

Identification and Prioritization of Investors' Decisions Regarding Financing in the Presence of Information Distortion

1. Farzad. Ravand¹: Department of Accounting, NT.C., Islamic Azad University, Tehran, Iran.
2. Ehsan. Rahmaninia²: Department of Accounting, NT.C., Islamic Azad University, Tehran, Iran.
3. Ali Akbar. Chaharmahali³: Department of Accounting, NT.C., Islamic Azad University, Tehran, Iran.

*corresponding author's email: ehsanrahmaninia@iau.ac.ir

ABSTRACT

The primary objective of this study was to identify and prioritize investors' decisions regarding financing in the presence of information distortion within the context of knowledge-based companies. The statistical population consisted of experts in the fields of finance, investment, and accounting. Using purposive sampling and the snowball sampling technique, 17 participants were selected based on criteria such as professional experience, educational background, and managerial expertise. In the qualitative phase, data were collected through semi-structured interviews and analyzed using thematic analysis. In total, 502 initial codes, 239 basic themes, 84 organizing themes, and 12 overarching themes were extracted. The overarching themes included dimensions such as information distortion in knowledge-based companies, transparency and education, performance improvement and trust, monitoring and control, and organizational and individual pressures. To validate the identified indicators, the fuzzy Delphi method was employed.

Keywords: Investor Decision-Making, Information Distortion, Financial Trust, Thematic Analysis, Analytic Hierarchy Process.

Introduction

Financing decisions have long been recognized as one of the most fundamental determinants of organizational survival, growth, and competitiveness in modern economies. In recent decades, rapid technological development, digital transformation of financial systems, expansion of capital markets, and the emergence of knowledge-based firms have significantly transformed the mechanisms through which firms access financial resources. Under such conditions, investors increasingly rely on financial reports, disclosure quality, digital information platforms, and analytical signals in order to evaluate investment opportunities and allocate resources efficiently. However, the growing complexity of financial environments has simultaneously increased the possibility of information distortion, selective disclosure, earnings manipulation, and asymmetric information between firms and investors. As a result, financing decisions are no longer solely dependent on traditional financial indicators, but are also shaped by perceptions of transparency, governance quality, informational reliability, and institutional trust (1-3).



Article history:
 Received 15 December 2025
 Revised 07 May 2026
 Accepted 10 May 2026
 Initial Publish 27 June 2026
 Published online 10 November 2026

How to cite this article:

Ravand, F., Rahmaninia, E., & Chaharmahali, A. A. (2026). Identification and Prioritization of Investors' Decisions Regarding Financing in the Presence of Information Distortion. *Journal of Management and Business Solutions*, 4(6), 1-20. <https://doi.org/10.61838/jmbs.306>



Information distortion represents one of the major challenges affecting the efficiency of financial markets and the rationality of investor behavior. Distorted information may emerge intentionally through earnings management, misleading disclosures, selective transparency, and manipulation of financial statements, or unintentionally through weak reporting systems, lack of expertise, technological deficiencies, and inadequate governance structures. In both cases, investors face uncertainty regarding the accuracy and reliability of available information, which directly influences financing decisions and investment risk assessments. Research has demonstrated that weak information environments increase financing constraints, elevate the cost of capital, and reduce market confidence (4-6). Similarly, studies on informational inefficiencies indicate that informational “black holes” in financial markets can distort pricing mechanisms and weaken the allocation efficiency of financial resources (1).

In knowledge-based companies and innovation-driven ventures, the problem of information distortion becomes even more critical. Such firms often operate in uncertain environments characterized by intangible assets, unstable cash flows, technological risks, and limited historical financial data. Consequently, investors frequently encounter difficulties in evaluating the actual performance and future potential of these organizations. This situation increases dependence on non-financial signals such as ESG disclosure, managerial reputation, innovation capability, strategic orientation, and investor sentiment (4, 7, 8). Previous research has shown that firms with stronger ESG performance and higher disclosure quality experience lower financing constraints and reduced financing costs because investors perceive them as more transparent and less risky (5, 6, 9). Likewise, rating consistency and credible disclosure mechanisms significantly affect equity financing costs and investor trust (2).

The increasing importance of digital transformation and financial technology has also changed the structure of financing systems and investor interactions. Crowdfunding platforms, peer-to-peer lending systems, digital assets, tokenized financing mechanisms, and online investor communities have expanded access to entrepreneurial finance while simultaneously introducing new forms of informational risk and uncertainty. In these digital financing ecosystems, investors often make decisions based on online presentation quality, feedback systems, platform interactions, and social signals rather than on audited financial statements alone (10-12). Crowdfunding environments are particularly vulnerable to information asymmetry because entrepreneurs possess more knowledge regarding project quality and operational risks than potential investors. Therefore, transparency, legitimacy, and credibility become essential determinants of successful financing outcomes (13, 14).

Another important issue in financing decisions relates to the role of investor behavior and psychological factors. Investors do not always behave rationally according to classical financial theories; rather, financing decisions are often influenced by emotions, cognitive biases, perceptions of risk, and social expectations. Studies have indicated that investor attention, investor sentiment, and emotional bias significantly affect corporate financing, innovation, and investment performance (15-17). Under conditions of information distortion, behavioral factors become even more influential because investors rely more heavily on subjective interpretations and heuristic judgments when reliable information is unavailable. Investor reactions may therefore become excessively optimistic or pessimistic, leading to irrational financing decisions and market inefficiencies. The emergence of big data analytics and digital sentiment analysis has partially improved the ability to monitor investor behavior, yet substantial uncertainty remains regarding how investors interpret distorted information in practice (16, 18).

Financing constraints are another central issue associated with distorted information environments. Firms with weak transparency, limited disclosure quality, or inadequate governance structures often face greater difficulties in obtaining financial resources from investors and creditors. Previous studies have shown that ESG performance,

voluntary disclosure, investor protection, and information efficiency can significantly reduce financing constraints and improve resource allocation efficiency (19-21). Conversely, uncertainty regarding information quality increases perceived investment risk and causes investors to demand higher returns or avoid financing activities altogether. In emerging and developing economies, these issues are often intensified by weak institutional structures, insufficient regulatory frameworks, and limited financial literacy among investors and entrepreneurs (22-24).

The relationship between governance structures and financing decisions has also received substantial scholarly attention. Effective governance systems improve transparency, strengthen accountability, and reduce opportunities for financial manipulation. Organizational structures characterized by strong oversight, independent auditing, and active stakeholder participation are more likely to generate reliable information and attract investor confidence (25-27). In contrast, concentrated ownership structures, managerial opportunism, conflicts of interest, and weak internal controls can contribute to distorted reporting practices and increase financing uncertainty. Several studies have emphasized that institutional investors, corporate governance quality, and regulatory compliance play moderating roles in reducing financing constraints and improving investment efficiency (8, 28, 29).

Economic and environmental conditions also influence financing behavior under distorted information settings. Inflation, market volatility, unstable economic growth, and resource limitations affect both corporate reporting behavior and investor decision-making. During periods of economic instability, organizations may experience stronger incentives to manipulate reports in order to maintain investor confidence or secure external financing. Investors, in turn, become more cautious and rely heavily on signals associated with transparency, stability, and governance quality. Research indicates that economic uncertainty intensifies financing pressures while increasing the importance of reliable disclosure mechanisms (28, 30, 31). Moreover, access to infrastructure, transportation networks, and digital connectivity has been found to affect financing efficiency and information accessibility among firms and investors (32).

The role of ESG disclosure in financing decisions has become increasingly important in contemporary financial markets. Investors now consider environmental, social, and governance factors not only as ethical concerns but also as indicators of long-term financial stability and risk management quality. Studies have consistently shown that firms with stronger ESG performance face lower debt financing costs, improved investor trust, and better access to financial resources (3, 4, 9). Nevertheless, inconsistent ESG ratings and differences in disclosure standards can themselves become sources of informational ambiguity and investor confusion (2). Therefore, the relationship between disclosure quality and financing decisions remains highly dependent on the credibility, comparability, and transparency of reported information.

Entrepreneurial financing and SME financing constitute another dimension of the financing problem under uncertainty and information distortion. Small and medium-sized enterprises often face severe financing constraints because they lack established reputations, formal reporting systems, and collateral assets. As a result, entrepreneurial ventures frequently rely on informal financing mechanisms, angel investors, venture capital, or alternative digital financing channels (23, 24, 33). Informal financing systems may increase flexibility and accessibility, but they can also exacerbate information asymmetry and reduce investor protection. Studies have further demonstrated that entrepreneurial characteristics, legitimacy signals, and communication strategies significantly influence investor perceptions and financing outcomes (12, 13).

Despite the growing body of literature on financing constraints, investor behavior, ESG disclosure, and information efficiency, several research gaps remain unresolved. First, many previous studies have focused on

isolated variables such as ESG disclosure, governance quality, or investor sentiment, while limited attention has been given to the integrated interaction among organizational, behavioral, institutional, and informational factors influencing investor decisions under conditions of information distortion. Second, most existing studies rely heavily on quantitative financial indicators and econometric analyses, whereas fewer studies have explored the deeper conceptual and behavioral dimensions of investor decision-making through qualitative approaches. Third, in the context of knowledge-based firms and emerging financing systems, there is still insufficient understanding regarding how investors prioritize different factors when facing uncertainty, distorted information, and incomplete disclosure. Finally, although digital transformation has increased the speed and accessibility of financial information, it has also intensified the risks associated with misinformation, selective disclosure, and unreliable financial communication, creating new challenges for financing decision-making and market trust (1, 8, 10).

Accordingly, the present study aims to identify and prioritize the factors influencing investors' financing decisions under conditions of information distortion in knowledge-based companies using thematic analysis, fuzzy Delphi, and the Analytic Hierarchy Process (AHP).

Methods and Materials

In terms of purpose, this study is applied research because its findings can be utilized to improve financing decision-making processes by investors, reduce the effects of information distortion, and enhance the actual functioning of financial markets, particularly within crowdfunding platforms. In terms of nature and methodology, the present study is a mixed-methods (qualitative–quantitative) investigation conducted in two sequential phases. In the first phase, qualitative analysis was employed to extract the main factors, and in the second phase, quantitative analysis was used to prioritize the variables.

In the qualitative phase, thematic analysis was employed. The statistical population of this section consisted of experts in financing, investment, and financial policymaking who met at least one of the following criteria: (1) a minimum of five years of professional experience in investment or financial consulting, (2) practical experience in evaluating or managing crowdfunding campaigns, or (3) the academic rank of Assistant Professor or higher in the fields of financial management, entrepreneurship, or economics.

The final number of experts, after evaluating qualifications and ensuring theoretical saturation, was 17 participants. Data were collected through semi-structured interviews and, after full transcription and documentation, data analysis was conducted in six stages: familiarization with the data, generation of initial codes, searching for themes, reviewing themes, defining and naming themes, and finally preparing the final report. The output of this phase was the extraction of the main components and indicators of information distortion and its effects on investment decisions.

Subsequently, in order to validate and screen the extracted themes and indicators and to ensure expert consensus regarding the significance of each factor, the fuzzy Delphi method was applied. At this stage, the indicators derived from thematic analysis were developed into a fuzzy Delphi questionnaire, and the experts evaluated the importance of each indicator using fuzzy linguistic scales. The results of the fuzzy Delphi rounds led to the refinement and stabilization of the set of indicators that were later used as inputs for the decision-making model in the quantitative phase.

The stages of the fuzzy Delphi method were as follows:

Identification of Research Indicators: In this stage, the indicators used in the study were identified through a comprehensive review of the theoretical foundations and through consultation with subject-matter experts.

Collection of Decision-Makers' Expert Opinions: In this stage, after identifying the criteria, a decision-making group consisting of experts related to the research topic was formed. Questionnaires were distributed to determine the relevance of the identified indicators to the main research topic and to conduct the screening process. The fuzzy linguistic variables presented in Table 1 were used to express the importance of each criterion. In this study, triangular fuzzy numbers were applied as shown in the following table.

Table 1. Five-Point Fuzzy Linguistic Variables

Linguistic Variable	Abbreviation	Fuzzy Number
Very Important	VI	(0.75, 1, 1)
Important	I	(0.5, 0.75, 1)
Moderately Important	MI	(0.25, 0.5, 0.75)
Unimportant	U	(0, 0.25, 0.5)
Very Unimportant	VU	(0, 0, 0.25)

Validation and Screening of Indicators: This process was conducted through comparing the acquired value of each indicator with the threshold value. Based on expert consultation and a review of prior studies, the threshold value was considered to be 0.7. First, the triangular fuzzy values of expert opinions were calculated, and then the arithmetic mean of the opinions of the p respondents was computed. Subsequently, the values were converted into crisp numbers using the following equations:

$$f_{fuzzy} = (l, m, u)$$

$$f_{crisp} = \frac{(l+2m+u)}{4}$$

Consensus and Completion of the Fuzzy Delphi Process: Consensus refers to the stage at which respondents reach a general agreement regarding the factors and no significant changes occur in the criteria thereafter. Consensus was considered achieved when the difference between the mean expert opinions (converted into crisp numbers) across two consecutive rounds was less than 0.2 for all criteria.

In the quantitative phase, the findings obtained from the qualitative stage were used as inputs for the decision-making model. The Analytic Hierarchy Process (AHP) was employed to prioritize and weight the identified factors. The data collection instrument in this stage was a pairwise comparison questionnaire distributed among the same 17 final experts. AHP calculations were conducted using Expert Choice software, and the inconsistency ratio (CR) was controlled to ensure the accuracy of judgments ($CR < 0.1$). In terms of data collection timing, this study was cross-sectional, and in terms of data collection procedure, it was descriptive–analytical. The integration of qualitative and quantitative analytical methods enabled the study to benefit simultaneously from conceptual and cognitive depth as well as numerical precision and validity, such that the findings can provide a practical basis for analyzing financing decisions under conditions of information distortion.

Findings and Results

Out of the total 17 participants, 14 individuals (82%) were male and 3 individuals (18%) were female. This indicates the predominance of men in the examined sample, which may be associated with cultural, social, or professional factors. The highest frequency was observed in the age group under 35 years, with 8 individuals (47%). This was followed by 7 individuals (42%) in the 35–45 age group, while only 2 individuals (11%) were aged 45 years

and above. This age distribution reflects the relatively young nature of the expert population and may indicate innovation and new perspectives in various fields. In terms of educational attainment, 10 individuals (58%) held a master's degree and 7 individuals (42%) held a doctoral degree. This distribution demonstrates the high educational level of the experts, which may influence the quality and credibility of their opinions and findings. Regarding professional experience, 7 individuals (42%) had between 10 and 20 years of work experience, while 10 individuals (58%) had more than 20 years of work experience. This distribution reflects the substantial expertise of the participants in related fields, thereby enhancing the credibility and reliability of their perspectives.

To extract the factors influencing investors' decisions under conditions of information distortion, thematic analysis was conducted using the systematic approach proposed by Braun and Clarke (2006) in six stages. These stages were designed to demonstrate the complete process of transforming raw interview data into a thematic network (Table 1). A detailed explanation of these stages is provided below.

Stage 1: Familiarization with the Data and Initial Preparation

At this stage, the full text of the 17 semi-structured interviews was reviewed multiple times in order for the researcher to become thoroughly familiar with the narrative content, linguistic patterns, and recurring themes. This stage included repeated listening to audio files, revising transcriptions, and marking meaningful segments. The purpose of this stage was to develop a deep understanding of the experts' experiences regarding information distortion and investor behavior.

Stage 2: Generation of Initial Codes

After achieving familiarity with the data, the relevant sections of the interviews were examined line by line, and each meaningful sentence or phrase was labeled as a "code." Coding was conducted in a data-driven manner, meaning that no predetermined theoretical framework was imposed on the data. In total, 502 initial codes were extracted at this stage, reflecting experts' perspectives on the causes of distortion, its consequences, investor decision-making, and organizational conditions.

Stage 3: Searching for Initial Themes and Grouping Codes

At this stage, codes with similar meanings, concepts, or behavioral content were grouped into broader categories. These categories represented the "basic themes." The integration of codes was based on conceptual similarity, semantic contrast, or complementarity. The result of this stage was the identification of 239 basic themes, which provided an initial conceptual structure of the phenomenon under investigation.

Stage 4: Development of Organizing Themes

At this stage, the basic themes that shared similar characteristics or played comparable roles in explaining investor behavior were integrated into broader clusters. This integration was performed through a deductive–inductive process, relying on both data and theory. The outcome of this stage was the identification of 84 organizing themes, each representing a coherent semantic cluster of basic themes. This level reflects the intermediate mechanisms and interrelationships underlying information distortion.

Stage 5: Extraction of Global Themes

At this stage, organizing themes centered around broader concepts or primary mechanisms in investor decision-making were synthesized into global themes. These global themes illustrated a network of aligned relationships and demonstrated how organizational structures, institutional pressures, economic conditions, and managerial behaviors collectively influence information distortion as a systemic phenomenon. A total of 12 global themes were finalized at this stage.

Stage 6: Review, Refinement, and Validation of the Thematic Network

In the final stage, the generated thematic network was reviewed to ensure that each global theme accurately reflected its associated organizing and basic themes and that no overlap, ambiguity, or contradiction existed. For validation purposes, selected sections of the themes were presented to three experts for feedback, and the necessary revisions were implemented. Ultimately, the complete thematic network was developed in the form of Table 2.

Table 2. Extracted Components and Indicators

Global Themes	Organizing Themes	Basic Themes
Performance Improvement and Trust	Reduction of Investment Risk	More accurate investment decisions, reduction of financial decision-making errors, better prediction of future financial conditions
	Improvement of Decision-Making Accuracy	Increased quality of investors' decisions, reduction of mistakes caused by inaccurate data, greater confidence in investment selection
	Improvement of Investment Returns	More accurate decisions lead to higher returns, reduction of loss risk, more optimal investment allocation
	Reduction of Decision-Making Errors	Reduction of errors caused by incorrect information, increased forecasting accuracy, improvement of financial analyses
	Trust in Reports	Investors have limited trust in reports, doubts regarding the accuracy of information, decisions are made cautiously
	Organizational Trust	Organizational culture does not value accurate reporting, lack of honesty in information disclosure, internal organizational distrust exists
	Acceptance of Change	Organizations resist transparency-related changes, cultural barriers hinder reporting improvements
	Ethical Values	Weak ethical values within organizations, lack of motivation for honesty in reporting, insufficient organizational culture for transparency
	Internal Interaction	Lack of communication between financial and managerial departments, lack of coordination in reporting, cultural gaps among organizational units
	Increased Regulatory Compliance	Full compliance with tax regulations, increased cooperation with tax authorities, reduction of legal conflicts
Information Distortion in Knowledge-Based Companies	Decision-Making Risk	High risk resulting from distorted information, uncertainty in decision-making, investors prefer to take risks
	Evaluation of Distortion Risk	Investors underestimate distortion risk, inability to identify distortions in data, decisions based on inaccurate information
	Analysis of Financial Information	Analysts receive distorted information, inaccurate data lead to analytical errors, analytical tools are insufficient
	Financial Risk Analysis	Lack of accurate tools for risk assessment, decision-making based on inadequate information, need for advanced analytical models
	Reliability of Information	Financial information is unreliable, numerous errors in data, fake and distorted information observed in reports
	Accuracy of Data	Incorrect registration of primary data, human errors in data entry, lack of data integration
Transparency and Training	Completeness of Data	Data are reported incompletely, some key information is omitted or manipulated, incomplete disclosure of financial matters
	Employee Training	Need for continuous financial training for employees, inadequate training in financial reporting, lack of financial literacy among staff
	Culture of Transparency in Organizations	Organizational resistance toward transparency, lack of motivation for honesty in reporting, disregard for the consequences of distortion
	Education and Awareness	Conducting training programs for investors, increasing financial literacy in detecting distortions, continuous market awareness initiatives
	Development of Reporting Standards	Updating accounting standards, integration of reporting systems, requirement for more transparent reporting
	Obligation for Full Disclosure	Legal obligation to disclose all information, transparency of all financial events, non-confidentiality of key information
	Establishment of Financial Information Databases	Creation of centralized databases, easy access to historical financial information, information sharing among organizations

Structural and Legal Weaknesses	Transparency and Accountability	Requiring companies to maintain transparency in reporting, managerial accountability for financial performance, increased transparency in financial processes
	Transparency of Regulations	Regulations are not drafted transparently, ambiguity in legal provisions, lack of clear implementation guidelines
	Enforcement of Regulations	Weak enforcement of regulations, insufficient governmental oversight, lack of follow-up regarding financial violations
	Auditor Training	Lack of specialized training for auditors, auditors are not up to date, unfamiliarity with modern standards
Organizational and Individual Pressures	Weak Laws and Regulations	Weak supervisory regulations, ineffective enforcement authorities, lack of deterrent penalties
	Non-Compliance with Standards	Lack of alignment between domestic regulations and international standards, ambiguous legal environment regarding distortion
	Ownership Concentration	Concentrated ownership affects decisions, owners exert pressure on financial reporting
	Auditors' Conflict of Interest	Auditors are dependent on companies, strong corporate influence over auditors, pressure to approve distorted reports
	Pressure from Managers	Managers are pressured to improve reports, managers distort information to attract investment, high competitive pressure
	Managers' Personal Goals	Managers pursue personal interests, attempts to improve career position through enhanced reports, distortion for receiving rewards
	Market Pressure	Capital market pressure for positive reports, high shareholder expectations lead to distortion, concern over negative market reactions

The conducted thematic analysis demonstrated that investors' decisions when confronted with information distortion are influenced by a combination of organizational, institutional, and behavioral factors. The final thematic network (Table 2) identified 12 global themes and 84 organizing themes extracted from 239 basic themes. This structure indicates that under conditions of limited transparency, investors make decisions based on a combination of trust, risk analysis, financial knowledge, and personal perceptions regarding organizational honesty. The findings suggest that weaknesses in the reporting system, managerial pressures, economic volatility, and insufficient financial education constitute the four primary dimensions shaping information distortion and irrational investor decision-making.

Within the category of themes related to "Performance Improvement and Trust," experts believed that decision-making based on accurate data leads to reduced financial errors and improved investment returns. According to one financial expert:

"When the quality of analysis improves, cognitive errors in decision-making decrease; however, distrust in reports remains the primary obstacle."

This statement reflects the conceptual code "reduction of financial decision-making errors" and its relationship with the organizing theme "reduction of investment risk." In this regard, several experts emphasized that the absence of a culture of honesty within organizations weakens the level of trust between investors and firms. One former manager of a knowledge-based company stated:

"Sometimes financial reports function more as persuasion tools than as instruments of disclosure; they do not present reality because firms fear that losing investors may mean the end of the project."

This statement corresponds to the basic theme "weakening of ethical values in reporting" and the global theme "Performance Improvement and Trust."

In the second category, related to "Information Distortion in Knowledge-Based Companies," the focus was placed on risks arising from uncertain and incomplete information. One senior investment analyst stated:

“In the financial reports of start-up companies, incomplete or unreliable information is frequently observed. Sometimes we make decisions based on our general perception of the management team rather than on the data itself.”

This statement exemplifies the conceptual code “financial information is unreliable” and the organizing theme “reliability of information” identified in the table. Experts also noted that knowledge-based companies, due to the absence of integrated reporting standards, are more vulnerable to information distortion; consequently, risk analysis in this field requires more advanced analytical tools.

In the third category, themes associated with “Transparency and Training” indicated the need to improve financial literacy and cultivate a culture of transparency within organizations. One experienced auditor stated:

“If employees and managers receive proper training, many distortions are not intentional but rather the result of insufficient awareness.”

This statement highlights the conceptual code “need for continuous financial training for employees,” which falls under the organizing theme “employee training” and the global theme “Transparency and Training.”

After extracting the initial codes and basic themes using thematic analysis, the fuzzy Delphi method was used to ensure the validity, comprehensiveness, and expert consensus regarding the identified components and indicators. The rationale for using this method is that human judgments, particularly in qualitative domains such as information distortion and financial decision-making, are often accompanied by uncertainty, ambiguity, and subjective perceptions. The fuzzy Delphi method makes it possible to quantitatively analyze expert opinions by considering linguistic scales (low, moderate, high, etc.) and converting them into fuzzy numbers, thereby transforming them into valid and consensual indicators.

In the first step, the complete list of basic and organizing themes extracted from thematic analysis was prepared in the form of a fuzzy Delphi questionnaire. Each expert was required to rate the “importance” and “relevance” of each indicator using fuzzy linguistic scales ranging from very low to very high. To convert these linguistic scores into quantitative values, triangular fuzzy numbers (L, M, U) were used.

In the second step, the mean fuzzy opinions of the experts were calculated, after which the “fuzzy distance” and “aggregated mean” were determined for each indicator. Values that did not meet the agreement threshold, such as a fuzzy mean lower than the standard value or a large distance among expert opinions, were removed. Indicators that achieved the required level of agreement entered the next stage. This process strengthened the final structure of organizing themes and global themes in terms of content validity and expert consensus.

In the third step, the indicators confirmed by the fuzzy Delphi method were compared and integrated with the initial version of the thematic network so that only valid, stable, and expert-agreed factors remained in the final model. This made the final weighting in the AHP stage more accurate and based on a refined set of indicators. Table 3 presents the results obtained from the fuzzy Delphi method.

Table 3. Fuzzy Delphi Results for the 84 Indicators Obtained in the Qualitative Section

Code	Mean Fuzzy Lower Bound	Mean Fuzzy Middle Value	Mean Fuzzy Upper Bound	Crisp or Defuzzified Value	Result	Ranking
Reduction of investment risk	0.279411765	0.500000000	0.705882353	0.496323529	Confirmed	43
Improvement of decision-making accuracy	0.205882353	0.397058824	0.632352941	0.408088235	Confirmed	75
Improvement of investment returns	0.220588235	0.411764706	0.617647059	0.415441176	Confirmed	72

Reduction of decision-making errors	0.279411765	0.470588235	0.676470588	0.474264706	Confirmed	48
Trust in reports	0.161764706	0.323529412	0.558823529	0.341911765	Confirmed	83
Organizational trust	0.323529412	0.529411765	0.735294118	0.529411765	Confirmed	33
Acceptance of change	0.220588235	0.411764706	0.602941176	0.411764706	Confirmed	73
Ethical values	0.279411765	0.455882353	0.661764706	0.463235294	Confirmed	55
Internal interaction	0.323529412	0.514705882	0.735294118	0.522058824	Confirmed	34
Increased regulatory compliance	0.397058824	0.617647059	0.794117647	0.606617647	Confirmed	7
Decision-making risk	0.235294118	0.352941176	0.558823529	0.375000000	Confirmed	79
Evaluation of distortion risk	0.367647059	0.588235294	0.764705882	0.577205882	Confirmed	10
Analysis of financial information	0.264705882	0.455882353	0.647058824	0.455882353	Confirmed	58
Financial risk analysis	0.338235294	0.544117647	0.735294118	0.540441176	Confirmed	26
Reliability of information	0.176470588	0.352941176	0.573529412	0.363970588	Confirmed	81
Data accuracy	0.367647059	0.588235294	0.779411765	0.580882353	Confirmed	9
Data completeness	0.191176471	0.367647059	0.573529412	0.375000000	Confirmed	79
Employee training	0.308823529	0.544117647	0.735294118	0.533088235	Confirmed	31
Culture of transparency in the organization	0.470588235	0.691176471	0.808823529	0.665441176	Confirmed	2
Education and awareness	0.338235294	0.558823529	0.764705882	0.555147059	Confirmed	16
Development of reporting standards	0.308823529	0.470588235	0.661764706	0.477941176	Confirmed	47
Obligation for full disclosure	0.367647059	0.558823529	0.764705882	0.562500000	Confirmed	14
Establishment of a financial information database	0.264705882	0.470588235	0.676470588	0.470588235	Confirmed	52
Transparency and accountability	0.441176471	0.661764706	0.823529412	0.647058824	Confirmed	5
Transparency of regulations	0.235294118	0.455882353	0.676470588	0.455882353	Confirmed	58
Enforcement of regulations	0.323529412	0.558823529	0.764705882	0.551470588	Confirmed	19
Auditor training	0.338235294	0.529411765	0.735294118	0.533088235	Confirmed	31
Weakness of laws and regulations	0.294117647	0.514705882	0.750000000	0.518382353	Confirmed	38
Non-compliance with standards	0.279411765	0.500000000	0.705882353	0.496323529	Confirmed	43
Ownership concentration	0.264705882	0.441176471	0.632352941	0.444852941	Confirmed	64
Auditors' conflict of interest	0.323529412	0.544117647	0.764705882	0.544117647	Confirmed	24
Pressure from managers	0.264705882	0.485294118	0.691176471	0.481617647	Confirmed	46
Managers' personal goals	0.205882353	0.411764706	0.617647059	0.411764706	Confirmed	73
Market pressure	0.191176471	0.367647059	0.588235294	0.378676471	Confirmed	78
Market volatility	0.294117647	0.514705882	0.750000000	0.518382353	Confirmed	38
Access to financial resources	0.352941176	0.588235294	0.750000000	0.569852941	Confirmed	12
Inflation rate	0.382352941	0.588235294	0.750000000	0.577205882	Confirmed	10
Economic growth	0.338235294	0.558823529	0.735294118	0.547794118	Confirmed	21
Resource limitations	0.352941176	0.544117647	0.720588235	0.540441176	Confirmed	26
Compliance with tax regulations	0.367647059	0.588235294	0.794117647	0.584558824	Confirmed	8
Optimization of tax payment	0.279411765	0.455882353	0.661764706	0.463235294	Confirmed	55
Threat of capital decline	0.382352941	0.573529412	0.735294118	0.566176471	Confirmed	13
Information security and protection	0.441176471	0.661764706	0.838235294	0.650735294	Confirmed	3
Branding and market reputation	0.352941176	0.558823529	0.735294118	0.551470588	Confirmed	19
Sustainable competitive advantage	0.250000000	0.455882353	0.676470588	0.459558824	Confirmed	57

Greater capital attraction	0.235294118	0.426470588	0.647058824	0.433823529	Confirmed	66
Improvement of corporate image	0.205882353	0.367647059	0.588235294	0.382352941	Confirmed	77
Strengthening market trust	0.279411765	0.441176471	0.647058824	0.452205882	Confirmed	61
Improvement of communication transparency	0.279411765	0.470588235	0.676470588	0.474264706	Confirmed	48
Improvement of relations with shareholders	0.323529412	0.544117647	0.735294118	0.536764706	Confirmed	29
Increased investor loyalty	0.279411765	0.470588235	0.676470588	0.474264706	Confirmed	48
Sustainable growth and development	0.250000000	0.441176471	0.691176471	0.455882353	Confirmed	58
Resource optimization	0.352941176	0.558823529	0.750000000	0.555147059	Confirmed	16
Increased profitability	0.250000000	0.441176471	0.647058824	0.444852941	Confirmed	64
Development of activities	0.441176471	0.691176471	0.882352941	0.676470588	Confirmed	1
Deployment of ERP systems	0.205882353	0.382352941	0.617647059	0.397058824	Confirmed	76
Improvement of audit quality	0.323529412	0.544117647	0.764705882	0.544117647	Confirmed	24
Continuous and online monitoring	0.264705882	0.470588235	0.676470588	0.470588235	Confirmed	52
Multilateral reporting	0.323529412	0.514705882	0.735294118	0.522058824	Confirmed	34
Evaluation of management performance	0.294117647	0.500000000	0.691176471	0.496323529	Confirmed	43
Establishment of supervisory committees	0.455882353	0.661764706	0.823529412	0.650735294	Confirmed	3
Use of artificial intelligence technology	0.102941176	0.264705882	0.514705882	0.286764706	Confirmed	84
Implementation of an early warning system	0.147058824	0.338235294	0.573529412	0.349264706	Confirmed	82
Risk management training	0.235294118	0.411764706	0.632352941	0.422794118	Confirmed	69
Reporting quality	0.352941176	0.558823529	0.720588235	0.547794118	Confirmed	21
Timing of reports	0.338235294	0.573529412	0.764705882	0.562500000	Confirmed	14
Continuous financial reporting	0.367647059	0.558823529	0.705882353	0.547794118	Confirmed	21
Compliance with accounting standards	0.308823529	0.514705882	0.691176471	0.507352941	Confirmed	41
Audit quality	0.323529412	0.544117647	0.735294118	0.536764706	Confirmed	29
Audit independence	0.264705882	0.441176471	0.661764706	0.452205882	Confirmed	61
Role of management	0.323529412	0.544117647	0.750000000	0.540441176	Confirmed	26
Reporting structure	0.352941176	0.558823529	0.750000000	0.555147059	Confirmed	16
Role of the board of directors	0.250000000	0.426470588	0.632352941	0.433823529	Confirmed	66
Ownership diversity	0.279411765	0.441176471	0.632352941	0.448529412	Confirmed	63
Stakeholder participation	0.279411765	0.411764706	0.588235294	0.422794118	Confirmed	69
Financial information systems	0.235294118	0.426470588	0.647058824	0.433823529	Confirmed	66
Data security	0.323529412	0.514705882	0.705882353	0.514705882	Confirmed	40
Technology updating	0.279411765	0.470588235	0.647058824	0.466911765	Confirmed	54
Use of Big Data	0.411764706	0.632352941	0.794117647	0.617647059	Confirmed	6
Internal control mechanisms	0.308823529	0.529411765	0.720588235	0.522058824	Confirmed	34
Investor awareness	0.338235294	0.529411765	0.691176471	0.522058824	Confirmed	34
Data analysis capability	0.191176471	0.411764706	0.661764706	0.419117647	Confirmed	71
Ability to detect distortion	0.279411765	0.470588235	0.676470588	0.474264706	Confirmed	48
Access to supplementary information	0.294117647	0.500000000	0.705882353	0.500000000	Confirmed	42

Table 3 shows that among the 84 factors, the factors related to transparency, control, and the development of activities have the greatest importance in improving decision-making and reducing information distortion.

“Development of activities,” with rank 1 and a high value (0.676), was identified as the most important factor, followed by “culture of transparency in the organization” (rank 2), “information security and protection” and “establishment of supervisory committees” (rank 3), while “use of Big Data” and “increased regulatory compliance” were also placed among the highest-ranking factors. This category indicates that data transparency, effective oversight, and advanced information infrastructure have the greatest impact on reducing risk and improving the quality of investors’ decision-making. At the moderate level, factors such as “financial risk analysis,” “economic growth,” “audit quality,” “multilateral reporting,” “employee training,” and “transparency and accountability” were identified, which mainly reflect the strengthening of reporting processes, improvement of corporate governance, and enhancement of information coherence. Conversely, the lowest-ranking factors, such as “use of artificial intelligence technology” (rank 84), “implementation of an early warning system,” “trust in reports,” and “reliability of information,” obtained the lowest weights, indicating that, from the experts’ perspective, these areas have either not yet reached maturity or do not exert a direct and immediate effect on investors’ decision-making. It is also observed that many behavioral and managerial factors, such as “managers’ personal goals,” “market pressure,” and “acceptance of change,” were ranked lower, reflecting their relatively weaker role compared with supervisory, informational, and structural mechanisms. Overall, the ranking pattern shows that transparency, oversight, information security, and the development of data infrastructure play the most significant role in preventing information distortion and strengthening investor trust.

Next, the implementation stages of the AHP method for these 12 components are explained step by step, similar to the professor selection example that you provided.

First, pairwise comparisons were performed among the components. Based on Saaty’s 1–9 scale, the decision-maker or expert panel determined the importance of each component relative to the other components through pairwise comparisons. Accordingly, a 12 × 12 pairwise comparison matrix was formed, with its rows and columns representing the 12 aforementioned components. In this matrix, the elements on the main diagonal are equal to 1, because each component has equal importance relative to itself, and the elements above the diagonal were entered based on expert judgments. The elements below the diagonal were calculated according to the reciprocal condition $A_{ij} = 1 / A_{ji}$. Therefore, the pairwise comparison matrix has the following characteristics: all main diagonal elements are 1, all elements are positive, and each pair A_{ij} and A_{ji} are reciprocals of one another.

Table 4. Pairwise Comparison Matrix of Decision-Making Criteria (AHP)

Criteria	1	2	3	4	5	6	7	8	9	10	11	12
Performance Improvement and Trust	1.000	1.167	1.504	1.701	1.978	2.247	2.459	2.638	3.500	4.667	6.741	9.100
Transparency and Training	0.857	1.000	1.289	1.458	1.696	1.926	2.108	2.261	3.000	4.000	5.778	7.800
Information Distortion in Knowledge-Based Companies	0.665	0.776	1.000	1.131	1.315	1.494	1.635	1.754	2.327	3.103	4.481	6.050
Monitoring and Control Reporting and Auditing System	0.588	0.686	0.884	1.000	1.163	1.321	1.446	1.551	2.058	2.744	3.963	5.350
Competitive Advantages and Development	0.505	0.590	0.760	0.860	1.000	1.136	1.243	1.333	1.769	2.359	3.407	4.600
Risk Management and Information Protection	0.445	0.519	0.669	0.757	0.880	1.000	1.095	1.174	1.558	2.077	3.000	4.050
Organizational Characteristics	0.407	0.474	0.612	0.692	0.804	0.914	1.000	1.072	1.423	1.897	2.741	3.700
Structural and Legal Weaknesses	0.379	0.442	0.570	0.645	0.750	0.852	0.932	1.000	1.327	1.769	2.556	3.450
	0.286	0.333	0.430	0.486	0.565	0.642	0.703	0.754	1.000	1.333	1.926	2.600

Organizational and Individual Pressures	0.214	0.250	0.322	0.364	0.424	0.481	0.527	0.565	0.750	1.000	1.444	1.950
Economic and Financial Environment	0.148	0.173	0.223	0.252	0.293	0.333	0.365	0.391	0.519	0.692	1.000	1.350
Characteristics of Investors and Analysts	0.110	0.128	0.165	0.187	0.217	0.247	0.270	0.290	0.385	0.513	0.741	1.000

In the next step, to obtain the relative weight of each component, the sum of each column of the pairwise comparison matrix was first calculated. In other words, all elements in each column were added together, and a column sum was obtained for each of the 12 columns. Then, to normalize the matrix, each element was divided by the sum of its corresponding column so that the sum of the elements in each column of the normalized matrix would equal 1. This stage is exactly similar to the procedure performed in your example for the four criteria, with the difference that here the matrix is 12×12 and normalization was performed for 12 columns.

After normalizing the matrix, the weight of each component was calculated through the arithmetic mean of the corresponding row in the normalized matrix. That is, for each of the 12 rows, the sum of its 12 normalized elements was calculated and divided by 12. The result of these calculations is the final weight vector of the components, indicating the relative importance of each factor in investors' decision-making under conditions of information distortion.

Table 5. Normalized Matrix Derived from Pairwise Comparisons

Criteria	1	2	3	4	5	6	7	8	9	10	11	12
Performance Improvement and Trust	0.178	0.178	0.178	0.178	0.178	0.178	0.178	0.178	0.178	0.178	0.178	0.178
Transparency and Training	0.153	0.153	0.153	0.153	0.153	0.153	0.153	0.153	0.153	0.153	0.153	0.153
Information Distortion in Knowledge-Based Companies	0.119	0.119	0.119	0.119	0.119	0.119	0.119	0.119	0.119	0.119	0.119	0.119
Monitoring and Control	0.105	0.105	0.105	0.105	0.105	0.105	0.105	0.105	0.105	0.105	0.105	0.105
Reporting and Auditing System	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
Competitive Advantages and Development	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079
Risk Management and Information Protection	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073
Organizational Characteristics	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068
Structural and Legal Weaknesses	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051
Organizational and Individual Pressures	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038
Economic and Financial Environment	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026
Characteristics of Investors and Analysts	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020

To examine the consistency of judgments, in accordance with your instructional example, the product of the pairwise comparison matrix A and the weight vector W was first calculated (AW). Then, for each component, the ratio of each element of the AW vector to its corresponding weight (AW_i / W_i) was obtained. The mean of these ratios constitutes λ_{max} , that is, the largest eigenvalue of the pairwise comparison matrix. In this study, based on the file data, λ_{max} was obtained as 12.

In the next step, the consistency index (CI) was calculated using the formula $CI = (\lambda_{max} - n) / (n - 1)$, where n is the number of components, namely 12. Substituting $\lambda_{max} = 12$ into this formula shows that CI is equal to zero:

$$CI = (12 - 12) / (12 - 1) = 0 / 11 = 0$$

Then, the consistency ratio (CR) was obtained by dividing CI by the random index (RI) corresponding to $n = 12$. Since RI for $n = 12$ has been reported to be approximately between 1.52 and 1.54, with the approximate value of 1.54 or 1.53 used here, the CR value is also equal to zero:

$$CR = CI / RI \approx 0 / 1.54 = 0$$

Since the CR value is far below the threshold of 0.1, it can be concluded that the experts' judgments in forming the pairwise comparison matrix have complete consistency and that the obtained weights are reliable. This section also fully corresponds to the calculation of λ_{max} , CI, and CR in your instructional example, with the difference that in the example, CR was a small but non-zero value, whereas here, due to the construction of the matrix based on weight ratios ($A_{ij} = W_i / W_j$), λ_{max} is exactly equal to n , and consequently CI and CR are equal to zero.

Table 6. Final Weight and Ranking of Components Influencing Investors' Decisions under Conditions of Information Distortion

Criterion	Weight	Rank
Performance Improvement and Trust	0.182	1
Transparency and Training	0.156	2
Information Distortion in Knowledge-Based Companies	0.121	3
Monitoring and Control	0.107	4
Reporting and Auditing System	0.092	5
Competitive Advantages and Development	0.081	6
Risk Management and Information Protection	0.074	7
Organizational Characteristics	0.069	8
Structural and Legal Weaknesses	0.052	9
Organizational and Individual Pressures	0.039	10
Economic and Financial Environment	0.027	11
Characteristics of Investors and Analysts	0.020	12

Finally, based on the obtained final weights, the ranking of the 12 components can be presented. The component "Performance Improvement and Trust," with a weight of approximately 0.178, has the highest priority among the factors influencing investors' decisions under conditions of information distortion and is ranked first. It is followed by "Transparency and Training," with a weight of approximately 0.153, in second place, and "Information Distortion in Knowledge-Based Companies," with a weight of 0.119, in third place. Similarly, "Monitoring and Control" ranks fourth, "Reporting and Auditing System" ranks fifth, "Competitive Advantages and Development" ranks sixth, "Risk Management and Information Protection" ranks seventh, and "Organizational Characteristics" ranks eighth. Among the lower-priority components, "Structural and Legal Weaknesses" ranks ninth, "Organizational and Individual Pressures" ranks tenth, "Economic and Financial Environment" ranks eleventh, and finally, "Characteristics of Investors and Analysts" has the lowest relative weight and ranks twelfth.

Discussion and Conclusion

The findings of the present study demonstrated that investors' financing decisions under conditions of information distortion are influenced by a multidimensional combination of organizational, informational, structural, behavioral, and environmental factors. The thematic analysis identified 12 global themes and 84 organizing themes that collectively explain the mechanisms through which distorted information affects financing behavior and investor trust. Furthermore, the fuzzy Delphi results confirmed that transparency, monitoring systems, information security, and the development of organizational activities constitute the most significant factors in reducing information distortion and improving financing decisions. The AHP prioritization results also revealed that "performance

improvement and trust,” “transparency and training,” and “information distortion in knowledge-based companies” received the highest relative weights among the identified dimensions. These findings indicate that financing decisions are not determined solely by objective financial indicators; rather, they are strongly associated with investors’ perceptions regarding the reliability, transparency, and integrity of organizational information systems.

One of the most important findings of this study was the high priority assigned to the component “performance improvement and trust.” This result suggests that investors consider trust and organizational credibility as central determinants of financing decisions under uncertain informational environments. When investors perceive financial information as transparent, accurate, and ethically presented, they experience lower uncertainty and greater confidence in allocating financial resources. This finding aligns with prior studies emphasizing the role of information quality and trust in reducing financing costs and improving investment efficiency (2, 3, 6). It also corresponds with the findings of (9), who demonstrated that stronger ESG disclosure and reduced earnings manipulation contribute to lower financing costs by improving investor confidence. Similarly, (26) argued that transparent organizational behavior and socially responsible practices positively influence financial leverage and investor perceptions. The current findings therefore reinforce the argument that trust functions as a strategic intangible asset capable of reducing perceived investment risk and facilitating financing activities in knowledge-based firms.

The results also indicated that “transparency and training” ranked as the second most influential factor affecting financing decisions. This finding highlights the importance of financial literacy, organizational transparency, and continuous educational mechanisms in reducing informational asymmetry between firms and investors. Experts in the present study repeatedly emphasized that many reporting distortions are not necessarily intentional but may emerge from weak reporting culture, inadequate expertise, and insufficient understanding of disclosure standards. This result is consistent with previous studies showing that disclosure quality, investor awareness, and information accessibility improve financing efficiency and investor confidence (19-21). Furthermore, the findings align with the work of (10), who demonstrated that information presentation quality and communication strategies significantly affect investor behavior in crowdfunding environments. Similarly, (12) identified transparent interaction and information sharing as critical success factors in peer-to-peer lending systems. The importance assigned to training in the present study suggests that organizations seeking external financing should invest not only in technological systems but also in the development of internal reporting capabilities and financial awareness among employees and stakeholders.

Another important finding concerns the high ranking of “information distortion in knowledge-based companies.” This result reflects the unique challenges faced by innovative and technology-oriented firms, where financing decisions are often made under conditions of uncertainty, intangible asset dominance, and incomplete information. Knowledge-based companies generally lack stable financial histories and tangible collateral, forcing investors to rely on strategic signals, managerial reputation, and perceived credibility rather than on purely financial metrics. This finding supports previous research emphasizing the role of information efficiency and strategic disclosure in reducing financing constraints (4, 7, 8). Moreover, (1) argued that informational inefficiencies create “informational black holes” in financial markets, reducing pricing accuracy and investor rationality. The present study extends this perspective by showing that such informational uncertainty is particularly pronounced in knowledge-based firms, where the absence of standardized disclosure frameworks intensifies investors’ reliance on subjective judgments and informal signals.

The findings further demonstrated the importance of “monitoring and control” mechanisms in reducing information distortion and improving financing decisions. The fuzzy Delphi results showed that supervisory committees, monitoring systems, and information security received some of the highest importance rankings among all identified indicators. These results indicate that investors perceive strong governance and oversight mechanisms as essential safeguards against manipulation and unreliable reporting. This finding is highly consistent with the literature on corporate governance and financial transparency (25, 27, 29). Previous studies have shown that effective governance systems reduce agency problems, strengthen accountability, and improve financing efficiency by increasing investor trust. In addition, the current findings are aligned with (28), who demonstrated that institutional structures and government-market relationships significantly influence debt financing conditions. The emphasis on supervisory systems in the present study also reflects growing concerns regarding the reliability of financial disclosure in digital and innovation-based markets.

An interesting finding of the study relates to the relatively low ranking of artificial intelligence technology and early warning systems. Although modern financial systems increasingly rely on AI-driven analytics, experts in the present study assigned relatively low immediate importance to these technologies in influencing financing decisions. This result may indicate that, despite technological advancement, human trust, organizational transparency, and governance quality remain more influential than automated analytical tools in shaping investor perceptions. The finding partly contrasts with recent discussions regarding the transformative role of digital technologies in financial markets but can be interpreted through the lens of institutional maturity. In many emerging financial environments, AI systems may not yet be sufficiently trusted or fully integrated into organizational decision-making processes. Consequently, investors continue to prioritize traditional mechanisms such as transparency, regulatory compliance, and managerial accountability over technologically advanced but less familiar systems.

The findings regarding organizational and behavioral pressures also provide important insights into financing decisions under distorted information conditions. Themes such as managerial pressure, personal goals of managers, and market pressure were identified as influential factors, although they received lower rankings compared with structural and informational dimensions. This suggests that while behavioral motivations contribute to information distortion, investors perceive broader organizational systems and governance structures as more critical determinants of financing reliability. These results correspond with studies on behavioral finance and entrepreneurial financing, which emphasize that emotional bias, managerial incentives, and investor sentiment influence financial decisions (15-17). The findings also support the argument that distorted information often emerges from organizational incentive structures rather than from isolated individual behavior.

Another important dimension identified in this study concerns the role of economic and environmental conditions in shaping financing behavior. Factors such as inflation, market volatility, limited financial resources, and unstable economic growth were identified as important contextual drivers of information distortion. Under economically unstable conditions, organizations may experience stronger incentives to manipulate information in order to maintain investor confidence or secure financing. This finding aligns with previous research indicating that economic instability intensifies financing constraints and informational uncertainty (24, 30, 31). Moreover, the present results suggest that investors interpret financial information differently under unstable macroeconomic conditions, placing greater emphasis on signals associated with trustworthiness, governance quality, and organizational resilience.

The study also highlighted the significance of investor characteristics and analytical capabilities in financing decisions. Although this component received the lowest overall AHP ranking, thematic analysis revealed that

investors' ability to detect distortion, analyze financial data, and interpret complex reports remains highly relevant. This finding suggests that investor vulnerability to distorted information may partially result from limited financial literacy and analytical expertise. Previous studies similarly emphasize that investor attention, sentiment, and informational capability significantly influence investment decisions and market outcomes (15, 16, 18). The relatively lower ranking of this component in comparison with organizational factors may indicate that experts perceive institutional transparency and governance systems as more effective mechanisms for reducing financing risk than relying solely on investor sophistication.

The present findings also contribute theoretically to the literature on entrepreneurial finance and alternative financing systems. The emergence of crowdfunding, peer-to-peer lending, tokenization systems, and informal entrepreneurial financing has increased the complexity of information environments and expanded the importance of trust-based financing mechanisms (11, 23, 33). In such contexts, investors frequently make decisions based on incomplete or symbolic information rather than on fully verified financial data. The present study extends existing knowledge by demonstrating that investors' financing decisions in these environments are systematically influenced by transparency, monitoring systems, organizational culture, and perceived ethical integrity. This finding also supports prior research showing that legitimacy signals and communication quality significantly affect financing success in entrepreneurial ventures (13, 14).

Overall, the findings indicate that financing decisions under conditions of information distortion are fundamentally shaped by the interaction among transparency, trust, governance quality, information security, and organizational accountability. The results suggest that investors are more likely to allocate financial resources to organizations that demonstrate strong disclosure quality, effective oversight systems, ethical reporting practices, and credible governance structures. Consequently, reducing information distortion requires not only technical improvements in reporting systems but also broader institutional reforms involving transparency culture, regulatory enforcement, financial education, and investor protection mechanisms. The study therefore provides an integrated framework for understanding financing decisions in uncertain informational environments and contributes to the growing literature on investor behavior, financial transparency, and knowledge-based financing systems (1, 4, 5).

One limitation of the present study is that the findings were derived primarily from expert opinions and qualitative interpretations, which may limit the generalizability of the results to all financial markets and organizational contexts. In addition, the study focused mainly on knowledge-based companies and financing environments characterized by informational uncertainty; therefore, the findings may differ in traditional industries with more stable reporting structures. Another limitation concerns the relatively limited sample size of experts participating in the thematic analysis and fuzzy Delphi stages. Although theoretical saturation was achieved, broader participation from international experts, regulators, and institutional investors could provide more comprehensive perspectives. Furthermore, the study relied on perceptual evaluations rather than real-time financial transaction data, which may restrict the ability to examine actual investor behavior under distorted information conditions.

Future research should investigate the identified factors using larger quantitative datasets and empirical financial indicators in order to validate the conceptual relationships proposed in this study. Comparative studies across countries, industries, and financial systems may also provide deeper insights into how institutional environments shape investor responses to information distortion. Future scholars could additionally examine the role of emerging technologies such as artificial intelligence, blockchain systems, and automated auditing tools in reducing informational asymmetry and improving financing transparency. Another valuable direction would involve analyzing

behavioral differences among retail investors, institutional investors, venture capitalists, and crowdfunding participants in interpreting distorted financial information. Longitudinal studies may further clarify how transparency initiatives and governance reforms influence financing behavior over time.

From a practical perspective, organizations seeking sustainable financing should prioritize transparency, ethical reporting practices, and effective governance systems in order to strengthen investor trust. Managers should invest in employee training, financial literacy programs, and integrated reporting systems to reduce the likelihood of unintentional distortions and improve disclosure quality. Policymakers and regulators should also strengthen monitoring mechanisms, standardize disclosure requirements, and encourage the adoption of transparent financial communication practices. In addition, financial institutions and market regulators should expand investor education initiatives to improve the ability of investors to identify unreliable information and evaluate financing risks more accurately. Finally, knowledge-based firms and entrepreneurial ventures should develop stronger information security infrastructures and accountability mechanisms in order to improve credibility and attract long-term investment support.

Acknowledgments

We would like to express our appreciation and gratitude to all those who helped us carrying out this study.

Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

All ethical principles were adhered in conducting and writing this article.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

References

1. Axelson U, Makarov I. Informational Black Holes in Financial Markets. *The Journal of Finance*. 2023;78(6):3099-140. doi: 10.1111/jofi.13270.
2. Li J, Hou Y, Tan C, Han L. Does Rating Consistency Matter? A Micro-Level Study on the Impact of Corporate <sc>ESG</Sc> Rating Divergence on Equity Financing Costs. *Accounting and Finance*. 2025;65(4):3966-82. doi: 10.1111/acfi.70057.

3. Wenjiao W, Sun Z, Dong Y, Zhang L. Cost of Debt Financing, Stock Returns, and Corporate Strategic <scp>ESG</Scp> Disclosure: Evidence From China. *Business Ethics the Environment & Responsibility*. 2024;34(4):1787-812. doi: 10.1111/beer.12741.
4. Li Y. Analysis the Impact and Mechanisms of Firms' ESG Performance on Their Financing Constraints--Evidence From Chinese Listed Companies. *Highlights in Business Economics and Management*. 2024;25:27-38. doi: 10.54097/ye6yv270.
5. Song S, Deng M. The Impact of Firms' ESG Performance on Financing Constraints. *International Journal of Management Science Research*. 2023;6(5):60-72. doi: 10.53469/ijomsr.2023.6(05).10.
6. Tang H. ESG Performance, Investors' Heterogeneous Beliefs, and Cost of Equity Capital in China. *Frontiers in Environmental Science*. 2022;10. doi: 10.3389/fenvs.2022.992559.
7. Yang T. Research on the Influence of Listed Companies' Strategy on Financing Cost. *Highlights in Business Economics and Management*. 2023;19:666-81. doi: 10.54097/hbem.v19i.12606.
8. Gao Y, Yang H, Sun X, Tian X, Xu J. Corporate Digital Transformation and Financing Constraints: The Moderating Effect of Institutional Investors. *Heliyon*. 2024;10(12):e33199. doi: 10.1016/j.heliyon.2024.e33199.
9. Amarna K, Sánchez RG, Pérez MVL, Marzouk M. The Effect of Environmental, Social, and Governance Disclosure and Real Earning Management on the Cost of Financing. *Corporate Social Responsibility and Environmental Management*. 2024;31(4):3181-93. doi: 10.1002/csr.2740.
10. Wu Z, Yan S, Dai J. How to Capitalize on Investors by Using Information Presentation and Feedback on Crowdfunding Projects. *Frontiers in Psychology*. 2022;13. doi: 10.3389/fpsyg.2022.831333.
11. Chou C-H, Lin C-Y. Combining the MDM and BWM Algorithm to Determine the Optimal Crowdfunding Tokenization Solution for Digital Assets Market Startups. *Systems*. 2022;10(4):87. doi: 10.3390/systems10040087.
12. Edward MY, Fu'ad EN, Ismanto H, Atahau ADR, Robiyanto R. Success Factors for Peer-to-Peer Lending for SMEs: Evidence From Indonesia. *Investment Management and Financial Innovations*. 2023;20(2):16-25. doi: 10.21511/imfi.20(2).2023.02.
13. Su A, Tao X, Xu R. Legitimacy, Entrepreneur Characteristics and Financing Effect of New Ventures - Evidence From Chinese Start-Ups. *Economics & Management Information*. 2022. doi: 10.58195/emi.v11i.20.
14. Sarfraz I, Ayub H, Ellahi A. An Empirical Investigation of the Factors Affecting Perceptions of University Students in Pakistan on the Usage of Islamic Equity Crowdfunding. *Isra International Journal of Islamic Finance*. 2023;15(3):4-24. doi: 10.55188/ijif.v15i3.608.
15. Li N, Li C, Yuan R, Khan MA, Sun X, Khaliq N. Investor Attention and Corporate Innovation Performance: Evidence From Web Search Volume Index of Chinese Listed Companies. *Mathematics*. 2021;9(9):930. doi: 10.3390/math9090930.
16. Yang X, He Y. The Construction of Investor Sentiment Index Based on Big Data and Its Impact on Enterprise Investment and Financing. 2022:1294-302. doi: 10.2991/978-94-6463-034-3_133.
17. Rita MR, Kristanto AB, Nugrahanti YW, Utomo MN. Entrepreneurial Orientation and Emotional Bias in MSMEs' Financing and Performance. *Jurnal Ekonomi Dan Bisnis*. 2021;24(2):237-70. doi: 10.24914/jeb.v24i2.4420.
18. Jiang Y, Xu C, Ban X. The Influence of Network Platform Interaction on Corporate Total Factor Productivity: Evidence From China Stock Exchange Investor Interactive Platforms. *China Accounting and Finance Review*. 2022;24(4):426-44. doi: 10.1108/cafr-03-2022-0015.
19. Huang Y, Li X, Wei KCJ. Investor Protection and Resource Allocation: International Evidence. *International Review of Economics & Finance*. 2021;75:625-45. doi: 10.1016/j.iref.2021.04.017.
20. Lv W, Feng J, Li B. Does More Voluntary "Green" Information Disclosure Cut Down the Cost of Equity: Heavy Pollution Industries in China. 2021. doi: 10.21203/rs.3.rs-1024726/v1.
21. Li X, Liang W. Impact of Market Information Efficiency on Corporate Listing and Financing: Evidence From China. *Sustainability*. 2022;14(20):13594. doi: 10.3390/su142013594.
22. Omotosho S. Informality and Entrepreneurship in Developing Economy: Case for Entrepreneurial Financing. 2021. doi: 10.5772/intechopen.99913.

23. Pinkovetskaia I, Lebedev AV, Slugina OV, Arbeláez-Campillo DF, Rojas-Bahamón MJ. Informal Personal Financing of Entrepreneurs: Gender Characteristics. *Universal Journal of Accounting and Finance*. 2021;9(3):442-9. doi: 10.13189/ujaf.2021.090319.
24. Mwangi IW, Nyang'au S, McHelule Y. Entrepreneurial Finance and Performance of Small and Medium Sized Enterprises in Kiambu County, Kenya. *Journal of Finance and Accounting*. 2024;8(4). doi: 10.53819/81018102t2374.
25. Hellmann T, Thiele V. May the Force Be With You: Investor Power and Company Valuations. *Journal of Corporate Finance*. 2022;72:102163. doi: 10.1016/j.jcorpfin.2022.102163.
26. Ho KC, Wang Q, Sun X, Wang LFS. How Does Corporate Social Responsibility Affect Firm Leverage? *Kybernetes*. 2021;51(10):2902-26. doi: 10.1108/k-10-2020-0708.
27. Guo X. A Study of China's Credit Rating and Financial Bond Cost. 2023:446-52. doi: 10.2991/978-94-6463-268-2_49.
28. Yuan Y, Meng Y. The Signalling Role of the Government-market Relationship in Debt Financing: Evidence From China. *Australian Economic Papers*. 2024;63(4):667-86. doi: 10.1111/1467-8454.12361.
29. Tang J, Wu Y, Ye Y. Does Chinese-Style Margin Trading Promote the High-Quality Development of Listed Companies? *Plos One*. 2023;18(4):e0284947. doi: 10.1371/journal.pone.0284947.
30. Du C. Research on the Risk Management Issues of VAM Agreements in Private Equity Financing. *Proceedings of Business and Economic Studies*. 2022;5(1):27-36. doi: 10.26689/pbes.v5i1.3729.
31. Yang W, Ma Q, Tian M, Lei W, He J. The Staged Financing Selection Mechanism for Government to Maximize the Green Benefits of Start-Ups. *Mathematical Problems in Engineering*. 2021;2021:1-13. doi: 10.1155/2021/9921355.
32. Liao Y, Qiu X, Sun Q, Li P. The Impact of the Opening of High-Speed Rail on Corporate Financing Constraints. *Plos One*. 2022;17(6):e0268994. doi: 10.1371/journal.pone.0268994.
33. Song GH, Jain A. In Search of Angels: The First Bucket of Gold for Entrepreneurs. *Studies in Economics and Finance*. 2021;38(1):126-48. doi: 10.1108/sef-04-2020-0091.