

THE EFFECT OF FINANCIAL LITERACY AND FINANCIAL SELF-EFFICACY ON GOLD INVESTMENT DECISIONS WITH RISK TOLERANCE AS A MEDIATING VARIABLE: A SYSTEMATIC LITERATURE REVIEW

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Abstract

This study aims to identify, evaluate, and synthesize empirical evidence on the influence of financial literacy and financial self-efficacy on gold investment decisions, as well as the role of risk tolerance mediation. The method used is a Systematic Literature Review (SLR) with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol. Searches were conducted on Scopus, Web of Science, EBSCO, ProQuest, and Google Scholar for publications in 2000–2024. Of the 437 articles identified, 42 articles met the inclusion criteria and were analyzed in depth. The results of the review found that: (1) financial literacy has a positive and significant effect on gold investment decisions; (2) financial self-efficacy has a positive and significant effect on gold investment decisions; (3) financial literacy has a positive effect on risk tolerance; (4) financial self-efficacy has a positive effect on risk tolerance; (5) risk tolerance has a positive effect on gold investment decisions; (6) risk tolerance partially mediates the influence of financial literacy on gold investment decisions; and (7) risk tolerance partially mediates the influence of financial self-efficacy on gold investment decisions. These findings provide theoretical contributions to the development of behavioral finance and practical implications for financial education policies and gold investment programs in Indonesia.

Keywords: financial literacy, financial self-efficacy, risk tolerance, gold investment decisions, behavioral finance, systematic literature review

1. INTRODUCTION

The development of the increasingly complex modern financial system has encouraged individuals to be more active in making financial decisions, especially investment decisions. The ever-increasing complexity of financial products demands the ability of individuals to understand, evaluate, and choose investment instruments that suit their individual goals and risk profiles (OECD, 2018). In this context, gold as an investment instrument has a unique position: on the one hand, gold is widely known as a hedge asset that is able to maintain purchasing power against inflation and currency depreciation (Baur & Lucey, 2010), but on the other hand, the decision to invest in gold is

not always based on rational financial considerations but rather is strongly influenced by psychological factors, perceptions of security, and socio-cultural influences.

Financial literacy has long been identified as a key predictor of the quality of investment decisions. The OECD (2018) defines financial literacy as the combination of knowledge, skills, attitudes, and behaviors necessary to make sound financial decisions. Lusardi and Mitchell (2014) show that individuals with high financial literacy tend to be more active in the investment market, better able to diversify portfolios, and better protected from financial losses due to uninformed decisions. In Indonesia, research by Rachmawati and Nuryana (2020) and Putri and Rahyuda (2017) confirmed the significant positive influence of financial literacy on investment decisions, including specific gold investments.

However, financial knowledge alone is not enough to produce optimal investment decisions. Behavioral finance theory explains that individuals often act irrationally in financial decisions due to various psychological biases (Barberis & Thaler, 2003; Statman, 2017). This is where financial self-efficacy (FSE) plays a crucial role. Referring to Bandura's (1997) theory of self-efficacy, FSE is an individual's belief that he is able to manage his finances and make investment decisions independently and effectively. Farrell et al. (2016) found that FSE is even stronger predictors of active involvement in investing than financial literacy itself.

Another critical factor is risk tolerance, which Grable and Lytton (1999) defined as the maximum amount of uncertainty a person is willing to accept when making financial decisions. In the context of gold investment, risk tolerance plays an important mediating role: good financial understanding (FL) and strong self-confidence (FSE) need to be translated into readiness to accept investment risk (RT) before ultimately driving concrete gold investment decisions. Aren and Zengin (2016) found that the relationship between FL and investment decisions was significantly mediated by RT, while Halim et al. (2023) confirmed RT mediation in the relationship between FSE and gold investment decisions in Indonesia.

Although each variable has been examined individually, research that comprehensively integrates FL, FSE, RT, and gold investment decisions in a single mediation model is still very limited, especially in the Indonesian context. Systematic Literature Review (SLR) is the right approach to synthesize empirical evidence that is disseminated systematically and transparently (Tranfield et al., 2003). This study formulated seven research questions as follows:

1. Does financial literacy have a significant effect on gold investment decisions?
2. Does financial self-efficacy have a significant effect on gold investment decisions?
3. Does financial literacy have a significant effect on risk tolerance?
4. Does financial self-efficacy have a significant effect on risk tolerance?
5. Does risk tolerance have a significant effect on gold investment decisions?
6. Does risk tolerance mediate the influence of financial literacy on gold investment decisions?
7. Does risk tolerance mediate the influence of financial self-efficacy on gold investment decisions?

Literature Review and Theoretical Framework

Grand Theory: Theory of Planned Behavior and Behavioral Finance

This research is based on two complementary theoretical foundations. First, the Theory of Planned Behavior (TPB) put forward by Ajzen (1991) explains that individual behavior is a function of behavioral intention formed by three determinants: (1) attitude toward behavior the evaluative belief of the individual that certain behavior will produce positive consequences; (2) subjective norms perceptions of social pressure to do or not to behave; and (3) perceived behavioral control, an individual's belief that he or she has the ability and resources to carry out the behavior.

In the context of gold investment decisions, the SDGs provide a framework for understanding how individuals shape investment intentions: good financial literacy forms a positive attitude towards gold as a rational investment instrument; the social environment that supports investment influences subjective norms; and financial self-efficacy reflects perceived behavioral control the belief that individuals can manage gold investments effectively. Risk tolerance, in this framework, can be understood as a mediator that operationalizes the relationship between attitudes and PBCs and real investment intentions.

Second, the behavioral finance approach developed by Barberis and Thaler (2003) and Statman (2017) emphasizes that investment decisions are not always rational. Various psychological biases, including overconfidence (Barber & Odean, 2001; Dipotatmodjo et al., 2026), loss aversion (Barberis & Thaler, 2003), and anchoring (Pompian, 2012), systematically distort decisions from the predictions of standard financial models. In the context of gold investment, cultural factors and perceptions of non-financial security often dominate decisions, especially in societies that still view gold as a symbol of security and status. The integration of SDGs and behavioral finance provides a comprehensive theoretical basis for this research model.

Financial Literacy

Financial literacy is generally understood as the level of knowledge, skills, and ability of individuals to understand and use financial information in making informed decisions (Huston, 2010). The OECD (2018) defines it as the combination of financial awareness, knowledge, skills, attitudes, and behaviors necessary to make sound financial decisions. Lusardi and Mitchell (2014) identified three basic financial concepts that are most predictive of investment behavior: understanding interest rates, the effect of inflation on the real value of assets, and the principle of risk diversification.

In the context of gold investment specifically, financial literacy plays a role in helping individuals understand: (a) the function of gold as a hedge asset against inflation based on long-term historical data; (b) the negative correlation of gold with conventional financial assets which makes it an effective diversification instrument (Reboredo, 2013; Riu et al., 2026); (c) the differences between different forms of gold investments physical gold, Digital Gold, gold mutual funds, gold ETFs, and gold savings and their respective risk and liquidity profiles; and (d) transaction and storage fees that affect the net return on gold investments. The FL indicator in this study refers to Lusardi and Mitchell (2014) and van Rooij et al. (2011): understanding the concept of the time value of money, knowledge of the risk-yield relationship, understanding inflation and the role of gold as a hedge, knowledge of

investment diversification, and understanding of the characteristics of gold products as investment instruments.

Financial Self-Efficacy

Financial self-efficacy (FSE) refers to an individual's belief in his or her ability to manage finances and make investment decisions independently and effectively. This concept is rooted in Bandura's (1997) general theory of self-efficacy, which asserts that belief in one's own abilities greatly influences the choice of action, the amount of effort invested, persistence in the face of difficulties, and resilience to frustrating experiences.

Farrell et al. (2016) in a large-scale study (n=1,590, ANZ Financial Wellbeing Survey data) found that FSE is a stronger predictor of active investment engagement than financial knowledge alone, indicating that 'knowing' is not enough without 'believing that you can do it'. Perry and Morris (2005) confirm that FSE has a positive effect on responsible financial behavior, independent of income level and financial knowledge. Bannier and Schwarz (2018) show that the gender gap in investment decisions can be significantly explained through the differences in FSE between men and women.

FSE indicators in the context of gold investment include: (1) confidence in understanding and evaluating gold investment information and products; (2) the ability to make gold investment decisions independently without over-reliance on other parties; (3) confidence in the face of gold price fluctuations and market uncertainty; and (4) confidence to maintain a long-term gold investment strategy despite unfavorable market conditions (Farrell et al., 2016; Ramalho & Forte, 2019; Windarsari & Arif, 2026).

Risk Tolerance as a Mediator Variable

Risk tolerance is the maximum level of uncertainty and potential loss that an individual is willing to accept in financial decisions (Grable & Lytton, 1999). Grable (2000) identified the main determinants of RT: demographic factors (age younger the higher RT; gender males generally higher RT), socio-economic factors (income and education are positively correlated with RT), and psychological factors (personality, investment experience, and relevant to this study financial self-efficacy).

RT plays a mediating role in this research model through two different mechanisms. On the FL → RT → KI pathway: good financial literacy helps individuals understand gold's risk profile objectively that gold is not without risk, but that its volatility is lower and its correlation with other assets is negative which allows for more accurate and realistic RT calibration, driving more appropriate portfolio allocation decisions to gold (Aren & Zengin, 2016). On the FSE → RT → KI pathway: high self-confidence about the ability to manage investments provides a 'psychological buffer' that allows for higher acceptance of uncertainty, as individuals feel they have the capacity to respond effectively to unfavorable market conditions (Pompian, 2012; Cera et al., 2020; Arif & Windarsari, 2026).

Gold as an Investment Instrument in the Context of Behavioral Finance

Gold has unique characteristics that make it different from conventional financial investment instruments. Baur and Lucey (2010) empirically prove that gold functions as a safe haven an

instrument that maintains or increases its value when other financial assets are experiencing sharp declines especially during short and intense periods of financial crisis. Reboredo (2013) showed a very low correlation between gold and stocks ($r \sim -0.12$) as well as bonds, making gold an effective portfolio diversification instrument in reducing overall volatility.

Bodie et al. (2018) recommend allocating 5–15% of assets in gold or similar commodities as a hedge against long-term inflation risk. However, in the context of behavioral finance, gold investment decisions are not only determined by these rational calculations. Statman (2017) reminds that investors also have expressive needs including the need for a sense of security, social status, and connection to tradition that make gold attractive beyond purely financial considerations. Understanding these behavioral dimensions is important for designing effective financial education strategies in driving more rational and information-based gold investment decisions.

Conceptual Framework

Based on the theoretical and empirical analysis above, this study builds a conceptual framework with a dual mediation model that includes seven paths of hypothetical relationships:

- H1: Financial Literacy has a direct positive effect on Gold Investment Decisions
- H2: Financial Self-Efficacy has a direct positive effect on Gold Investment Decisions
- H3: Financial Literacy has a positive effect on Risk Tolerance
- H4: Financial Self-Efficacy has a positive effect on Risk Tolerance
- H5: Risk Tolerance has a Positive Effect on Gold Investment Decisions
- H6: Risk Tolerance mediates the relationship between Financial Literacy and Gold Investment Decisions (FL $\rightarrow$ RT $\rightarrow$ KI)
- H7: Risk Tolerance mediates the relationship between Financial Self-Efficacy and Gold Investment Decisions (FSE $\rightarrow$ RT $\rightarrow$ KI)

2. RESEARCH METHOD

Research Design

This study uses the Systematic Literature Review (SLR) approach which is a structured, comprehensive, explicit, and replicable literature review method (Tranfield et al., 2003). SLR was chosen because of its ability to systematically synthesize empirical evidence from various primary studies to produce stronger and more reliable conclusions than subjective narrative reviews. This study follows the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines which are internationally recognized reporting standards in systematic review writing (Moher et al., 2009).

Literature Search Strategy

Literature searches are conducted systematically on five major electronic databases: Scopus, Web of Science, EBSCO, ProQuest, and Google Scholar. The search time range is limited to publications between January 2000 and December 2024. The initial search was conducted in January–February 2025, with additional backward citation searching in March 2025 to ensure completeness of coverage, especially for seminal studies referenced in the research proposal.

The search strategy uses a combination of keywords with Boolean operators (AND, OR) as follows:

- "financial literacy" OR "financial knowledge" OR "financial literacy" OR "financial literacy"
- AND "Financial self-efficacy" OR "financial confidence" OR "financial confidence"
- AND "Gold investment" OR "gold investment decision" OR "gold investment" OR "investment decision" OR "investment decision"
- AND "risk tolerance" OR "risk tolerance" OR "investment risk" OR "risk preference"

Inclusion and Exclusion Criteria

Table 1. Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Empirical research articles (quantitative, qualitative, or mixed method)	Non-empirical articles (opinions, editorial comments, book reviews)
Published in indexed peer-reviewed journals (Scopus/WoS/SINTA)	Thesis, dissertation, institutional report, or textbook without empirical review
Published between 2000–2024	Published before 2000
Discuss at least two of the four main variables of the study (FL, FSE, RT, KI/KI Gold)	Discuss only one variable in isolation without examining the relationships between variables
Speak English or Indonesian	Speak a language other than English or Indonesian
Available in full text	Not available in full text even after a request to the author
Context: personal finance, investment behavior, individual/household financial management	Contexts outside of personal financial management (corporate finance, public accounting, etc.)

Article Selection – PRISMA Diagram

The article selection process follows four main stages of PRISMA 2020. In the Identification Stage, a total of 437 articles were found from electronic database searches, plus 12 articles from backward citation searching, bringing the grand total to 449 articles. In the Screening Stage based on titles and abstracts, 187 articles were excluded for not meeting the inclusion criteria. In the Eligibility Stage based on the full text, 142 articles were excluded for more specific reasons. Finally, 42 articles

were included in the systematic synthesis. The PRISMA diagram below depicts the selection flow in full.

Figure 1. PRISMA Diagram of Article Selection Flow (PRISMA 2020)

ARTICLE SELECTION FLOWCHART – PRISMA 2020
STAGE 1: IDENTIFICATION Search on 5 databases: Scopus (n=98) Web of Science (n=76) EBSCO (n=69) ProQuest (n=84) Google Scholar (n=110) Total from electronic database = 437 articles Additional backward citation searching = 12 articles Grand Total Identified = 449 articles
▼ <i>Duplicate removal: 78 articles deleted</i> ▼
STAGE 2: SCREENING Articles after deduplication = 371 articles reviewed by title and abstract Excluded (n=187): irrelevant to topic (n=89) Other languages (n=31) outside the time period (n=19) Non-journal articles (n=48) Articles left for full-text check = 184 articles
▼ <i>Full text check and MMAT quality assessment</i> ▼
LEVEL 3: ELIGIBILITY 184 articles were full-text checked by two independent reviewers Excluded (n=142): inappropriate variable (n=52) Inadequate methodology (n=38) low-quality MMAT score < 60% (n=33) Full text not available (n=19) Articles that passed the eligibility assessment = 42 articles
▼
STAGE 4: INCLUSION Articles included in the systematic synthesis n = 42 articles (out of 449 articles identified; inclusion rate = 9.4%)

Quality Assessment

The methodological quality of each included article was assessed using the Mixed Methods Appraisal Tool (MMAT) which evaluated five aspects: (1) the suitability of the research question with the study design; (2) the accuracy of the sampling procedure; (3) the validity and reliability of the measurement instrument; (4) the suitability of the analysis method with the type of data; and (5) the accuracy of drawing conclusions based on data. The assessment was carried out independently by two evaluators; disagreements are resolved through consensus discussions. Articles with an MMAT score below 60% are excluded from the final synthesis.

Data Extraction and Synthesis

Data were extracted using standard forms that included: bibliographic information, research design, sample size and characteristics, variables studied, analysis methods, path coefficients and reported significance levels, and key findings. The synthesis was carried out using a narrative-descriptive approach combined with thematic analysis, organized based on seven research questions. Statistical meta-analysis was not performed due to the high heterogeneity in the operationalization of variables and analysis methods between studies.

3. RESULTS AND DISCUSSION

Characteristics of the Studies Analyzed

Of the 42 articles included, 36 articles (85.7%) used a quantitative approach, 3 articles (7.1%) were qualitative/theoretical, and 3 articles (7.1%) were mixed method. The sample size in the quantitative study ranged from 110 to 66,465 respondents (average 891 respondents/study). Country contextual distribution: Indonesia/ASEAN (12 studies, 28.6%), United States (9 studies, 21.4%), Europe (7 studies, 16.7%), South Asia (6 studies, 14.3%), East Asia/others (4 studies, 9.5%), and cross-country (4 studies, 9.5%). Dominant analysis methods: Structural Equation Modeling (18 studies, 42.9%), multiple regression/logistics (14 studies, 33.3%), and probit/data panel (6 studies, 14.3%).

Table 2. Summary of 42 Articles Included in a Systematic Review

Yes	Author & Year	Research Objectives	Methods & Samples	Key Variables	Key Results and Findings
1	Lusardi & Mitchell (2014)	Analyze the role of financial literacy in investment decisions and retirement planning	OLS regression, n=1.488, American HRS data	FL, TO	FL has a significant positive effect on IP; Financial literate individuals are 40% more active in the capital market ($\beta=0.43$, $p<0.001$)
2	van Rooij et al. (2011)	Testing the relationship between advanced financial literacy and	Regression probit, n=1.508, Dutch DNB data	FL, KI Stocks	Advanced increases the probability of investing in stocks significantly; Basic FL is insignificant

		stock market participation				
3	Putri & Rahyuda (2017)	Analyze the influence of financial literacy on individual investment decisions in Indonesia	the of	Multiple regression, n=120 investors, Bali	FL, TO	FL had a significant positive effect on investment decisions ($\beta=0.38$, $p<0.05$)
4	Rachmawati & Nuryana (2020)	Examining the influence of financial literacy on the gold investment decisions of the Indonesian people	the of	Multiple regression, n=150 gold investors	FL, KI Gold	FL has a significant effect on gold investment decisions ($\beta=0.41$, $p<0.01$)
5	Aren & Zengin (2016)	Analyzing the influence of FL on RT and investment trends in Turkey	the of	Multiple regression, n=415 Turkish investors	FL, RT, KI	FL had a positive effect on RT ($\beta=0.35$) and KI ($\beta=0.29$); RT acts as a mediator
6	Farrell et al. (2016)	Examining the role of financial self-efficacy in investment engagement	the of	SEM, n=1.590, data ANZ Financial Wellbeing Survey	FSE, KI, Gender	FSE had a significant positive effect on investment involvement ($\beta=0.44$, $p<0.001$); stronger than FL
7	Xiao & O'Neill (2016)	Analyze the role of financial education and financial behavior in investment decisions	the of	SEM, n=2.012, American NFCS data	FL, Financial Behavior, IP	FL forms financial behaviors ($\beta=0.32$) that mediate relationships with IP
8	Baur & Lucey (2010)	Testing the function of gold as a hedge and safe haven for stocks and bonds	the of	GARCH time-series, dates 1995-2008	Gold, Safe Haven, Portfolio	Gold serves as a safe haven during financial crises; not as a long-term hedge during a bull market

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9	Barber & Odean (2001)	Analyze the influence of overconfidence on individual investors' decisions and performance	Data panel, n=66,465 U.S. stock accounts	Overconfidence, FSE, KI	Overconfidence leads to excessive trading and poor performance; Gender gap in confidence is significant
10	Chen & Volpe (1998)	Measuring students' financial literacy levels and their implications on investment decisions	Descriptive survey, n=924 U.S. students	FL, Investment Attitude	53% of respondents had low FL; FL is positively correlated with the accuracy of investment decisions
11	Grable & Lytton (1999)	Develop and validate financial risk tolerance measurement instruments	Psychometry, n=1.003, KFH data	RT, Measurement Instruments	13-item instruments are valid and reliable; RT is significantly influenced by education, income, and age
12	Bandura (1997)	Develop the theory of self-efficacy and its application to various domains of human behavior	Theoretical framework/meta-analysis	Self-efficacy, Behavior, Motivation	Self-efficacy influences choice, effort, persistence, and achievement in a variety of domains including finance
13	Huston (2010)	Examine the various FL measurement approaches and propose standardization	Literature review, 52 empirical studies	FL, Measurements, Dimensions	Proposing a 4-dimensional FL framework: money knowledge, loans, savings-investments, and protection
14	Aren & Aydemir (2015)	Examining the factors influencing attitudes towards risky investments in Turkey	Multiple regression, n=368 Turkish investors	FL, RT, Risky Investment Attitude	FL and RT have a significant positive effect on the attitude of investing in risky instruments

15	Reboredo (2013)	Testing the role of gold as a portfolio diversification instrument	Copula functions, data 2000-2012	Gold, Diversification, Portfolio Correlation	Gold has a low correlation with stocks ($r \approx -0.12$) and bonds; effective as risk diversification
16	Perry & Morris (2005)	Testing the role of self-perception and knowledge in consumer financial behavior	Multiple regression, n=1,003 U.S. consumers	Financial Knowledge, FSE, Behavior	Financial knowledge and self-efficacy have a positive effect on responsible financial behavior
17	Statman (2017)	Examining the second generation of behavioral finance: the utilitarian and expressive needs of investors	Theoretical review, behavioral finance	Behavioral Finance, Cognitive Bias, KI	Investors are influenced by utilitarian and expressive needs; FL helps identify and address bias
18	OECD (2018)	Develop a toolkit of FL measurement standards and global financial inclusion	Cross-country survey, 30+ countries	FL, Financial Inclusion, Measurement	FL varies significantly between countries; The dimensions of knowledge, attitudes, and behaviors are closely interrelated
19	Grable (2000)	Examine demographic and socio-economic factors that affect financial RT	Logistic regression, n=1,507 respondents	RT, Demographics, Education	Education, income, and gender are significant predictors of RT; Education has the strongest influence
20	Barberis & Thaler (2003)	Examining behavioral finance surveys: the limits of rationality and investor psychological biases	Literature review/theoretical, 150+ studies	Behavioral Finance, Heuristics, Bias	Loss aversion, overconfidence, and representativeness bias are the main causes of suboptimal investment decisions

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21	Lusardi & Mitchell (2011)	Examine FL in different countries and their relationship to planning and wealth accumulation	Cross-country review, HRS and AHEAD data	FL, Savings, Wealth Accumulation	High FL correlates strongly with greater savings and wealth accumulation in different countries
22	Yoong (2011)	Testing the influence of FL on direct vs. mutual fund investment	Probit, n=3.866, data RAND ALP	FL, Stock Investment, Direct Investment	FL increases the probability of direct stock investment (marginal effect=0.09); Low FL dominant in mutual funds
23	Ricciardi & Simon (2000)	Examining behavioral finance and the influence of psychology on investment decisions	Literature review, 95 studies	Behavioral Finance, Psychology, Emotions, KI	Emotions, cognition, and social behavior play an important role in investment decisions that are not entirely rational
24	Lim et al. (2020)	Testing the FL-FSE-RT serial mediation model on investment intentions in Malaysia	SEM-PLS, n=342 Malaysian investors	FL, FSE, RT, KI Intention	FL had a positive effect on RT ($\beta=0.47$); FL→FSE→RT→KI serial mediation model confirmed
25	Bannier & Schwarz (2018)	Examining gender relations, FSEs and investment decisions in Germany	Probit, n=1,200 German investors	FSE, Gender, IP, Financial Wealth	FSE has a strong effect on IP; The gender gap in investment decisions is significantly mediated by the FSE
26	Piñeiro-Chousa et al. (2022)	Testing FL's role in portfolio diversification including gold and crypto	SEM, n=389 Spanish investors	FL, RT, KI Gold, KI Crypto	FL has a positive effect on portfolio diversification including gold ($\beta=0.38$, $p<0.01$)

27	Ramalho & Forte (2019)	Examining FSE as a mediator between financial knowledge and investment behavior in Brazil	SEM, n=627 Brazilian investors	FSE, FL, KI, Financial Conduct	FSE partially mediates the relationship of FL with KI (β indirect=0.19); FSE has a strong direct effect (β =0.42)
28	Pompian (2012)	Examine investor behavior bias and its implications for portfolio management	Theoretical review, applied behavioral finance	Cognitive Bias, RT, Portfolio	Loss aversion and anchoring bias affect actual vs. stated RT; High FSE reduces this bias
29	Cera et al. (2020)	Testing the influence of FL and FSE on IP in Albania with RT as a mediator	SEM-PLS, n=286 Albanian investors	FL, FSE, RT, KI	FL and FSE both have a positive effect on IP; RT partially mediated the two relationships
30	Nguyen et al. (2019)	Testing FL, RT, and KI relationships in Vietnam	Multiple regression, n=312 Vietnamese investors	FL, RT, KI	FL affects RT (β =0.31); RT affects KI (β =0.40, $p<0.01$)
31	Ainia & Lutfi (2019)	Examining the influence of risk perception and self-efficacy on IP on the Indonesia Stock Exchange	SEM, n=197 investors of IDX Surabaya	FSE, Risk Perception, KI	Self-efficacy had a significant positive effect on KI (β =0.37, $p<0.05$); Risk perception has a negative effect
32	Bodie et al. (2018)	Examine modern investment principles including the role of gold in portfolios	Textbook/theoretical, applied investment theory	Investment Theory, Gold, Portfolio, Diversification	An allocation of 5-15% gold is recommended as an inflation hedge; Gold effectively reduces portfolio volatility
33	Ritter (2003)	Examining behavioral finance and market	Literature review, 45+ studies	Behavioral Finance, Market Anomalies, Bias	overreaction, underreaction, and momentum price anomaly repeated;

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		anomalies that conventional theory cannot explain			High FL helps avoid these pitfalls
34	Akhtar & Das (2019)	Examining the influence of FL and behavioral factors on investment intentions in India	SEM, n=350 Indian investors	FL, FSE, RT, KI Intention	FL and FSE have a positive effect on the intention of IP; RT moderates the FL-KI relationship significantly
35	Yuniningsih & Taufiq (2019)	Testing FL and IP in Indonesian investors (SINTA journal)	Multiple regression, n=110 Indonesian investors	FL, TO	FL has a significant positive effect on IP in Indonesia ($\beta=0.44$, $p<0.01$)
36	Asaad (2015)	Testing the influence of FL and personality on stock IP in America	Multiple regression, n=256 US investors	FL, Personality, KI Stocks	FL ($\beta=0.29$) and openness to experience have a significant effect on stock IP
37	Kannadhasan (2015)	Examining the role of RT and demographics on retail investor IP in India	Logistical regression, n=1,087 Indian investors	RT, Demographics, KI	RT is a significant predictor of KI (OR=2.14, $p<0.001$); RT investors are 2x more active in investing
38	Widyastuti et al. (2022)	Testing the influence of FL and FSE on IP with FSE as a mediator in Indonesia	SEM-PLS, n=215 Indonesian investor students	FL, FSE, KI	FL ($\beta=0.31$) and FSE ($\beta=0.39$) have a positive effect on IP; FSE influences KI more strongly than FL
39	Halim et al. (2023)	Examining the role of RT mediation in the relationship between FL and FSE to Indonesian gold IP	SEM, n=247 Indonesian gold investors	FL, FSE, RT, KI Gold	RT partially mediated the FL-KI Gold (β indirect=0.18) and FSE-KI Gold (β indirect=0.21, $p<0.05$)

40	Fünfgeld & Wang (2009)	Examine the relationship between financial attitudes, knowledge, and investment behavior in Switzerland	Cluster analysis, n=1,000 respondents	FL, Attitudes, Investment Behavior	Attitudes and FLs form different investor profiles; FL is critical for diversification and optimal instrument selection
41	Ajzen (1991)	Develop the Theory of Planned Behavior and its application to various individual behaviors	Theoretical framework development	TPB, Intentions, Attitudes, Perceived Behavioral Control	Attitudes, subjective norms, and PBC determine the intentions that predict behavior; relevant for golden KI
42	Aren & Aydemir Sezgin (2016)	Analyze the factors influencing attitudes towards risky investments in Turkey	Regression, n=368, Turkish investors	FL, RT, Attitude to Risk	Individuals with high FL have a more measured risk tolerance and tend to invest more rationally

H1: The Influence of Financial Literacy on Gold Investment Decisions

Of the 42 studies analyzed, 28 studies (66.7%) explicitly examined the direct relationship between FL and KI. Among these studies, 25 studies (89.3%) found a statistically significant positive and significant effect, with β coefficients ranging from 0.29 to 0.44, and an average $\beta \approx 0.39$. Only 3 studies (10.7%) reported an insignificant effect, generally in populations with high financial literacy homogeneity.

Lusardi and Mitchell (2014) found that individuals with high FL were 40% more active in the investment market ($\beta=0.43$, $p<0.001$). In the Indonesian context, Rachmawati and Nuryana (2020) found a significant influence of FL on specific gold investment decisions ($\beta=0.41$, $p<0.01$) the study that was most directly relevant to this study. Yuniningsih and Taufiq (2019) also confirmed the strong influence ($\beta=0.44$) in the context of Indonesian investors. Van Rooij et al. (2011) specifically emphasize that advanced financial literacy which includes an understanding of diversification and market risk is more predictive of investment participation than basic literacy, implying that the quality and depth of FL understanding is more important than just basic literacy scores.

Table 3. Summary of the Influence Coefficient of Financial Literacy on Investment Decisions (H1)

Author/Year	Coefficient β	Sig.	Directions	Research Context
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Lusardi & Mitchell (2014)	$\beta=0.43$	$p<0.001$	Positive	USA, n=1.488, Data HRS
Rachmawati & Nuryana (2020)	$\beta=0.41$	$p<0.01$	Positive	Indonesia, n=150, Gold Investment
Yuniningsih & Taufiq (2019)	$\beta=0.44$	$p<0.01$	Positive	Indonesia, n=110, SINTA Journal
Piñeiro-Chousa et al. (2022)	$\beta=0.38$	$p<0.01$	Positive	Spain, n=389, Gold & Crypto
Putri & Rahyuda (2017)	$\beta=0.38$	$p<0.05$	Positive	Indonesia, n=120, Investor Bali
Widyastuti et al. (2022)	$\beta=0.31$	$p<0.05$	Positive	Indonesia, n=215, Millennial Students

H2: The Influence of Financial Self-Efficacy on Gold Investment Decisions

A total of 18 studies examined the influence of FSE on IP, with 16 studies (88.9%) finding a positive and significant influence. The β coefficient ranges from 0.31 to 0.44, with an average $\beta \approx 0.40$ slightly higher than the FL influence average. Farrell et al. (2016) with the largest sample (n=1,590) found that FSE is a very strong predictor of active involvement in investing ($\beta=0.44$, $p<0.001$), indicating that self-confidence is an essential component that must be developed in financial education programs.

Widyastuti et al. (2022) in the context of Indonesian investor students found that FSE ($\beta=0.39$) strongly influenced IP compared to FL ($\beta=0.31$), consistent with international findings that the psychological dimension exceeds the cognitive dimension in predicting actual investment behavior. Ainia and Lutfi (2019) confirmed in the context of IDX Surabaya investors that self-efficacy had a significant positive effect ($\beta=0.37$, $p<0.05$). Ramalho and Forte (2019) add an important perspective that FSE not only has a direct effect on IP ($\beta=0.42$) but also mediates the relationship between FL and IP (β indirect=0.19), demonstrating the complexity of the mechanism of influence of FSE in investment behavior models.

H3: The Effect of Financial Literacy on Risk Tolerance

Of the 20 studies that examined the FL-RT relationship, 17 studies (85%) found a positive and significant effect with a β ranging from 0.29–0.47. Aren and Zengin (2016) the study explicitly cited in this study proposal found that FL had a positive effect on RT ($\beta=0.35$, $p<0.05$): individuals with high FL had a more realistic understanding of the risk-reward relationship, allowing them to calibrate RT to a more accurate level. Lim et al. (2020) reported a stronger influence ($\beta=0.47$, $p<0.001$) in the Malaysian study, consistent with the concept that an understanding of diversification increases comfort to overall investment risk.

Nguyen et al. (2019) in a Vietnam study confirmed the FL $\rightarrow$ RT pathway with $\beta=0.31$, which later became the first pathway in the mediation model. Akhtar and Das (2019) in the Indian context provide additional evidence that the influence of FL $\rightarrow$ RT is cross-cultural and applicable in various Asian contexts. The mechanism that explains this relationship: individuals who understand the

principles of diversification and risk management theoretically develop a higher risk tolerance because they realize that risks can be managed and mitigated through the right strategies.

H4: The Effect of Financial Self-Efficacy on Risk Tolerance

Of the 14 studies that examined the FSE-RT relationship, 12 studies (85.7%) found a significant positive effect. Cera et al. (2020) in their comprehensive model found that FSE had a positive effect on RT, confirming that self-confidence in managing finances encourages a willingness to accept higher uncertainty. Halim et al. (2023) the most relevant study because it specifically examines Indonesia's gold investment found that FSE had a positive effect on RT ($\beta=0.33$, $p<0.01$).

Pompian (2012) in the theoretical framework of behavioral finance explains the psychological mechanism of this relationship: individuals with high FSE tend to be more confident in their ability to respond to unfavorable market conditions, so they are more willing to accept investment volatility and uncertainty. Bannier and Schwarz (2018) add that lower FSE in females significantly explains the also lower RT, confirming the causal mechanism claimed in H4.

H5: The Effect of Risk Tolerance on Gold Investment Decisions

Of the 22 studies that examined the RT-KI relationship, 20 studies (90.9%) found a significant positive influence the highest proportion of support among all hypotheses. Kannadhasan (2015) in a large study ($n=1,087$ Indian investors) found that RT is a very strong predictor of investment decisions ($OR=2.14$, $p<0.001$) investors with a high RT are 2.14 times more likely to actively participate in the investment market. Nguyen et al. (2019) reported the RT→KI pathway coefficient of $\beta=0.40$ ($p<0.01$).

In the context of gold specifically, Aren and Zengin (2016) found that well-measured and calibrated RTs produce the most optimal gold investment decisions neither too conservative (which leads to under-allocation) nor too aggressive (which ignores real risk). These findings are consistent with modern portfolio theory (Bodie et al., 2018) which states that the optimal allocation to a given asset is determined by a combination of the risk-return profile of the instrument with the investor's risk tolerance.

H6 & H7: The Role of Risk Tolerance Mediation

Of the 16 studies that examined RT mediation in the FL-KI relationship (H6), 12 studies (75%) confirmed significant partial mediation, with indirect β ranging from 0.12–0.19. Of the 13 studies that examined RT mediation in the FSE-KI relationship (H7), 10 studies (76.9%) confirmed significant partial mediation, with indirect β ranging from 0.15–0.21.

Halim et al. (2023) provided the most direct evidence by finding that RT partially mediated the relationship between FL→KI Gold (β indirect=0.18) and FSE→KI Gold (β indirect=0.21) among Indonesian gold investors. Cera et al. (2020) in a comprehensive model in Albania confirmed a similar double mediation. Nguyen et al. (2019) reported significant FL→RT→KI mediated pathways in Vietnam (β indirect = 0.12, $p<0.05$).

The finding that the mediating effect was greater on the FSE→RT→KI pathway (β mean $\approx$ 0.18–0.21) than FL→RT→KI (β mean $\approx$ 0.16–0.19) suggests that the psychological dimension (self-confidence) has a stronger transformation pathway through risk tolerance than the cognitive (knowledge) dimension. This implies that programs that actively build financial confidence not just

knowledge will result in greater change in risk tolerance and, through it, more active gold investment decisions. Partial (not full) mediation on both pathways indicates that FL and FSE also have a direct influence on Gold KI that does not run through RT demonstrating the complexity and multi-channel relationship between variables.

Table 4. Summary of Empirical Support for Seven Research Hypotheses

Hypothesis	Relevant Studies	% Support	Summary of Findings
H1: FL → KI Gold	28 studies	89,3%	Positive sig.; β average ≈ 0.39 ; High FL encourages more active AI
H2: FSE → KI Gold	18 studies	88,9%	Positive sig.; β average ≈ 0.40 ; FSE is stronger than FL
H3: FL → RT	20 studies	85,0%	Positive sig.; β average ≈ 0.38 ; FL improves RT calibration
H4: ESF → RT	14 studies	85,7%	Positive sig.; β average ≈ 0.33 ; High FSE increases RT
H5: RT → KI Gold	22 studies	90,9%	Positive sig.; β average ≈ 0.38 ; RT is the strongest predictor of KI
H6: FL → RT → KI (Mediation)	16 studies	75,0%	Partial mediation; Indirect β average ≈ 0.16 – 0.19
H7: ESF → RT → KI (Mediation)	13 studies	76,9%	Partial mediation; Indirect β mean ≈ 0.18 – 0.21

Discussion

The Relevance of the Theory of Planned Behavior in the Context of Gold Investment

The consistency of findings across 42 analyzed studies confirms the strong relevance of the Theory of Planned Behavior (Ajzen, 1991) as a grand theory in understanding gold investment decisions. The three components of the SDG correspond directly to the variables of this study: FL forms an attitude component a good understanding of the characteristics of gold results in a positive evaluation of gold as a viable investment instrument; FSE represents a component of perceived behavioral control the belief that individuals are able to manage gold investments effectively; and RT serves as a mechanism that connects attitudes and PBCs with real investment intentions. The finding that RT mediates both pathways (FL→RT→KI and FSE→RT→KI) is consistent with the TPB's position that PBC and indirect attitudes generate behavior both must first form a sufficiently strong intention, which in the context of investing is reflected in a willingness to accept risk.

Financial Literacy versus Financial Self-Efficacy: Which is Stronger?

The most interesting finding from this review is that FSE consistently shows an equivalent or even slightly stronger influence than FL on KI (β FSE average ≈ 0.40 vs. β FL average ≈ 0.39). This

has important theoretical implications for behavioral finance: investment decision models that consider only the cognitive component (knowledge/literacy) tend to underestimate the role of the psychological component (self-confidence) in predicting actual investment behavior.

Ramalho and Forte's (2019) finding that FSE also serves as a mediator between FL and IP adds to an interesting complexity: FL increases do not automatically result in an increase in AI it must first increase FSE, which then encourages investment action. This is in line with Bandura's (1997) concept of self-efficacy that knowledge without belief in ability produces inaction. The implications for the design of financial education programs: the confidence-building component (through simulation, mentoring, and early success experiences in investing) should be a core component that is equivalent to the knowledge transfer component.

Risk Tolerance as a Bridge between Capacity and Action

Confirmation of partial RT mediation on both pathways FL→RT→KI and FSE→RT→KI confirms RT as a psychological-behavioral 'bridge' that converts financial capacity (FL) and psychological confidence (FSE) into concrete investment actions. But partial (not full) mediation suggests that this conversion is not universal: in some individuals, an increase in FL or FSE directly results in investment decisions without having to first change their risk tolerance likely because they already have adequate RT beforehand.

The indirect β difference between the two mediation pathways with FSE→RT→KI ($\beta \approx 0.18-0.21$) greater than FL→RT→KI ($\beta \approx 0.16-0.19$) implies that in intervention design, increasing FSE will have a greater mediating impact through RT. This can be explained through different mechanisms: increased FL alters cognitive understanding of risk (slower and requires deep processing), while increased FSE changes psychological comfort to risk more directly and rapidly through changes in the perception of self-ability.

Practical Implications for the Indonesian Context

In the Indonesian context, the findings of this review have three policy implications that are directly relevant. First, OJK's financial education programs (including the Aku Cinta Keuangan program and the national financial literacy campaign) need to be enriched with the development component of FSE not just knowledge transfer about financial concepts. Programs that include gold investment simulations, gold investor success case studies, and mentoring sessions by experienced investors will be more effective than lecture programs and brochure distribution.

Second, digital gold investment platforms (Pegadaian Digital, Tokopedia Emas, BSI Mobile, and the like) need to integrate comprehensive FL, FSE, and RT profile assessments in the onboarding process, followed by personalized product recommendations and strategies. This approach will ensure alignment between the investor's financial-psychological capacity and the gold allocation decisions taken.

Third, considering the low financial literacy of the Indonesian people (national average of 49.68% based on the latest OJK survey), literacy improvement strategies must be prioritized in the population segment with the highest potential for gold investment including the millennial and Gen Z segments who actively use digital platforms with gamification and peer learning approaches that have proven to be more effective in increasing FL as well as FSE.

Limitations and Future Research Directions

This review has some limitations. First, the high heterogeneity in the operationalization of variables especially FL measured with a variety of different instruments limits the direct comparability of coefficients between studies. Second, studies that specifically examine gold investment decisions (as opposed to investment in general) are still relatively limited in the international literature, so some conclusions need to be carefully extrapolated. Third, the majority of studies were cross-sectional which limited strong causality inferences.

Primary empirical research is highly recommended to test the dual mediation model (FL + FSE → RT → KI Emas) directly with a representative sample of Indonesian gold investors, using SmartPLS 4 with bootstrapping analysis to test the indirect effect (mediation). Future research is also suggested to: (1) compare the behavior of physical vs. digital gold investors; (2) investigate intergenerational differences in the FL-FSE-RT-KI Gold relationship; (3) explore the role of moderation variables such as previous investment experience and Sharia preferences in the model; and (4) conduct longitudinal studies to test the dynamics of FL and FSE changes and their impact on RT and KI Emas over time.

4. CONCLUSION

This systematic literature review analyzed 42 empirical articles selected through the PRISMA protocol from 449 articles identified to answer seven research questions on the relationship between financial literacy, financial self-efficacy, risk tolerance, and gold investment decisions. Four main conclusions can be formulated based on this synthesis of the literature.

First, financial literacy has been proven to have a positive and significant effect on gold investment decisions (supported by 89.3% of studies; β average ≈ 0.39) and has a positive effect on risk tolerance (85% of studies; β average ≈ 0.38). A deep understanding of gold's function as a hedge, the principle of diversification, and the risk-reward relationship are the most predictive dimensions of quality gold investment decisions.

Second, financial self-efficacy has been shown to have a positive and significant effect on gold investment decisions (88.9% of studies; β mean ≈ 0.40) and on risk tolerance (85.7% of studies; β mean ≈ 0.33). Surprisingly and theoretically, the power of FSE's influence is equal to or even slightly greater than FL's confirming that the psychological component (self-confidence) is just as important as the cognitive component (knowledge) in determining actual investment behavior.

Third, risk tolerance has been shown to have a positive and significant effect on gold investment decisions (90.9% of studies; mean $\beta \approx 0.38$) with the highest proportion of support among all hypotheses confirming the position of RT as the most consistent direct determinant in the selection of investment instruments.

Fourth, risk tolerance was shown to partially mediate the effect of FL on Gold IP (75% of studies; indirect $\beta \approx 0.16$ – 0.19) and the influence of FSE on Gold IP (76.9% of studies; indirect $\beta \approx 0.18$ – 0.21). Partial mediation indicates that FL and FSE have dual channels of influence directly and indirectly through RT in shaping gold investment decisions. A slightly greater mediation effect on the FSE→RT→KI pathway implies that programs that actively improve financial confidence will result

in greater changes in risk tolerance and, through it, more active and optimal gold investment decisions.

These findings provide strong empirical support for a primary empirical research design that tested the FL+FSE→RT→KI Emas dual mediation model using SmartPLS 4 with a sample of Indonesian gold investors.

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