorrem antes de investir.

PALAVRAS-CHAVE: Literacia financeira; Investidores de retalho; Seleção de fontes de informação

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Financial Literacy and the Regulated–Unregulated Source Reliance Trade-Off in Retail Investing

1. Introduction

The availability of investment-related information has expanded substantially over the past decades. Retail investors today are confronted with a wide range of information sources prior to making investment decisions, ranging from traditional, regulated sources such as banks, financial advisors, and professional financial media to unregulated sources including social media, online forums, blogs, generative artificial intelligence (AI) and other peer-generated content. While this expansion of information access has the potential to improve decision-making, it simultaneously increases the complexity of the investment environment and places greater demands on individuals' ability to evaluate and select relevant and reliable information. This development has raised concerns among academics and policymakers alike, particularly with regard to retail investors, who often lack the professional expertise and institutional support available to professional market participants (Akana, Lee & Santucci, 2025). In this context, financial literacy (FL) has been identified as an important correlate of investment behavior and outcomes such as stock market participation, portfolio diversification, and the use of financial advice (Van Rooij, Lusardi & Alessie, 2011; Bucher-Koenen et al., 2023). However, despite a growing body of research on financial literacy, comparatively little attention has been paid to how financial literacy is associated with the way retail investors gather information before making investment decisions, and more specifically, which types of information sources they rely on.

The main objective of this dissertation is to examine retail investors' use of regulated and unregulated information sources prior to investment decisions, with particular emphasis on the association between objective financial literacy and relative source reliance and on the potential statistical role of perceived source credibility.

Based on this objective, the study addresses the following research questions:

> **RQ1:** *Which regulated and unregulated information sources are most frequently used by retail investors prior to investment decisions?*
>
> **RQ2:** *How is objective financial literacy associated with retail investors' relative reliance on regulated versus unregulated information sources?*

RQ3: *Is the association between objective financial literacy and relative source reliance statistically mediated by the perceived credibility of regulated relative to unregulated information sources?*

These research questions address the empirically and practically relevant issues. First, the distinction between regulated and unregulated information sources has gained importance with the expansion of digital and social media platforms, where information quality varies substantially and formal oversight is often absent. Second, understanding the determinants of information source choice is analytically important because the quality and reliability of information obtained at the pre-investment stage may have significant implications for subsequent decision-making. Finally, insights into the relationship between financial literacy and information behavior can inform financial education initiatives and regulatory efforts aimed at protecting retail investors (OECD, 2023).

Existing literature provides important foundations for addressing these research questions but also reveals notable gaps. Prior studies have extensively examined financial literacy and its associations with investment outcomes, documenting that more financially literate individuals tend to make more informed and sophisticated financial decisions (Lusardi & Mitchell, 2014). At the same time, research on investor information search shows that information gathering prior to investment decisions is selective, bounded, and influenced by individual characteristics such as risk tolerance and experience. Studies further suggest that investors differentiate between various types of information sources and that these sources differ systematically in their perceived reliability and usefulness (Penning, 2011).

However, much of the existing research treats information sources either in a highly aggregated manner or focuses on specific channels in isolation. Moreover, while the concept of source credibility has been shown to play an important role in information evaluation and usage, it is rarely integrated explicitly into models that link financial literacy to information source choice. As a result, the factors underlying the association between financial literacy and differential reliance on regulated versus unregulated information sources remain insufficiently understood.

This thesis addresses the identified research gap by developing and empirically testing a conceptual framework that examines the relationship between financial literacy and retail investors' information source usage in the pre-investment decision process. Building on information search perspectives and prior work on investor information behavior, the study differentiates between regulated and unregulated information sources and assesses whether higher levels of financial literacy are associated with a stronger relative reliance on institutionally supervised channels. Perceived source credibility is incorporated as a complementary explanatory construct to capture evaluative considerations that may contribute to source selection, but the analytical emphasis remains on financial literacy as the primary predictor of source usage. In addition, the framework controls for investment experience (IE) and risk tolerance (RT) to account for learning-based and preference-based influences on information behavior documented in prior research.

The remainder of this thesis is structured as follows. Chapter 2 reviews the relevant literature on financial literacy, investor information search, information source classification, and perceived source credibility and derives the research hypotheses. Chapter 3 presents the conceptual framework and aligns the research hypotheses. Chapter 4 outlines the research methodology, including the research design, population and sample, data collection, study instrument, variable measurement, and empirical strategy. Chapter 5 reports and discusses the empirical results in relation to the three research questions. Chapter 6 concludes the thesis by answering those questions and presenting the theoretical and practical implications, limitations, and directions for future research.

2. LITERATURE REVIEW

2.1. Financial literacy and retail investment decision-making

Financial literacy has been extensively studied as a core determinant of household financial behavior and retail investors' engagement with financial markets. A consistent empirical finding is that financially literate individuals are more likely to participate in capital markets, invest in equities, and hold better-diversified portfolios (Lusardi & Mitchell, 2007; van Rooij, Lusardi, & Alessie, 2011). These patterns are typically attributed to lower participation and information-processing costs, improved understanding of risk-return trade-offs, and a greater ability to navigate complex products

and disclosures (Lusardi & Mitchell, 2014; Lusardi & Streeter, 2023). Importantly, financial literacy is not only associated with "whether" individuals invest, but also with "how" they approach investment decisions – especially the way they acquire, filter, and evaluate information prior to making investment choices.

An established distinction in the literature concerns the distinction between objective and subjective financial literacy. Objective literacy captures factual knowledge assessed through test-based measures, while subjective literacy reflects self-perceived knowledge and confidence. Evidence suggests that these dimensions are related but not interchangeable and can independently contribute to explaining financial behaviors (Allgood & Walstad, 2016; Liao et al., 2022). For information-related behaviors, this distinction matters because objective literacy is more closely tied to cognitive competence in evaluating information, whereas subjective literacy may influence engagement intensity, self-efficacy, and perceived need for external input.

2.2. Financial literacy, advice-seeking, and intermediated information

Research on advice-seeking increasingly supports a complementarity rather than a substitution view. Calcagno and Monticone (2015) show that advice is particularly valuable when investors possess enough knowledge to evaluate its quality; more literate investors are consequently more likely to consult advisors, whereas less literate individuals more often delegate or abstain. Financial literacy may therefore be associated with greater use of institutionally constrained sources because it helps investors assess information quality and provider incentives (Kim, Maurer, & Mitchell, 2021).

Empirical evidence is broadly consistent with this view. Financially literate individuals are more likely to engage with formal financial planning tools and professional advice, implying that literacy supports active information acquisition rather than replacing the need for external input (Lusardi & Mitchell, 2011). Moreover, research drawing on real-world investment settings highlights that information use is closely related to investor engagement and competence. Brokerage-linked evidence indicates that investors' behavior varies with participation and involvement, suggesting that experience and engagement shape how investors act on information (Hoffmann & Post, 2015). Relatedly, research on investor competence shows that perceived competence is associated with information processing and investment activity, reinforcing that

information behavior reflects both capability and engagement rather than access alone (Karlsson & Nordén, 2008). Together, these studies motivate treating information acquisition as a structured behavioral component of investment decision-making: investors with higher literacy and competence may be better positioned to evaluate sources and benefit from more formal information environments.

This perspective aligns with broader work on information search behavior, which conceptualizes information acquisition as a cost-benefit trade-off. Investors search for information to improve decision quality but incur time and cognitive costs and face uncertainty about information reliability. Empirical studies document substantial heterogeneity in both search intensity and the composition of sources used. Loibl and Hira (2009), for example, identify distinct search profiles ranging from intensive information seekers to reluctant investors with limited search activity, showing that investors differ not only in how much they search but also in their portfolios of consulted channels (Loibl & Hira, 2009). Importantly, retail investors typically consult multiple source categories – including professional advisors, mass media, online resources, and interpersonal networks – implying that information acquisition is shaped by both supply-side characteristics (availability, accessibility, format) and investor-side attributes (knowledge, preferences, perceived reliability). Consistent with this, recent evidence suggests that source choices vary across investor profiles and depend on perceived usefulness and reliability (Lal et al., 2023; Pathy, 2024). Brokerage-level evidence further shows that investors differ systematically in how they allocate attention and that greater attention is positively associated with investment performance, particularly when public information is abundant, but uncertainty remains high (Gargano & Rossi, 2018).

Digitalization has lowered access costs while increasing exposure to information of uneven quality, intensifying information overload and bounded rationality. Media can also transmit sentiment rather than fundamentals: pessimistic media tone predicts short-term downward price pressure followed by reversal (Tetlock, 2007). Narrative-driven channels may therefore shape retail investors differently from institutionally constrained sources.

2.3. Regulated versus unregulated information environments

The central distinction in this thesis is institutional rather than technological: regulated sources operate within formal accountability and enforceable standards, whereas unregulated sources depend more heavily on reputation, platform rules, or social validation. In markets marked by information asymmetry, disclosure regulation, auditing, and intermediaries support credible information flows and can constrain opportunistic behavior (Healy & Palepu, 2001).

The regulated/unregulated distinction is therefore not a simple quality dichotomy. Rather, it is best understood as an institutional characterization of accountability conditions under which information is produced and disseminated. Regulated sources (e.g., licensed intermediaries, mandated issuer disclosures, institutionally governed research environments) operate under formal requirements that are intended to mitigate information asymmetry and enhance market integrity (Healy & Palepu, 2001). Unregulated sources (e.g., social media, forums, peer communication) typically operate outside comparable enforcement structures and may be more susceptible to incentives linked to attention, popularity, or monetization, which can affect informational reliability. Formal regulation should therefore not be interpreted as a guarantee of superior information; rather, it shapes the disclosure, incentive, and accountability structures under which information is produced, while conflicts of interest may persist even in regulated environments (Inderst & Ottaviani, 2012; Leuz & Wysocki, 2016).

This distinction is increasingly relevant because investors combine banks, professional advice, media, and social sources, while digitalization has increased the salience of informal channels (Loibl & Hira, 2009; Chung, 2018; Lal et al., 2023). Comparing their institutional accountability conditions therefore provides a useful lens for contemporary source choice.

2.4. Risk tolerance and investment experience

While the primary focus of this thesis is financial literacy, the literature suggests that other investor characteristics can systematically shape information behavior. Investment experience captures learning-by-doing and accumulated exposure to financial decision contexts. Experience can increase familiarity with professional channels and may alter investors' perceptions of which sources are useful or reliable. Evidence linking investor

competence and engagement to information usage implies that experienced investors may process information differently and may be more able to navigate complex sources (Karlsson & Nordén, 2008; Hoffmann & Post, 2015).

Risk tolerance reflects a dispositional preference for uncertainty and is associated with investment behavior, and the types of opportunities investors pursue. Because unregulated channels often contain speculative narratives and high variance opportunities, risk tolerance may influence the attractiveness of such sources independently of literacy. Moreover, measurement research shows that commonly used risk-tolerance items capture meaningful variance in investment-related risk preferences and can be linked to allocation behavior, even if single-item measures have limitations relative to multi-item scales (Gilliam, Chatterjee, & Grable, 2010; Dohmen et al., 2011). Including risk tolerance and investment experience therefore helps disentangle the literacy effect from preference-based and learning-based determinants of source choice (Feng & Seasholes, 2005).

2.5. Perceived source credibility as a complementary explanatory pathway

Source credibility commonly reflects perceived expertise and trustworthiness. Ohanian (1990) conceptualizes credibility through expertise, trustworthiness, and attractiveness; the first two dimensions are most relevant to reliance on investment information. In digital settings, credibility judgments often use reputational and social heuristics and may therefore diverge from objective quality (Metzger, Flanagin, & Medders, 2010; Metzger & Flanagin, 2015).

In financial decision-making, credibility is especially relevant because information environments are characterized by conflicts of interest and asymmetric information. Investors must therefore decide not only which information to consume, but which sources are sufficiently reliable to justify reliance. Survey evidence indicates systematic trust differences across source categories; regulated professional sources tend to be perceived as more trustworthy than informal digital channels, although usage does not always align perfectly with trust, suggesting that convenience and social influence can also drive source selection (Akana & Santucci, 2025; Thinks Insight & Strategy, 2025). More broadly, information-adoption research identifies source credibility as an

antecedent of perceived usefulness and advice adoption, providing a theoretical link between credibility assessments and reliance behavior (Sussman & Siegal, 2003).

2.6. Research Questions and Hypotheses

The literature reviewed above motivates three related research questions. RQ1 is descriptive and asks which regulated and unregulated information sources are most frequently used by retail investors prior to investment decisions. Because it concerns observed usage patterns rather than a directional relationship, no hypothesis is specified for RQ1.

RQ2 examines the association between objective financial literacy and relative source reliance. The complementarity between literacy and professional information, together with the stronger accountability conditions of regulated channels, suggests that investors with greater financial knowledge may be better able to evaluate and use institutionally constrained information. Accordingly:

H1: *Objective financial literacy is positively associated with greater reliance on regulated information sources relative to unregulated sources prior to investment decisions.*

RQ3 concerns whether perceived relative source credibility statistically accounts for part of the association specified in H1. Credibility theory suggests that perceived expertise and trustworthiness are associated with source reliance, while financially literate investors may be better able to recognize institutional accountability cues. Given the cross-sectional design, the expected pathway is formulated as statistical mediation rather than as a causal mechanism. Accordingly:

H2: *Perceived credibility of regulated sources relative to unregulated sources statistically mediates the association between objective financial literacy and relative reliance on regulated sources.*

3. CONCEPTUAL MODEL

The conceptual framework links objective financial literacy to retail investors' relative reliance on regulated versus unregulated sources during pre-investment search. Financial literacy is the focal predictor; risk tolerance and investment experience are additional predictors representing preference- and learning-based influences expected to

shape source selection in their own right; and relative perceived credibility is examined as a potential statistical explanatory pathway.

The framework combines three complementary arguments. Knowledge can increase investors' ability to evaluate professional information (Calcagno & Monticone, 2015); institutional accountability shapes provider incentives and information asymmetry (Healy & Palepu, 2001); and expertise and trustworthiness judgments may influence reliance (Ohanian, 1990). Risk tolerance and experience are included because preferences and learning may shape source selection independently of literacy.

3.1. Model Overview

Figure 1 summarizes the model. H1 represents the association between objective financial literacy and relative source reliance, while H2 represents the tested indirect statistical association through relative perceived credibility. Risk tolerance, investment experience, and the retained demographic controls enter the adjusted models. All arrows denote hypothesized statistical associations, not causal effects.

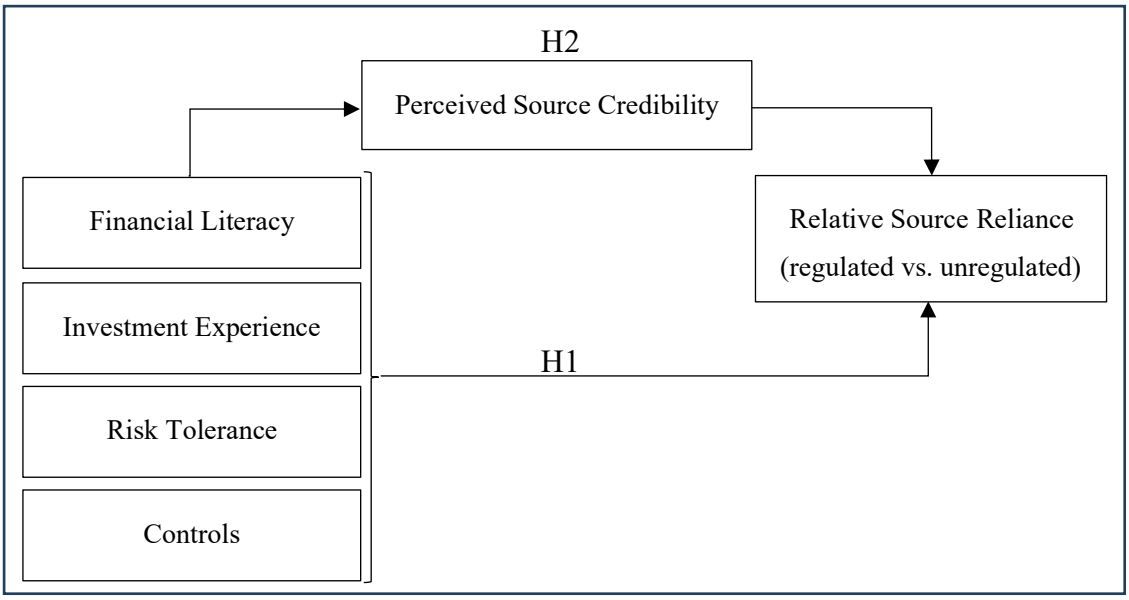

FIGURE 1 – CONCEPTUAL MODEL

The model is designed to keep the analytical focus on the relationship between objective financial literacy and relative source reliance (RSR), while accounting for alternative explanations and a potential explanatory pathway. The dependent construct is relative source reliance (regulated vs. unregulated), conceptualized as an investor's reliance on regulated sources relative to unregulated sources during pre-investment

information search. The main predictor is objective financial literacy, capturing factual financial knowledge and evaluative capability (Lusardi & Mitchell, 2014). Two additional explanatory variables, investment experience and risk tolerance, are incorporated to account for learning-based and preference-based influences on source selection.

Perceived source credibility (PSC) is introduced as a potential explanatory pathway between financial literacy and source choice. Rather than treating credibility generically, the framework conceptualizes it as a relative evaluation of regulated versus unregulated sources, reflecting institutional differences in accountability and reliability (Healy & Palepu, 2001; Akana & Santucci, 2025), and, in line with source credibility research, as a subjective judgment grounded in perceived expertise and trustworthiness (Ohanian, 1990; Georgarakos & Inderst, 2011).

Overall, the model aligns the research questions with the empirical strategy: RQ1 describes source-specific usage patterns, RQ2 and H1 address the financial literacy–source reliance association, and RQ3 and H2 examine its indirect pathway through relative perceived credibility, with risk tolerance and investment experience entering the adjusted specifications as additional predictors.

3.2. Alignment of Research Questions and Analytical Models

RQ1 is addressed descriptively through the reported frequencies and mean usage ratings for each regulated and unregulated information source. It is not linked to a directional hypothesis.

RQ2 is evaluated through H1. A baseline regression estimates the bivariate association between objective financial literacy and relative source reliance, while an adjusted model assesses whether this association remains when alternative explanations are considered.

RQ3 is evaluated through H2 using a regression-based statistical mediation model in which objective financial literacy is X, the relative credibility differential is M, and relative source reliance is Y.

Risk tolerance and investment experience are incorporated as additional predictors, together with the retained demographic and socio-economic controls, to distinguish the

focal literacy association from preference-, learning-, and background-related differences.

The indirect path is interpreted only as a tested statistical association. Because the data are cross-sectional, the model cannot establish temporal ordering or a causal mediation mechanism.

This alignment ensures that the descriptive analysis answers RQ1, the regression analyses answer RQ2 and test H1, and the statistical mediation analysis answers RQ3 and tests H2.

4. METHODOLOGY

4.1. Research Design

This study employs a quantitative, deductive, cross-sectional survey design to examine how retail investors differ in their use of regulated versus unregulated information sources during the information acquisition phase preceding an investment decision. The individual retail investor is the unit of analysis. A standardized survey approach is considered appropriate because it enables consistent measurement of objective financial literacy, investment experience, risk tolerance, perceived credibility, and source usage, and supports statistical analysis of associations among these constructs.

Using the Research Onion as an organizing framework, the study is aligned with a positivist research philosophy because it examines observable, quantitatively measured relationships; it follows a deductive approach because the hypotheses are derived from prior theory and literature. The methodological choice is mono-method quantitative, the strategy is a survey, and the time horizon is cross-sectional. At the innermost layer, data were collected through a structured online questionnaire and analyzed using descriptive statistics, regression models, and a regression-based statistical mediation analysis (Saunders et al., 2019).

4.2. Population and Sample

4.2.1. Target Population and Eligibility

The target population consists of retail investors, defined in this study as individual (non-professional) investors who have made at least one investment decision regarding financial assets. Eligibility was assessed using the screening question: “Have you ever

made an investment decision on financial assets?" Only respondents answering affirmatively were retained, so the analytical sample comprised participants able to report on information acquisition preceding an investment decision.

4.2.2. Sampling and Recruitment

A non-probability, convenience-based sampling approach was used. The survey link was disseminated through four channels: social media, university chat groups, a professional work-related distribution list in an audit-firm context, and a local sports club network. These channels were selected to reach eligible retail investors across social, academic, professional, and community settings and to increase variation in socio-demographic characteristics, investment experience, and financial capability.

No probability-based selection or sampling quotas were applied. The resulting sample is therefore suitable for examining associations within the observed respondent group but is not intended to provide population-representative estimates of all retail investors.

Recruiting retail investors is inherently challenging because participation in financial assets – particularly risky financial assets – remains limited across Europe. Using the Eurosystem Household Finance and Consumption Survey (HFCS), Arrondel et al. (2016) report that only a minority of euro-area households hold risky financial assets, illustrating the relatively small accessible population for studies focused on investors rather than the general public. The multi-channel strategy was therefore used to improve access to the relevant population, while its implications for representativeness are acknowledged in the limitations.

4.2.3. Data Preparation and Analytical Sample

Before analysis, responses were screened against the eligibility criterion and checked for sufficient information to compute the focal study variables. Cases failing the eligibility screen or lacking the substantive information required for analysis were excluded. The Qualtrics data were then exported to SPSS and checked for coding and missing-value handling. The value "99" was defined as user-missing, and isolated missing observations were excluded variable by variable; no imputation was applied. Because missingness among the retained responses was below 0.2%, this procedure preserved virtually all available information. The resulting analytical sample comprised N = 103 usable responses.

4.3. Method of Data Collection

Data were collected through an online survey administered via Qualtrics. The questionnaire was fielded over a two-week period, using the non-probability, multi-channel recruitment strategy described in Section 4.2.2. Variation in the central explanatory variables was required for estimation of the planned cross-sectional associations.

The average completion time was approximately seven minutes. Participation was anonymous, and no personally identifying information was collected.

4.4. Study Instrument

The study instrument was a structured online questionnaire comprising an eligibility screening item, demographic and socio-economic questions, six objective financial-literacy items, a single-item risk-tolerance measure, an investment-experience item, source-usage frequency ratings, and two credibility items for each information source. The following subsections describe the operationalization, response formats, coding, and construction of the variables used in the analyses. The administered questionnaire is reproduced in Appendix B.

Internal consistency and descriptive properties are reported in the results section.

4.5. Measurement Scales

This section operationalizes the constructs included in the conceptual model and describes how they were measured in the survey. Wherever possible, established measurement approaches were used to support content validity and comparability. Multi-item constructs were formed as described below. Cronbach's alpha was not treated as the primary criterion for the objective financial-literacy index because its items intentionally cover different knowledge domains; it is not applicable to the single-item measures of risk tolerance and investment experience. The main constructs are objective financial literacy, investment experience, risk tolerance, relative source reliance, and perceived source credibility.

4.5.1. Financial Literacy

Objective financial literacy was measured using the Cumurović-Lusardi (CL) scale proposed by Rieger (2020), which combines foundational items from Lusardi and

Mitchell (2011) with investment-related knowledge items based on Ćumurović and Hyll (2019). Rieger (2020) argues that many financial literacy instruments correlate only modestly and recommends the combined CL approach as a concise and representative measure. The CL scale comprised six dichotomous knowledge items covering (i) the "Big Three" domains – interest compounding, inflation, and risk diversification (Lusardi & Mitchell, 2011) – and (ii) three additional items capturing basic market and investment knowledge (Ćumurović & Hyll, 2019; Rieger, 2020).

Each item was coded as 1 (correct) and 0 (incorrect) consistent with the underlying measurement logic (Lusardi & Mitchell, 2011; Rieger, 2020). The objective financial literacy score was computed as the sum of correct answers divided by 6, yielding an index ranging from 0 to 1, where higher values indicate higher objective literacy.

4.5.2. Risk Tolerance

Risk tolerance was measured using the widely applied single-item instrument from the Survey of Consumer Finances (Board of Governors of the Federal Reserve System – Research & Analysis, 2023). The SCF item asks respondents to indicate which statement best reflects the amount of financial risk they are willing to take when saving or making investments, ranging from *take substantial financial risks expecting substantial returns* to *not willing to take any financial risk*. Consistent with common practice in empirical household finance research, responses were coded such that higher values represent greater willingness to bear investment risk.

Although the SCF measure is frequently used due to its brevity and availability, the literature also highlights conceptual and psychometric limitations. In particular, prior work suggests that the item may capture aspects of an investor's financial situation or contextual constraints rather than "pure" risk preferences, and its reliability is typically lower than that of multi-item instruments (Gilliam, Chatterjee, & Grable, 2010). At the same time, Gilliam et al. (2010) provide evidence supporting its criterion and concurrent validity: the SCF item correlates moderately with the multidimensional Grable-Lytton Risk Tolerance Scale (GL-RTS) and is significantly associated with portfolio allocation (i.e., higher risk tolerance relates to higher stock allocation and lower cash allocation). However, the authors also show that the longer GL-RTS exhibits greater explanatory power, implying that the SCF item should be interpreted as a pragmatic proxy –

particularly for investment-specific risk tolerance – rather than a comprehensive measure of financial risk tolerance (Gilliam et al., 2010).

4.5.3. Relative Source Reliance

Information source usage was measured using the information-search instrument developed by Loibl and Hira (2009). In their study, frequency was captured with the item "How often have you obtained information about investing from [source]?" using a five-point scale (1 = never to 5 = very often) (Loibl & Hira, 2009). Following this approach, respondents in the present survey reported how frequently they consult a set of investment-related information sources during the pre-investment information acquisition phase. Each source was classified ex ante as either regulated or unregulated, depending on whether the provider operates under formal financial-market regulation and professional accountability mechanisms (regulated) or largely outside such institutional oversight (unregulated).

To ensure a transparent and replicable categorization, the regulated–unregulated distinction was operationalized through four law-anchored criteria. A source was classified as regulated if at least one criterion applied; otherwise, it was classified as unregulated.

1. *Entity-based regulation*: A source was treated as regulated if information was provided by an authorized and supervised investment-service provider and thus subject to MiFID II conduct-of-business and investor-protection requirements, notably Articles 5 (authorization), 16 (organizational requirements), 24 (information to clients), and 25 (suitability/appropriateness and reporting) (European Parliament and Council of the European Union, 2014a).
2. *Disclosure-based regulation*: A source was treated as regulated when it reflected mandatory issuer disclosures under EU transparency regimes, including MAR Article 17 (public disclosure of inside information) and the Transparency Directive Articles 4 (annual financial report) and 5 (half-yearly financial report) (European Parliament and Council of the European Union, 2014b; European Parliament and Council of the European Union, 2004).
3. *Content-based regulation:* A source was treated as regulated if it constituted or disseminated investment recommendations or suggested investment strategies

subject to requirements on objective presentation and conflict-of-interest disclosure, as set out in MAR Article 20 and specified in Commission Delegated Regulation (EU) 2016/958 (European Commission, 2016).

4. *Accountability-based regulation*: A source was treated as regulated if the production of its informational content is subject to a formal professional, media-law, or public-law accountability regime that imposes enforceable duties of care and attaches institutional consequences to their violation. Such regimes include legally recognized professional self-regulation, to which MAR Article 21 explicitly refers in the context of journalistic dissemination (European Parliament and Council of the European Union, 2014b), as well as public-law mandates subject to administrative and judicial oversight.

The selected sources were guided by comparability with established multi-source measurement and by coverage of contemporary investor information environments. Loibl and Hira (2009) show that retail investors draw on heterogeneous portfolios spanning interpersonal, mass media, and internet-based channels, motivating measurement across multiple sources rather than a single "primary source" (Loibl & Hira, 2009). Accordingly, the instrument includes interpersonal sources, media-based sources, and digitally mediated sources, while also covering institutionally constrained channels central to disclosure and intermediation perspectives (Healy & Palepu, 2001). More recent evidence suggests that investors increasingly combine traditional and digital sources, warranting the inclusion of social media and online forums as distinct unregulated categories (Lal et al., 2023). In addition, generative AI and finance podcasts were included as contemporary digital formats that may shape pre-investment information acquisition, particularly among digitally oriented investors (Lal et al., 2023).

TABLE I. INFORMATION SOURCES MAPPING (UNREGULATED / REGULATED)

Information Source	Justification
Banks and brokerage firms	*Regulated (Criterion 1):* Typically, authorized investment service providers; classification relies on MiFID II authorization and conduct-of-business framework (Art. 5, 16, 24, 25).[a]
Professional financial advisors / wealth managers	*Regulated (Criterion 1):* Provision of investment advice/portfolio management is captured by MiFID II and associated organizational and client-information duties (Art. 16, 24, 25), subject to authorization (Art. 5).[a]

Official company information	*Regulated (Criterion 2):* Comprises legally mandated issuer disclosures, including public disclosure of inside information (MAR Art. 17) and periodic reporting under the Transparency Directive (Arts. 4-5).[b, c]
Regulatory and public authorities	*Regulated (Criterion 4):* Information is produced under a public-law mandate subject to administrative law and parliamentary and judicial oversight.
Analyst reports / professional research	*Regulated (Criterion 3):* Commonly constitutes "investment recommendations" or similar investment-strategy content, subject to MAR Art. 20 and the technical standards in Delegated Regulation (EU) 2016/958 on objectivity and conflicts.[d]
Professional financial media	*Regulated (Criterion 4; Criterion 3 where applicable):* Journalistic content is subject to a legally recognized accountability regime. Explicit investment recommendations additionally fall under MAR Art. 20 and Delegated Regulation (EU) 2016/958.[b, d]
Social media platforms	*Unregulated (channel-level):* predominantly user-generated and informal content without systematic, standardized disclosure/compliance structures; classified as unregulated for replicability even though specific posts may trigger MAR Art. 20 in individual cases.
Online forums and message boards	*Unregulated:* Community-based, user-generated information exchange lacking institutional governance and standardized disclosure/quality controls typical of regulated intermediaries or regulated issuer disclosures.
Friends, family, colleagues	*Unregulated:* Informal interpersonal advice outside regulated intermediation; no MiFID II authorization framework and no issuer disclosure or regulated-recommendation regime applies at the channel level.
Generative AI	*Unregulated:* Tool-mediated outputs are not inherently produced by authorized investment service providers under MiFID II, nor are they mandatory issuer disclosures or regulated recommendations by default in the sense operationalized by Criteria 1-3.
Finance podcasts	*Unregulated:* Typically, a creator-/media format without standardized capital-market disclosure or research-compliance structures

[a] European Parliament and Council of the European Union, 2014a
[b] European Parliament and Council of the European Union, 2014b
[c] European Parliament and Council of the European Union, 2004
[d] European Commission, 2016

For each respondent, usage of regulated sources was computed as the arithmetic mean of frequency ratings across all regulated sources; analogously, usage of unregulated sources was computed as the mean across unregulated sources. The primary dependent variable, relative source reliance, was operationalized as a difference score (regulated

minus unregulated), with higher values indicating stronger relative reliance on regulated sources. This within-respondent measure captures the individual-level balance between the two source categories while accounting for respondents' general tendency to report higher or lower source usage. It thus preserves the multi-source nature of investor information acquisition documented in prior research while directly reflecting the regulated–unregulated trade-off central to this thesis (Loibl & Hira, 2009; Healy & Palepu, 2001).

Sources were classified ex ante according to their typical institutional setting and accountability conditions to ensure transparency and replicability. Nevertheless, professional financial media and analyst reports/professional research represent potential borderline cases. Professional financial media are generally subject to journalistic and media-law accountability, but their content is not necessarily produced under financial-market regulation. Similarly, the regulatory status of analyst reports and professional research may vary depending on the provider, institutional context, and whether the content constitutes a regulated investment recommendation. A sensitivity analysis therefore employed a stricter operationalization of relative source reliance by excluding these two categories. All predictors, controls, coding decisions, and estimation procedures were otherwise kept identical to the main specification.

4.5.4. Perceived Source Credibility.

Perceived credibility for each information source was measured with a concise, context-adapted instrument derived from the original source credibility scale developed by Ohanian (1990). Ohanian's scale conceptualizes credibility as a multidimensional construct comprising expertise, trustworthiness, and attractiveness; consistent with the source-credibility tradition, expertise and trustworthiness represent the two core dimensions most directly linked to message acceptance, while attractiveness is not theoretically central for evaluating *investment-related information sources* (Ohanian, 1990).

Accordingly, the present study operationalized perceived credibility using two Likert-type items capturing these core dimensions: "This source is knowledgeable about financial and investment-related information" (expertise) and "This source is trustworthy and reliable" (trustworthiness). Responses were recorded on a 5-point Likert scale (1 =

strongly disagree; 5 = strongly agree), and higher values indicate higher perceived credibility. For each source, PSC was computed as the mean of the expertise and trustworthiness items. This reduced-item approach is further supported by credibility research in online and digital contexts, which commonly defines credibility as a subjective judgement grounded primarily in perceived expertise and trustworthiness of the information source (Metzger & Flanagin, 2015).

Item statistics supporting the aggregation of the expertise and trustworthiness items are reported in the results section.

4.5.5. Investment Experience

Investment experience was operationalized as investment tenure, capturing accumulated market exposure and learning-by-doing (Borsboom et al., 2022; Chalissery et al., 2023). Tenure was recorded in four ordered categories (less than 1 year; 1–4 years; 5–9 years; 10 years or more), coded 1 to 4. The use of categories reduced recall burden and the influence of extreme values.

Using investment tenure as the sole measure was also motivated by considerations of measurement clarity and model parsimony: compared to composite approaches, a single tenure indicator reduces reliance on subjective self-assessments and avoids conflating experience with short-term trading intensity. At the same time, prior evidence suggests that experience is closely linked to investors' market engagement and information-related behaviors. For instance, brokerage-based studies show systematic differences in participation and trading behavior across investors, underscoring that accumulated involvement in investing is associated with distinct decision patterns and information use (Hoffmann & Post, 2015). Moreover, research on investor competence indicates that experience-related factors are associated with how investors process information and feel capable of acting on it, even if subjective competence is not directly measured in the present study (Karlsson & Nordén, 2008).

4.5.6. Control Variables

To reduce omitted-variable bias and account for systematic differences in information behavior across investor subgroups, the analysis includes a set of demographic and socio-economic controls commonly used in research on financial capability and investor information search (Allgood & Walstad, 2016; Loibl & Hira, 2009). Age (18-24, 25-34,

35-44, 45-54, 55-64, 65+) and gender (female/male/non-binary/prefer not to say) were included because investment behavior and information acquisition patterns vary across life-cycle stages and demographic groups. Education (secondary or less, high school, bachelor's, master's, doctorate) was controlled for as a proxy for general human capital and cognitive resources that may influence information processing beyond financial literacy.

A binary indicator capturing an educational or professional background in finance, economics, or business was added to reflect domain-specific exposure that can affect familiarity with professional or regulated sources. Country of residence (Germany, Portugal, or another country) was initially considered as an additional control for institutional and market-environment differences. It was excluded from the regression models because approximately 95% of respondents resided in Germany, leaving insufficient variation for a stable estimate. Household income (categorical brackets; plus prefer not to say) was included because financial resources are related to access to professional advice and paid information services and may affect information demand. Primary asset class was likewise considered because asset classes differ in complexity and monitoring needs, potentially influencing which sources investors consult (Loibl & Hira, 2009). However, it was excluded from the regression models because approximately 71% of respondents reported ETFs/funds as their primary asset class, providing insufficient variation for meaningful inference.

4.6. Data Analysis

All analyses are conducted in SPSS. The analytical sequence follows RQ1-RQ3 and the corresponding hypotheses, thereby linking each research question directly to its empirical test.

RQ1 is addressed using source-specific descriptive statistics, including mean usage ratings and standard deviations for the regulated and unregulated information sources. Descriptive statistics are also reported for the main study variables, while categorical controls are summarized using frequencies and percentages. Bivariate correlations provide an initial overview of associations among the focal constructs.

RQ2 and H1 are examined using baseline and adjusted regression models. The baseline model regresses relative source reliance on objective financial literacy. The

hierarchical full model adds risk tolerance, investment experience, and the retained controls (age, education, income, gender, and finance/business background). Model fit is compared using R^2 and the change in explained variance (ΔR^2).

RQ3 and H2 are examined using PROCESS Model 4 with 5,000 bootstrap samples. Objective financial literacy is specified as X, the credibility differential (regulated minus unregulated) as M, and relative source reliance as Y; risk tolerance, investment experience, and the retained controls are included as covariates. The tested indirect association is statistically supported if its 95% bootstrap confidence interval excludes zero (Hayes, 2022). Because all variables were measured cross-sectionally, the analysis does not establish temporal ordering or causal mediation.

Before interpreting the OLS models, diagnostic checks assessed linearity and homoskedasticity from residual-versus-predicted plots, approximate residual normality from the histogram and normal P–P plot, independence from the Durbin–Watson statistic, multicollinearity from tolerance and VIF values, and potentially influential cases from standardized residuals and Cook's distance. The corresponding results are reported before the regression estimates in Section 5.3.

5. ANALYSIS AND DISCUSSION OF RESULTS

5.1. Sample Characterization and Data Quality

The data for this study were collected via an online survey. In total, N = 103 responses met the inclusion criteria and were included in the analyses. The sample comprised 39% female and 61% male respondents; no other gender categories were reported. Regarding age, 43% of participants belonged to the 25-34 age group, followed by 27% in the 18-24 age group.

In terms of education, 57% indicated a bachelor's degree as their highest level of education. The sample was predominantly resident in Germany (95%). Furthermore, 47% reported an educational or professional background in finance, economics, or business. With respect to investment behavior, 71% stated that they invest in funds/ETFs. Household income was distributed as follows: 42% reported an annual household income between €50,000 and €99,999, 27% between €25,000 and €49,999, and 18% below €25,000.

Across all survey responses, missing values amounted to < 0.2%. In SPSS, missing responses were coded as "99" and treated as user-defined missing values, meaning they were excluded from the relevant statistical computations on a variable-by-variable basis (i.e., analyses were conducted using the available valid data for each test).

5.2. Descriptive Results

TABLE II. RETAIL INVESTORS INFORMATION SOURCE CHOICE

	Source Choice		Perceived Credibility	
Information Source	Mean	Std. Deviation	Mean	Std. Deviation
Professional Financial Media	3.10	1.37	3.83	0.67
Official Company Information	3.02	1.39	4.37	0.64
Regulatory and Public Authorities	2.83	1.39	4.30	0.75
Professional Financial Advisors	1.93	1.30	3.91	0.61
Analyst Reports and Prof. Research	1.92	1.20	3.84	0.68
Banks and Brokerage Firms	1.77	0.92	4.03	0.57
Social Media Platforms	2.84	1.47	2.31	0.71
Friends, Family, or Colleagues	2.64	0.92	2.49	0.72
Finance Podcasts	2.34	1.08	2.31	0.68
Online Forums and Message Boards	2.23	1.13	1.77	0.74
Generative AI	2.13	1.07	2.35	0.70

RQ1 was addressed using the source-specific ratings reported in Table II. Respondents reported their frequency of using different information sources on a 5-point scale ranging from 1 ("never") to 5 ("very often"). As reported in Table II, among regulated sources, professional financial media was used most frequently (M = 3.10, SD = 1.37), whereas banks and brokerage firms were used least frequently (M = 1.77, SD = 0.92). Among unregulated sources, social media platforms showed the highest usage frequency (M = 2.84, SD = 1.47), while generative AI was used least frequently (M = 2.13, SD = 1.07). Thus, professional financial media and social media represent the most frequently used sources in their respective categories.

Perceived credibility was assessed on a 5-point scale (1 = low credibility; 5 = high credibility). Prior to aggregating the expertise and trustworthiness items into an overall credibility score per source, the two dimensions were examined for each source category and were substantially correlated for both regulated ($r = .68$, $p < .001$) and unregulated sources ($r = .57$, $p < .001$), supporting their combination. For the regulated sources, official company information received the highest credibility rating (M = 4.37, SD = 0.64), whereas professional financial media received the lowest credibility rating within

this category (M = 3.83, SD = 0.67). For unregulated sources, friends, family, or colleagues were perceived as most credible (M = 2.49, SD = 0.72), while online forums and message boards received the lowest credibility evaluation (M = 1.77, SD = 0.74) (Table II).

TABLE III. DESCRIPTIVE STATISTICS FOR MAIN STUDY VARIABLES

Variable	Min	Max	Mean	Std. Deviation
Financial Literacy	0.17	1.00	0.731	0.258
Risk Tolerance	1.00	4.00	2.456	0.872
Investment Experience	1.00	4.00	2.380	0.830
Perceived Source Credibility Differential	- 0.17	3.18	1.804	0.858
Relative Source Reliance	- 2.63	2.67	- 0.009	1.297

Table III reports descriptive statistics for the main study variables (N = 103). The objective financial literacy had a mean of 0.731 (SD = 0.258), indicating that respondents answered, on average, approximately three quarters of the literacy questions correctly. Mean risk tolerance was 2.456 (SD = 0.872) on the SCF-based scale. Investment experience had a mean of 2.380 (SD = 0.830). Regarding the focal constructs, the perceived source credibility differential was positive on average (M = 1.804, SD = 0.858), suggesting that regulated sources are generally perceived as more credible than unregulated sources. Relative source reliance was slightly negative (M = -0.009, SD = 1.297), indicating that, on average, respondents use regulated and unregulated sources at similar levels, with substantial heterogeneity across individuals.

TABLE IV. CORRELATION MATRIX

		FL Score	RT Score	IE Score	PSC Differential	RSR
FL Score	Pearson Correlation	1	- .133	.487[a]	.172	.640[a]
	Sig. (2-tailed)		.182	<.001	.083	<.001
RT Score	Pearson Correlation	- .133	1	- .187	.101	- .467[a]
	Sig. (2-tailed)	.182		.059	.309	<.001
IE Score	Pearson Correlation	.487[a]	- .187	1	.071	.454[a]
	Sig. (2-tailed)	<.001	.059		.478	<.001
PSC Differential	Pearson Correlation	.172	.101	.071	1	.231[b]
	Sig. (2-tailed)	.083	.309	.478		.019
RSR	Pearson Correlation	.640[a]	- .467[a]	.454[a]	.231[b]	1
	Sig. (2-tailed)	<.001	<.001	<.001	.019	

[a] Correlation significant at 0.001 level (2-tailed)
[b] Correlation significant at the 0.05 level (2-tailed)

Table IV presents bivariate correlations among the main variables. Objective financial literacy was strongly and positively associated with relative reliance on regulated sources

(r = .640, p < .001) and moderately associated with investment experience (r = .487, p < .001). The credibility differential was positively related to relative source reliance (r = .231, p = .019), indicating that respondents who perceive regulated sources as relatively more credible also tended to rely more on regulated sources. Investment experience showed a moderate positive association with relative source reliance (r = .454, p < .001), while risk tolerance was moderately negatively associated with relative source reliance (r = −.467, p < .001), suggesting that more risk-tolerant respondents rely relatively more on unregulated sources. These bivariate results establish direction and magnitude but not unique contributions. The following models therefore test H1 and H2 while accounting for alternative explanations.

5.3. Regression Diagnostics and Assumption Checks

Before estimating the regression models, the relevant assumptions were assessed using residual plots and standard diagnostic statistics. The scatterplot of standardized residuals against standardized predicted values showed no systematic curvature or funnel-shaped pattern, providing no indication of substantial violations of linearity or homoskedasticity. The residual histogram was approximately bell-shaped, and the normal P–P plot followed the diagonal reasonably closely, supporting approximate residual normality. Standardized residuals ranged from −2.257 to 2.080, and the maximum Cook's distance was .070, providing no indication of influential observations. The Durbin–Watson statistic was 1.490, indicating no strong evidence of problematic residual autocorrelation. Multicollinearity was also not a concern: tolerance values ranged from .422 to .921 and VIFs from 1.086 to 2.368. Taken together, the diagnostics provided no indication of material assumption violations that would preclude interpretation of the linear regression models.

5.4. Regression Results

TABLE V. BASELINE REGRESSION

Predictor	B	SE B	β	t	p
Constant	-2.362	.298		-7.932	<.001
FL	3.218	.384	.640	8.375	<.001

Model fit: $R^2 = 0.410$; Adjusted $R^2 = 0.404$; $F(1, 101) = 70.145$

To answer RQ2 and test H1, the association was estimated using a baseline linear regression with relative source reliance as the dependent variable and objective financial

literacy as the sole predictor. The model was statistically significant, F (1, 101) = 70.145, $p < .001$, explaining a substantial proportion of variance in relative source reliance ($R^2 = .410$; adjusted $R^2 = .404$). Objective financial literacy showed a positive and significant association with relative source reliance (B = 3.218, SE = 0.384, β = .640, $p < .001$), indicating that higher levels of financial literacy are associated with a stronger relative reliance on regulated information sources compared to unregulated sources. Given that FL is measured as the proportion of correct answers, the unstandardized coefficient implies that a 10 percentage-point increase in objective financial literacy is associated with an increase of approximately 0.32 points on the difference score. To illustrate, an investor answering all six knowledge items correctly rather than three of six differs by about 1.6 points, more than one point on the five-point usage scale. This provides strong support for RQ2 and H1.

TABLE VI. HIERARCHICAL MULTIPLE REGRESSION

	Model 1 (Controls)				Model 2 (Full)			
Predictor	B	SE B	β	p	B	SE B	β	p
Constant	-1.860	0.541		<.001	-1.499	0.550		.008
Age	0.147	0.160	0.118	.359	-0.102	0.127	-0.081	.427
Education	0.438	0.215	0.235	.044	0.186	0.158	0.100	.242
Income	-0.026	0.172	-0.020	.879	-0.029	0.126	-0.022	.821
Finance/Business Background (y/n)	0.512	0.275	0.198	.065	-0.048	0.223	-0.019	.829
Female (dummy)	0.197	0.255	0.074	.442	0.256	0.186	0.097	.173
Financial Literacy					2.651	0.447	0.527	<.001
Risk Tolerance					-0.550	0.108	-0.370	<.001
Investment Experience					0.242	0.144	0.155	0.095

Model fit:
- Model 1: $R^2 = .175$; Adjusted $R^2 = .133$; $F(5,97) = 4.121$; $p = .002$
- Model 2: $R^2 = .588$; Adjusted $R^2 = .553$; $F(8,94) = 16.787$; $p < .001$
- Change: $\Delta R^2 = .413$; $\Delta F(3, 94) = 31.432$; $p < .001$

To provide an adjusted test of RQ2 and assess the robustness of the baseline relationship between objective financial literacy and relative reliance on regulated sources (H1), a hierarchical multiple regression was estimated (Table VI). This specification examines whether financial literacy remains a significant predictor of relative source reliance when accounting for alternative explanations – most notably risk tolerance and investment experience – and a parsimonious set of demographic controls. As detailed in Section 4.5.6, country of residence and primary asset class were excluded because their highly unbalanced distributions would have yielded unstable estimates.

Model 1 included the demographic controls (age, education, income, gender, and finance/business background) and was statistically significant, F (5, 97) = 4.121, p = .002, explaining 17.5% of the variance in relative source reliance (R^2 = .175; adjusted R^2 = .133). Model 2 added objective financial literacy, risk tolerance, and investment experience and resulted in a substantial improvement in model fit (ΔR^2 = .413, ΔF (3, 94) = 31.432, $p <$ .001). The full model was significant, F (8, 94) = 16.787, $p <$ .001, explaining 58.8% of the variance (R^2 = .588; adjusted R^2 = .553).

In Model 2, objective financial literacy remained a strong positive predictor of relative source reliance (B = 2.651, SE = 0.447, β = .527, $p <$ .001), indicating that higher financial literacy is associated with greater reliance on regulated sources relative to unregulated sources even after controlling for covariates. Risk tolerance (coded such that higher values indicate greater willingness to take risk) was negatively associated with relative reliance on regulated sources (B = −0.550, SE = 0.108, β = −.370, $p <$ .001), implying that more risk-tolerant respondents rely relatively more on unregulated sources. Investment experience showed a positive but only marginal association with relative source reliance (B = 0.242, SE = 0.144, β = .155, p = .095). Multicollinearity was not a concern (see Section 5.3). Among the demographic controls, none remained statistically significant in the full model. Consistent with the assumption checks reported in Section 5.3. the persistence of the association in the full model provides additional robustness evidence for Hypothesis 1.

As an additional robustness check for RQ2, the sensitivity analysis defined in Section 4.5.3 re-estimated the full model with the two borderline categories excluded. The alternative model was statistically significant, F(8, 94) = 14.478, p < .001, and explained 55.2% of the variance (R^2 = .552; adjusted R^2 = .514). Objective financial literacy remained a strong positive predictor (B = 2.693, SE = 0.485, β = .516, p < .001), while risk tolerance remained negatively associated with relative reliance on regulated sources (B = −0.515, SE = 0.117, β = −.333, p < .001). Investment experience remained non-significant (B = 0.245, SE = 0.156, β = .151, p = .119). The similarity of the financial-literacy coefficient across both specifications indicates that the main finding was robust to the exclusion of the two borderline source categories.

5.5. Statistical Mediation Analysis

TABLE VII. MEDIATION ANALYSIS (PROCESS MODEL 4)

Path / Effect	Coefficient	SE	t	p	95% CI / BootCI
Mediator model (M = PSC)					
a: FL → PSC	0.489	0.440	1.110	.270	[-0.386, 1.364]
Model fit (R^2; F; p)	R^2 = .085	-	F (8,94) = 1.09	.376	-
Outcome model (Y = RSR)					
b: PSC → RSR	0.252	0.102	2.472	.015	[0.050, 0.454]
c': FL → RSR (direct effect)	2.528	0.438	5.768	<.001	[1.658, 3.398]
Model fit (R^2; F; p)	R^2 = .614	-	F (9,93) = 16.41	<.001	-
*Indirect effect (a * b)*	0.123	BootSE = 0.124	-	-	BootCI [-0.149, 0.363]

X = FL; M = PSC; Y = RSR
Bootstrap = 5,000; 95% CI
Covariates = Investment Experience; Risk Tolerance; Controls (age, education, income, gender (dummy), financial/business background); N = 103

To answer RQ3 and test H2, the indirect association was examined using PROCESS (Model 4) as a statistical mediation analysis with objective financial literacy as the independent variable, the credibility differential as the mediator, and relative source reliance as the outcome. As covariates, the model included investment experience and risk tolerance to account for learning-based and preference-based alternative explanations, as well as a parsimonious set of demographic controls (age, education, income, gender) and finance/business background to reduce omitted-variable bias.

The indirect association through credibility was not supported. Financial literacy did not predict the mediator (p = .270), and the mediator model was not statistically significant, R^2 = .085, F(8, 94) = 1.09, p = .376. In the outcome model, literacy retained a positive coefficient (b = 2.528, p < .001) and relative credibility was positively associated with reliance (b = .252, p = .015). However, the bootstrapped indirect effect included zero (effect = .123; 95% CI [−.149, .363]). RQ3 is therefore answered in the negative with respect to mediation for this specification, and H2 was not supported.

5.6. Discussion of Results

The analyses produced three central findings: investors combined regulated and unregulated sources, financial literacy was strongly associated with greater relative use of regulated sources, and relative credibility did not statistically mediate that association. Risk tolerance was also a substantive negative correlate. The findings are discussed by research question.

Regarding RQ1, professional financial media and social media were the most frequently used regulated and unregulated sources, respectively, while the near-zero mean reliance score indicates that neither category dominated. This mixed portfolio confirms the heterogeneous search patterns reported by Loibl and Hira (2009) and Lal et al. (2023). The prominence of social media also corresponds with Akana et al. (2025), especially for younger investors, although their U.S. respondents relied more on family and professionals for general financial advice. The difference may reflect this study's narrower investment context, younger and highly educated sample, and national market differences rather than contradictory evidence. Professional media may offer low-cost access to structured market information, whereas social media provides immediacy and social cues; these distinct benefits may account for why both categories remained salient.

Regarding RQ2, financial literacy remained the largest predictor in the full model ($\beta = .527$), exceeding risk tolerance in absolute magnitude ($\beta = -.370$) and investment experience ($\beta = .155$); its sensitivity estimate was nearly identical ($\beta = .516$). The direction is consistent with the complementarity between knowledge and professional information found by Calcagno and Monticone (2015) and Kim et al. (2021), extending it from advice choice to a multi-source reliance score. Coefficients cannot be compared directly because prior studies used different outcomes, but the present association is comparatively strong within its model. Kim et al. (2021), for example, reported a 6.8-percentage-point increase in professional rather than informal advice-seeking for a one-standard-deviation literacy increase; the estimates are not commensurable because the outcomes and designs differ. The difference-score design may accentuate institutional contrasts, while unobserved financial engagement may also contribute to this cross-sectional sample.

Risk tolerance was a substantive additional correlate: its absolute standardized coefficient was about 70% of the literacy coefficient, and more risk-tolerant respondents relied relatively more on unregulated sources. This is compatible with the prevalence of high-risk products and speculative narratives in social-media financial content (Akana et al., 2025). Experience, by contrast, fell from a moderate bivariate correlation ($r = .454$) to a small, adjusted coefficient ($\beta = .155$, $p = .095$), qualifying evidence that experience reduces biases and changes information processing (Feng & Seasholes, 2005; Chalissery et al., 2023). Shared variance with literacy, the four-category tenure measure, and the

different behavioral outcome may explain its weaker incremental association. The result is therefore not necessarily inconsistent with the experience literature; it indicates that tenure adds limited explanatory power once knowledge and preferences are modelled jointly.

Regarding RQ3, relative credibility was positively associated with relative reliance, consistent with information-adoption research (Sussman & Siegal, 2003; Metzger et al., 2010), but its bivariate association ($r = .231$) was weaker than those for literacy, risk tolerance, and experience. The non-significant literacy-to-credibility path and indirect effect indicate that credibility did not statistically connect literacy to source choice. This partially confirms rather than rejects credibility theory: credibility matters for use, but not as the tested pathway. Trust and usage may diverge because convenience, familiarity, and social identification also shape source choice (Akana & Santucci, 2025; Thinks Insight & Strategy, 2025). Limited variation in the generally positive credibility differential ($M = 1.804$) may have restricted the between-person variation for literacy to explain. Aggregation across heterogeneous sources and the two-item adaptation may also have obscured source-specific processes. Perceived usefulness, accessibility, and verification costs therefore remain plausible alternative pathways.

6. CONCLUSION

Retail investors today navigate an information environment in which regulated disclosures compete with an expanding volume of unregulated, digitally distributed content. This thesis asked how objective financial literacy relates to the way investors resolve that tension, examining their relative reliance on regulated versus unregulated sources prior to investment decisions and testing whether perceived credibility accounts for the pattern. The three research questions are answered in turn below, followed by the theoretical and practical implications, the limitations, and directions for future research.

6.1. Answers to the Research Questions

RQ1: *Which regulated and unregulated information sources are most frequently used by retail investors prior to investment decisions?* Professional financial media was the most frequently used regulated source, whereas social media was the most frequently used unregulated source. Banks and brokerage firms were least used among regulated sources, while generative AI was least used among unregulated sources. The near-zero

mean relative source reliance score indicates that respondents used regulated and unregulated sources at similar levels on average.

RQ2: *How is objective financial literacy associated with retail investors' relative reliance on regulated versus unregulated information sources?* Higher objective financial literacy was strongly associated with greater relative reliance on regulated sources. This association remained statistically significant after risk tolerance, investment experience, and the retained controls were considered and was robust to excluding the two borderline source categories. H1 was therefore supported.

The results further suggest that information source selection is associated with both capability-based and preference-based factors. Risk tolerance is systematically related to lower relative reliance on regulated sources, implying comparatively greater reliance on unregulated channels among more risk-tolerant investors. Investment experience exhibits a weaker positive association with reliance on regulated sources, indicating that accumulated exposure may contribute to source selection, albeit to a lesser extent than financial literacy and risk tolerance.

RQ3: *Is the association between objective financial literacy and relative source reliance statistically mediated by the perceived credibility of regulated relative to unregulated information sources?* Although credibility differentials were positively associated with relative reliance on regulated sources, the bootstrapped indirect effect included zero. The analysis therefore did not provide statistical support for the tested mediation, and H2 was not supported. Because the data are cross-sectional, the result does not establish a causal mediation process.

Taken together, these answers contribute to a more differentiated understanding of retail investor behavior by empirically linking financial literacy to the regulated-unregulated source reliance trade-off in a contemporary, multi-channel information environment. From an applied perspective, the findings imply that financial education may be associated not only with decision quality but also with the choice of informational inputs, while risk-seeking investors may remain comparatively more exposed to unregulated information environments. Future research should examine these relationships using more representative samples and behavioral measures of information

acquisition and should further explore alternative mechanisms underlying source selection.

6.2. Theoretical Implications

The results contribute to the financial literacy literature by extending its focus beyond market participation and portfolio outcomes toward a more differentiated understanding of how literacy is associated with the structure of investors' information environments. Prior research has established that financially literate individuals are more likely to participate in markets and make more informed decisions (Lusardi & Mitchell, 2007; van Rooij et al., 2011). The present findings complement this evidence by showing that financial literacy is also associated with where investors obtain information, not merely with whether they invest. In this sense, the results align with arguments that literacy is associated with more active and selective engagement with information, consistent with complementarity between knowledge and professional information sources (Calcagno & Monticone, 2015; Lusardi & Mitchell, 2011). The strong and robust literacy association is consistent with the possibility that knowledge relates to lower informational frictions and more effective navigation of institutionally constrained sources; however, the cross-sectional design does not establish this mechanism causally.

At the same time, the findings refine expectations about the potential pathway linking literacy to information behavior. Credibility differentials were related to source reliance, which is consistent with credibility theory emphasizing trustworthiness and expertise as determinants of reliance (Ohanian, 1990; Metzger & Flanagin, 2015). However, the absence of a statistically supported indirect effect suggests that the association between literacy and source reliance is not statistically explained by the credibility differential alone. This pattern suggests that financially literate investors may choose regulated sources for reasons beyond credibility perceptions. Potential mechanisms include lower processing costs for formal disclosures and professional content, greater perceived usefulness of detailed information, or higher awareness of regulatory protections and institutional accountability (Healy & Palepu, 2001). Accordingly, credibility appears to matter for source choice in general, but it may not be the primary channel linking literacy to the regulated-unregulated reliance trade-off.

The results also contribute to research on information search and investor heterogeneity. Studies have documented that investors differ in search intensity and source portfolios (Loibl & Hira, 2009). The present evidence adds that such heterogeneity is systematically related to financial literacy and risk tolerance, suggesting that information search patterns reflect both evaluative capability and preferences. The strong negative association between risk tolerance and reliance on regulated sources highlights a preference-based pathway that complements capability-based explanations. This is consistent with the view that information search is not solely an optimization problem defined by costs and benefits but is also shaped by preferences and behavioral motives – particularly in contemporary digital environments where speculative narratives and sentiment-laden content are prominent (Tetlock, 2007). Consequently, a theoretical implication is that models of investor information search should incorporate both competence-related factors (literacy, experience) and dispositional preferences (risk tolerance) when explaining channel selection.

6.3. Practical Implications

The findings have several implications for retail investors. First, the strong association between financial literacy and reliance on regulated sources suggests that higher financial knowledge may be associated with greater engagement with institutionally accountable information environments. Regulated sources – such as professional intermediaries and issuer disclosures – are typically embedded in governance and enforcement structures that aim to reduce information asymmetry and protect investors. From a behavioral standpoint, more frequent use of such sources may be associated with lower exposure to low-quality or misleading information that can be prevalent in unregulated environments. Second, the role of risk tolerance indicates that more risk-tolerant investors may be particularly inclined to rely on unregulated sources. These investors may benefit from explicit strategies to verify information quality and to cross-check speculative narratives against regulated disclosures and professional research, especially when investment decisions are influenced by social or platform-based content.

For regulators and providers of financial education, the results suggest two complementary priorities. The first is strengthening financial literacy as a factor that may be associated not only with decision quality but also with the selection of information

environments. Financial education initiatives that teach investors how to interpret regulated disclosures, distinguish between regulated and unregulated sources, and recognize incentives and conflicts of interest may be associated with greater use of more accountable channels. The second is acknowledging that source choice is not solely associated with credibility perceptions. Because risk tolerance was strongly associated with reliance on unregulated sources, interventions may need to address behavioral motivations and preferences – particularly among risk-seeking segments. For instance, investor education could emphasize how speculative content may exploit attention dynamics, how to evaluate claims that resemble "recommendations," and when to consult regulated sources before acting. In addition, regulators may consider continued guidance and enforcement around public investment recommendations and disclosure of interests in digital settings, given the growing role of social media and related channels in retail investor information acquisition.

Taken together, the practical implication is that higher literacy may be associated with greater use of regulated information environments, but financial education initiatives should be complemented by targeted guidance for risk-seeking investors and by measures that improve transparency and accountability in digital information channels.

6.4. Limitations

First, the non-probability convenience sample limits representativeness, and the concentration in Germany and in ETFs/funds restricts institutional and product-market comparisons. At the same time, this profile approximates the cohort for which the trade-off is most consequential, younger, digitally oriented investors newly navigating these channels, so the findings are best read as focused evidence on that group rather than population estimates.

Second, the cross-sectional design precludes causal inference and cannot establish temporal ordering in the mediation model. Reverse causality and omitted variables such as cognitive ability or financial engagement remain plausible. In particular, the positive literacy–reliance association could partly reflect reverse influence, whereby investors who already favor regulated sources accumulate more knowledge over time, and the mediation test captures only contemporaneous covariation. The reported associations

therefore reflect covariation within a single measurement occasion rather than an underlying causal process.

Third, the analysis is based on self-reported source usage and credibility evaluations, which may be affected by recall bias and social desirability. Because the credibility differential and the reliance measure came from the same respondents in one instrument, this may have inflated the direct credibility–reliance association. Reported source usage may also diverge from actual information-search behavior, so the frequency ratings are best understood as perceived rather than observed reliance.

Fourth, the regulated/unregulated classification masks within-category heterogeneity. As the sensitivity analysis showed, H1 did not depend on the borderline categories, but this does not remove the limits of a binary classification. Within the regulated category, for instance, supervised issuer disclosures are pooled with professional media under weaker oversight, and the unregulated category combines peer discussion with influencer content that differs in intent and accountability. The two-pole aggregation captures the institutional contrast of interest but obscures gradations of accountability that may themselves shape reliance.

Fifth, the unsupported indirect effect suggests that the literacy–source association may involve mechanisms beyond relative credibility, such as usefulness, information quality, manipulation risk, cognitive effort, or overload. The absence of a mediating pathway does not imply that credibility is irrelevant, since it remained directly associated with reliance, but it indicates that the two-item, aggregated credibility measure did not capture the mechanism linking literacy to source choice. This construct may have been too coarse, or literacy may operate through channels distinct from perceived credibility altogether.

6.5. Directions for Future Research

Future research should use more representative sampling strategies, including panel providers and stratified recruitment, and should oversample smaller subgroups to enable cross-country and cross-investor comparisons. Longitudinal designs could examine how literacy and source reliance develop over time, while experimental studies could test causal mechanisms by manipulating information environments, disclosure cues, or source-accountability signals.

Future studies should complement surveys with behavioural measures, such as brokerage-linked indicators, digital trace data, or controlled information-search tasks. More granular source typologies should also distinguish, for example, execution-only information from personalized recommendations and professional research from influencer-style content. Items capturing whether a source was used for general information or advice-like guidance would further improve measurement precision.

Further research should test alternative explanatory mechanisms, including perceived usefulness, information quality, manipulation risk, cognitive effort, information overload, and awareness of regulatory protections. Source-specific credibility models may also reveal relationships that are obscured by a single regulated-minus-unregulated difference score.

Together, these directions would strengthen causal inference, external validity, and behavioural measurement while providing a more detailed account of why investors select information channels before making investment decisions.

Beyond these specific extensions, the broader contribution of this thesis is to show that financial literacy is associated not only with whether and how well individuals invest, but also with the information environment in which they choose to operate. As unregulated, digitally distributed content continues to expand, this reframes financial education as a potential instrument of investor protection: equipping investors to recognize and prefer accountable information sources may matter as much as improving the quality of any single decision. Understanding why investors gravitate toward channels is therefore not a peripheral question, but central to how retail participation in financial markets can be made both more informed and more resilient.

REFERENCES

Akana, T., Lee, A. & Santucci, L. (2025). *How Americans Use Social Media for Financial Advice*. Federal Reserve Bank Philadelphia: LIFE Survey. Retrieved [26.02.2026] from https://www.philadelphiafed.org/-/media/FRBP/Assets/Consumer-Finance/Reports/how-americans-use-social-media-for-financial-advice.pdf

Akana, T. & Santucci, L. (2025). *Trust and Credibility: Comparing Sources of Financial Advice*. Federal Reserve Bank Philadelphia: LIFE Survey. Retrieved [26.02.2026] from https://www.philadelphiafed.org/-/media/FRBP/Assets/Consumer-Finance/Reports/trust-and-credibility-comparing-sources-of-financial-advice.pdf?sc_lang=en

Allgood, S. & Walstad, W. (2016). *The Effects of Perceived and Actual Financial Literacy on Financial Behaviors*. Economic Inquiry 54 (1), pp. 675 – 697. Retrieved [26.02.2026] from https://doi.org/10.1111/ecin.12255

Arrondel, L., Bartiloro, L., Fessler, P., Lindner, P., Mathä, T. Y., Rampazzi, C., Savignac, F., Schmidt, T., Schürz, M. & Vermeulen, P. (2016). *How Do Households Allocate Their Assets? Stylized Facts from the Eurosystem Household Finance and Consumption Survey*. International Journal of Central Banking 12 (2). Retrieved [26.02.2026] from https://www.ijcb.org/sites/default/files/journal/v12n2/ijcb-v12n2-how-do-households-allocate-their-assets-stylized-facts-eurosystem-household-finance-and.pdf

Board of Governors of the Federal Reserve System – Research & Analysis (2023). *Changes in U.S. Family finances from 2019 – 2022 – Evidence from the Survey of Consumer Finance*. Retrieved [26.02.2026] from https://www.federalreserve.gov/publications/files/scf23.pdf

Borsboom, C., Janssen, D.-J., Strucks, M. & Zeisberger, S. (2022). *History matters: How short-term price charts hurt investment performance*. Journal of Banking & Finance 134. Retrieved [28.02.2026] from https://doi.org/10.1016/j.jbankfin.2021.106351

Bucher-Koenen, T., Janssen, B., Knebel, C. & Tzamourani, P. (2023). *Financial literacy, stock market participation, and financial wellbeing in Germany*. Journal of Financial

Literacy and Wellbeing 1(3), pp. 486 – 513. Retrieved [26.02.2026] from https://doi.org/10.1017/flw.2024.5

Calcagno, R. & Monticone, C. (2015). Financial literacy and the demand for financial advice. Journal of Banking & Finance 50, pp. 363 – 380. Retrieved [26.02.2026] from https://doi.org/10.1016/j.jbankfin.2014.03.013

Chalissery, N., Tabash, M. I., Nishad, T. M., Aburezeg, I. M. & Daniel, L. N. (2023). Does the Investor's Trading Experience Reduce Susceptibility to Heuristic-Driven Biases? The Moderating Role of Personality Traits. Journal of Risk and Financial Management 16 (7), 325. Retrieved [28.02.2026] from https://doi.org/10.3390/jrfm16070325

Christelis, D., Georgarakos, D. & Haliassos, M. (2011). *Stockholding: Participation, Location, and Spillovers*. Journal of Banking & Finance 35 (8), pp. 1918 – 1930. Retrieved [26.02.2026] from https://doi.org/10.1016/j.jbankfin.2010.12.012

Chung, C. S. (2018). *The Devil You Know: A Survey Examining How Retail Investors Seek Out and Use Financial Information and Investment Advice.* Review of Banking and Financial Law 37, p. 653 ff. Retrieved [26.02.2026] from https://ssrn.com/abstract=3103092

Ćumurović, A. & Hyll, W. (2019). *Financial Literacy and Self-Employment*. Journal of Consumer Affairs 53 (2), pp. 455 – 487. Retrieved [26.02.2026] from https://doi.org/10.1111/joca.12198

Dohmen, T., Falk, A., Huffman, D., Sunde, U., Schupp, J. & Wagner, G. G. (2011). *Individual Risk Attitudes: Measurement, Determinants, and Behavioral Consequences.* Journal of the European Economic Association 9 (3), pp. 522 – 550. Retrieved [19.07.2026] from https://doi.org/10.1111/j.1542-4774.2011.01015.x

European Commission. (2016). *COMMISSION DELEGATED REGULATION (EU) 2016/958 of 9 March 2016.* Official Journal of the European Union. Retrieved [26.02.2026] from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32016R0958&qid=1766163007219

European Parliament and Council of the European Union. (2004). *Directive 2004/109/EC of the European Parliament and of the Council of 15 December 2004.* Retrieved

[26.02.2026] from https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX%3A02004L0109-20230105

European Parliament and Council of the European Union. (2014a). *Directive 2014/65/EU of the European Parliament and the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (MiFID II).* Official Journal of the European Union. Retrieved [26.02.2026] from https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0065

European Parliament and Council of the European Union. (2014b). *Regulation (EU) No 596/2014 of the European parliament and the council of 16 April 2014.* Official Journal of the European Union. Retrieved [26.02.2026] from https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX%3A32014R0596

Feng, L. & Seasholes, M. S. (2005). *Do Investor Sophistication and Trading Experience Eliminate Behavioral Biases in Financial Markets?* Review of Finance 9 (3), pp. 305 – 351. Retrieved [26.02.2026] from https://doi.org/10.1007/s10679-005-2262-0

Gargano, A. & Rossi, A. G. (2018). *Does It Pay to Pay Attention?* The Review of Financial Studies 31 (12), pp. 4595 – 4649. Retrieved [19.07.2026] from https://doi.org/10.1093/rfs/hhy050

Georgarakos, D. & Inderst, R. (2011). *Financial Advice and Stock Market Participation*. ECB Working Paper No. 1296. Retrieved [26.02.2026] from http://dx.doi.org/10.2139/ssrn.1761486

Gilliam, J., Chatterjee, S. & Grable, J. E. (2010). *Measuring the Perception of Financial Risk Tolerance: A Tale of Two Measures*. Journal of Financial Counseling and Planning 21, 30. Retrieved [26.02.2026] from https://fpperformancelab.org/wp-content/uploads/Measuring-the-Perceptions-of-Financial-Risk-Tolerance-A-Tale-of-Two-Measures.pdf

Hayes, A. F. (2022). *Introduction to Mediation, Moderation, and Conditional Process Analysis*. *Third Edition*. *A Regression-Based Approach.* ISBN: 9781462549030

Healy, P. M. & Palepu, K. G. (2001). *Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature.* Journal of

Accounting and Economics 31 (1-3), pp. 405 – 440. Retrieved [26.02.2026] from https://doi.org/10.1016/S0165-4101(01)00018-0

Hoffmann, A. O. I. & Post, T. (2015). How return and risk experience shape investors' beliefs and preferences. Accounting & Finance 57 (3), pp. 759 – 788. Retrieved [26.02.2026] from https://doi.org/10.1111/acfi.12169

Inderst, R. & Ottaviani, M. (2012). *Financial Advice.* Journal of Economic Literature 50 (2), pp. 494 – 512. Retrieved [19.07.2026] from https://doi.org/10.1257/jel.50.2.494

Karlsson, A. & Nordén, L. (2008). *Investor Competence, Information, and Investment Activity.* Retrieved [26.02.2026] from http://dx.doi.org/10.2139/ssrn.1007193

Kim, H., Maurer, R. & Mitchell, O. (2021). *How financial literacy shapes the demand for financial advice at older ages.* The Journal of the Economics of Ageing 20. Retrieved [26.02.2026] from https://doi.org/10.1016/j.jeoa.2021.100329

Lal, S., Sulemana, A.-S., Nguyen, T. X. T., Khan, M. S. R. & Kadoya, Y. (2023). *Information Sources for Investment Decisions: Evidence from Japanese Investors*. International Journal of Financial Studies 11(4), 117. https://doi.org/10.3390/ijfs11040117

Leuz, C. & Wysocki, P. D. (2016). *The Economics of Disclosure and Financial Reporting Regulation: Evidence and Suggestions for Future Research.* Journal of Accounting Research 54 (2), pp. 525 – 622. Retrieved [19.07.2026] from https://doi.org/10.1111/1475-679X.12115

Liao, K., Zhang, Y., Lei, H., Peng, G. & Kong, W. (2022). *A Comparative Analysis of the Effects of Objective and Self-Assessed Financial Literacy on Stock Investment Return*. Front. Psychol. 13:842277. Retrieved [26.02.2026] from https://doi.org/10.3389/fpsyg.2022.842277

Loibl, C. & Hira, T. (2009). *Investor information search.* Journal of Economic Psychology 30 (1), pp. 24 – 41. Retrieved [26.02.2026] from https://doi.org/10.1016/j.joep.2008.07.009

Lusardi, A. & Mitchell, O. (2007). *Financial Literacy and Retirement Preparedness: Evidence and Implications for Financial Education*. Bus Econ 42, pp. 35 – 44. Retrieved [26.02.2026] from https://doi.org/10.2145/20070104

Lusardi, A. & Mitchell, O. (2011). Financial Literacy Around the World: An Overview. Netspar Discussion Paper No. 02/2011-023. Retrieved [26.02.2026] from http://dx.doi.org/10.2139/ssrn.1810551

Lusardi, A. & Mitchell, O. (2014). *The Economic Importance of Financial Literacy: Theory and Evidence*. Journal of Economic Literature 52 (1), pp. 5 – 44. Retrieved [26.02.2026] from https://doi.org/10.1257/jel.52.1.5

Lusardi, A. & Mitchell, O. S. (2023). *The Importance of Financial Literacy: Opening a New Field*. Journal of Economic Perspectives 37 (4), pp. 137 – 154. Retrieved [26.02.2026] from https://doi.org/10.1257/jep.37.4.137

Lusardi, A. & Streeter J.L. (2023). *Financial literacy and financial well-being: Evidence from the US*. Journal of Financial Literacy and Wellbeing 1 (2), pp. 169 – 198. Retrieved [26.02.2026] from https://doi.org/10.1017/flw.2023.13

Metzger, M. J., Flanagin, A. J. & Medders, R. B. (2010). *Social and Heuristic Approaches to Credibility Evaluation Online.* Journal of Communication 60 (3), pp. 413 – 439. Retrieved [19.07.2026] from https://doi.org/10.1111/j.1460-2466.2010.01488.x

Metzger, M. J. & Flanagin, A. J. (2015). *Psychological Approaches to Credibility Assessment Online.* The Handbook of Psychology of Communication Technology. Retrieved [26.02.2026] from https://doi.org/10.1002/9781118426456.ch20

OECD (2023). *New retail investors in France: Attitudes, Knowledge and Behaviours.* OECD Publishing, Paris. Retrieved [26.02.2026] from https://doi.org/10.1787/2cd2565d-en

Ohanian, R. (1990). *Construction and Validation of a Scale to Measure Celebrity Endorsers' Perceived Expertise, Trustworthiness, and Attractiveness*. Journal of Advertising, 19:3, pp. 39 – 52. Retrieved [26.02.2026] from https://doi.org/10.1080/00913367.1990.10673191

Pathy, M. (2024). *Analysis of Information Sources for Investment Decision in Stock Market by Individual Investors – Evidence from Odisha*. International Journal of Research and Review 11 (9), pp. 190 – 195. Retrieved [26.02.2026] from https://doi.org/10.52403/ijrr.20240921

Penning, T. (2011). *The Value of Public Relations in Investor Relations: Individual Investors' Preferred Information Types, Qualities, and Sources.* Journalism & Mass Communication Quarterly, 88 (3), pp. 615 – 631. Retrieved [26.02.2026] from https://doi.org/10.1177/107769901108800309

Rieger, M. O. (2020). *How to Measure Financial Literacy?* Journal of Risk and Financial Management 13 (12), 324. Retrieved [26.02.2026] from https://doi.org/10.3390/jrfm13120324

Saunders, M. N. K., Lewis, P., & Thornhill, A. (2019). *Research methods for business students* (8th ed.). Pearson.

Sussman, S. W. & Siegal, W. S. (2003). *Informational Influence in Organizations: An Integrated Approach to Knowledge Adoption.* Information Systems Research 14 (1), pp. 47 – 65. Retrieved [19.07.2026] from https://doi.org/10.1287/isre.14.1.47.14767

Tetlock, P. C. (2007). *Giving Content to Investor Sentiment: The Role of Media in the Stock Market.* The Journal of Finance, Forthcoming 62 (3). Retrieved [26.02.2026] from http://dx.doi.org/10.2139/ssrn.685145

Thinks Insight & Strategy (2025). *Advice Guidance Boundary Review: Retail Investment Consumer Research.* Thinks Insight & Strategy – Research for the FCA. Retrieved [26.02.2026] from https://www.fca.org.uk/publication/external-research/agbr-retail-investments-consumer-research.pdf

Van Rooij, M., Lusardi, A. & Alessie, R. (2011). *Financial literacy and stock market participation.* Journal of Financial Economics 101 (2), pp. 449 – 472. Retrieved [26.02.2026] from https://doi.org/10.1016/j.jfineco.2011.03.006

DECLARATION ON THE USE OF AI-ASSISTED TOOLS

During the preparation of this manuscript, the author used ChatGPT (OpenAI; GPT-5.2) for content assistance, specifically to develop outlines, structure arguments, and support the drafting and summarization of academic text. The author also used Perplexity to identify relevant academic and legal sources and to support literature discovery. In addition, parts of this manuscript were translated from German into English using DeepL. The author reviewed, revised, and verified all AI-assisted outputs and translations for accuracy, terminology, and meaning, and takes full responsibility for the final content of this publication.

AFFIDAVIT

I hereby declare that I have completed the present thesis independently and without external assistance, except for the use of AI tools, which have been appropriately acknowledged where relevant. Any passages taken either verbatim or in spirit from publications or presentations by other authors have been clearly identified as such. This thesis has not been submitted to any other examination authority, nor has it been published previously.

FINANCIAL LITERACY AND THE REGULATED–UNREGULATED SOURCE RELIANCE TRADE-OFF IN RETAIL INVESTING

APPENDICES

Appendix A: Original and Adapted Measurement Items

Original scale or item	Adapted item	Source
Objective Financial Literacy – FL1 "Buying a single share is safer than buying an equity fund. True or false?"	Adopted without modification *Response options*: True; False	Rieger (2020)
Objective Financial Literacy – FL2 "You have 100EUR on your savings account with 2% interest per year. How much will you have after 5 years if you let your money grow?"	Question stem adopted without modification *Response options:* Less than 110€; Equal to 110€, More than 110€	Rieger (2020)
Objective Financial Literacy – FL3 "Your savings account earns 1% interest per year, and inflation amount to 2% per year. How much can you buy after one year with the money in your savings account?" Responses: More than today; the same as today, less than today	Adopted without modification	Rieger (2020)
Objective Financial Literacy – FL4 "Which investment normally has the largest fluctuations?" Responses: Savings account; Fixed-interest securities, Shares	Adopted without modification	Rieger (2020)
Objective Financial Literacy – FL5 "Which of the following statements best describes the main task of the stock market?" Responses: The stock market predicts stock profits; The stock market leads to an increase in stock prices; the stock market brings together potential buyers and sellers; None of the 3 statements.	Adopted without modification	Rieger (2020)
Objective Financial Literacy – FL6 "Which of the following statements is correct?" Responses: Once you have invested in a mutual fund, you cannot withdraw the money in the first year; Investment funds can invest in several assets, e.g. shares and bonds; Investment funds pay a guaranteed return, which depends on the past performance; None of the 3 statements	Adopted without modification	Rieger (2020)
Information-Source Usage "How frequently have you obtained information about investing from [Source]? Would you say never, seldom, sometimes, often or very often?" Original Sources: Financial advisor; investment clubs; internet; television programs; radio programs; adult education courses; newspapers, magazines, newsletters, or books; a library; friends or colleagues; your workplace; anyplace else.	"When making an investment decision, how often do you obtain information from [Source]" Response scale: never; rarely; sometimes; often; very often	Hira & Loibl (2006); Loibl & Hira (2009)
Perceived Source Credibility – Expertise Original seven-point semantic differentials: Expert / Not an expert; Experienced / Inexperienced; Knowledgeable / Unknowledgeable; Qualified / Unqualified; Skilled / Unskilled	"This source is knowledgeable about financial and investment-related information"	Ohanian (1990)

	Five-point response scale: strongly disagree to strongly agree	
Perceived Source Credibility – Trustworthiness Original seven-point semantic differentials: Dependable / Undependable; Honest / Dishonest; Reliable / Unreliable; Sincere / Insincere; Trustworthy / Untrustworthy	"This source is trustworthy and reliable" Five-point response scale: strongly disagree to strongly agree	Ohanian (1990)
Financial Risk Tolerance "Which of the following statements comes closest to the amount of financial risk that you are willing to take when you save or make investments?" Responses: Take substantial financial risks expecting to earn substantial returns; take above-average financial risks expecting to earn above-average returns; take average financial risks expecting to earn average returns; not willing to take any financial risks.	Adopted without modification	Board of Governors of the Federal Reserve System – Research & Analysis (2023)
Investment Experience Original operationalization: "Trading experience (years)." Categories: Less than 1; 1-3, 4-6; 7-9; 10-12; More than 12.	"How many years have you been investing (making your own investment decisions)? Responses: less than 1 year; 1-4 years; 5-9 years; 10+ years	Chalissery et al. (2023)

Appendix B: Survey Questionnaire

Have you ever made an investment decision on financial assets?
- O Yes
- O No

The following questions assess your financial knowledge. Please answer them to the best of your knowledge. If you are unsure about an answer, please select the option that you believe is most accurate.

Buying a single share is safer than buying an equity fund. True or false?
- O True
- O False

You have 100EUR on your savings account with 2% interest per year. How much will you have after 5 years if you let your money grow?
- O Less than 110€
- O Equal to 110€
- O More than 110€

Your savings account earns 1% interest per year, and inflation amounts to 2% per year. How much can you buy after one year with the money in your savings account?
- O More than today
- O The same as today
- O Less than today

Which investment normally has the largest fluctuations?
- O Savings account
- O Fixed-interest securities
- O Shares

Which of the following statements best describes the main task of the stock market?
- O The stock market predicts stock profits
- O The stock market leads to an increase in stock prices

O The stock market brings together potential buyers and sellers
O None of the 3 statements

Which of the following statements is correct?

O Once you have invested in a mutual fund, you cannot withdraw the money in the first year
O Investment funds can invest in several assets, e.g., shares and bonds
O Investment funds pay a guaranteed return, which depends on the past performance
O None of the 3 statements

When making an investment decision, how often do you obtain information from…

	never	rarely	sometimes	often	very often
Social Media Platforms (e.g. X / Twitter, Instagram, TikTok, Facebook, YouTube)	O	O	O	O	O
Professional Financial Advisors / Wealth Managers (e.g. certified financial advisors, investment consultants)	O	O	O	O	O
Friends, Family, or Colleagues (personal conversation or recommendations)	O	O	O	O	O
Professional Financial Media (e.g. financial newspapers, magazines, professional finance news website or TV channels)	O	O	O	O	O
Online Forums and Message Boards (e.g. investment forums (e.g. Reddit), discussion boards)	O	O	O	O	O
Official Company Information (e.g. annual reports, financial statements, earnings calls, investors presentations)	O	O	O	O	O
Generative AI (e.g. ChatGPT, Perplexity, DeepSeek)	O	O	O	O	O
Analyst Reports and Professional Research (e.g. equity research reports, analyst recommendations, rating agencies)	O	O	O	O	O
Regulatory and Public Authorities (e.g. central banks, financial regulators, government financial institutions)	O	O	O	O	O
Finance Podcasts (e.g. investment or finance-related podcasts)	O	O	O	O	O
Banks and Brokerage Firms (e.g. information provided by banks, online brokers, or trading platforms)	O	O	O	O	O

Please rate the following information sources with regard to their (general) expertise and trustworthiness in the context of investment-related information

	strongly disagree	disagree	neutral	agree	strongly agree
Social Media Platforms (e.g. X / Twitter, Instagram, TikTok, Facebook, YouTube)					
This source is knowledgeable about financial and investment-related information	O	O	O	O	O
This source is trustworthy and reliable	O	O	O	O	O
Professional Financial Advisors / Wealth Managers (e.g. certified financial advisors, investment consultants)					
This source is knowledgeable about financial and investment-related information	O	O	O	O	O
This source is trustworthy and reliable	O	O	O	O	O
Friends, Family, or Colleagues (personal conversation or recommendations)					

This source is knowledgeable about financial and investment-related information	O	O	O	O	O
This source is trustworthy and reliable	O	O	O	O	O

Professional Financial Media (e.g. financial newspapers, magazines, professional finance news website or TV channels)

This source is knowledgeable about financial and investment-related information	O	O	O	O	O
This source is trustworthy and reliable	O	O	O	O	O

Online Forums and Message Boards (e.g. investment forums (e.g. Reddit), discussion boards)

This source is knowledgeable about financial and investment-related information	O	O	O	O	O
This source is trustworthy and reliable	O	O	O	O	O

Official Company Information (e.g. annual reports, financial statements, earnings calls, investors presentations)

This source is knowledgeable about financial and investment-related information	O	O	O	O	O
This source is trustworthy and reliable	O	O	O	O	O

Generative AI (e.g. ChatGPT, Perplexity, DeepSeek)

This source is knowledgeable about financial and investment-related information	O	O	O	O	O
This source is trustworthy and reliable	O	O	O	O	O

Analyst Reports and Professional Research (e.g. equity research reports, analyst recommendations, rating agencies)

This source is knowledgeable about financial and investment-related information	O	O	O	O	O
This source is trustworthy and reliable	O	O	O	O	O

Regulatory and Public Authorities (e.g. central banks, financial regulators, government financial institutions)

This source is knowledgeable about financial and investment-related information	O	O	O	O	O
This source is trustworthy and reliable	O	O	O	O	O

Finance Podcasts (e.g. investment or finance-related podcasts)

This source is knowledgeable about financial and investment-related information	O	O	O	O	O
This source is trustworthy and reliable	O	O	O	O	O

Banks and Brokerage Firms (e.g. information provided by banks, online brokers, or trading platforms)

This source is knowledgeable about financial and investment-related information	O	O	O	O	O
This source is trustworthy and reliable	O	O	O	O	O

Which of the following statements comes closest to the amount of financial risk you are willing to take when you save or make investments?

- O Take substantial financial risks expecting to earn substantial returns
- O Take above average financial risks expecting to earn above average
- O Take average financial risks expecting to earn average returns
- O Not willing to take any financial risk

How many years have you been investing (making your own investment decisions)?

- O less than 1 year
- O 1 - 4 years

- O 5 - 9 years
- O 10+ years

How old are you (years)?

- O 18 – 24
- O 25 – 34
- O 35 – 44
- O 45 – 54
- O 55 – 64
- O 65+

What is your gender?

- O Female
- O Male
- O Non-binary / third gender
- O Prefer not to say

What is the highest level of education you have completed

- O Secondary school or less
- O High school degree
- O Bachelor's degree
- O Master's degree
- O Doctorate

In which country do you currently reside?

- O Germany
- O Portugal
- O Other European country
- O Other

Do you have an educational or professional background in finance, economics, or business?

- O Yes
- O No

Which asset class do you primarily invest in?

- O Stocks
- O Bonds
- O ETFs / Fonds
- O Cryptocurrencies
- O Other

What was your total household income before taxes during the past 12 months in Euros

- O Less than 25,000 Euros per year
- O 25,000 - 49,999 Euros per year
- O 50,000 - 99,999 Euros per year
- O 100,000 - 199,999 Euros per year
- O More than 200,000 Euros per
- O Prefer not to say