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Disclosure of Key Audit Matters in Assessing the Level of Financial Distress of Companies

Mohsen Tanani, Seyedalireza Hosseini*

Department of Accounting, Faculty of Financial Sciences, Kharazmi University, Tehran, Iran

ARTICLE INFO	Abstract
	This study examines the relationship between the disclosure of Key Audit Matters (KAMs) and the assessment of financial distress among companies listed on the Tehran Stock Exchange (TSE). Grounded in Agency Theory, Signaling Theory, and Transaction Cost Theory, the research posits that KAM disclosures help mitigate information asymmetry between managers and shareholders. According to Signaling Theory, such disclosures convey signals about a firm's market risk. In contrast, Transaction Cost Theory suggests that greater transparency—through KAM disclosure—can reduce transaction costs and facilitate the evaluation of financial distress. The analysis investigates the association between the quantity and characteristics of KAM disclosures and financial distress using four distinct models. Based on a systematic elimination sampling method, 93 firms were selected, covering eleven years from 2012 to 2022, yielding 1,032 firm-year observations. The study's hypotheses were tested using multivariate regression analysis performed with EViews software and the partial least squares (PLS) approach. The results indicate a significant relationship between the quantity, risk level, classification, and nature of KAM disclosures and firms' levels of financial distress.

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*Corresponding Author: Seyedalireza Hosseini
Email: alireza.h1377y@gmail.com
Tel: 09117793353
ORCID:

1. Introduction

The auditor's report is one of the most important channels of communication between auditors and stakeholders, particularly investors, as it conveys the results of the audit process. In recent years, international regulatory bodies, such as the International Auditing and Assurance Standards Board (IAASB), have revised and strengthened audit reporting standards. These reforms aim to enhance the informational value of audit reports and improve the decision-making processes of users of these reports. A key component of these updates is the disclosure of Key Audit Matters (KAMs), which play a central role in promoting transparency and improving the quality of financial information. Contemporary audit reports place strong emphasis on issues related to internal controls that critically influence a company's ability to produce reliable financial statements. Within this context, particular attention is often given to matters involving management judgment and financial reporting practices (Izi et al., 2020). Key Audit Matters (KAMs) refer to issues that auditors are required to communicate to those charged with governance during the audit process. This process relies heavily on auditors' professional judgment, which can influence the quality of interactions between auditors and corporate governance bodies (Mohamadi & Saatsaz, 2023). In contrast, financial distress—often resulting from economic or political pressures—continues to be a persistent risk faced by companies. The design and implementation of an efficient financial system are fundamental topics in financial studies (Gorji & Raei, 2015). With the increasing complexity of financial markets and intensified competition, many firms experience financial distress and, in some cases, bankruptcy due to ineffective resource management and inadequate responses to financial crises. This phenomenon stems not from market development itself, but from firms' inability to adapt to evolving competitive environments. Moreover, the concealment of financial problems in corporate reports and a lack of transparency further exacerbate distress conditions. Timely identification of financial difficulties can facilitate more effective use of investment opportunities and enhance resource allocation (Azizi, 2021). Considering these factors, this study aims to investigate the relationship between the disclosure of Key Audit Matters and the assessment of financial distress among companies.

2. Theoretical fundamentals and research background

The global adoption of new and comprehensive regulations on audit reporting has sparked significant debate regarding the benefits of greater transparency for users of financial statements. A central element of these reforms is the requirement for auditors to disclose areas where there is the highest potential for material misstatement in a company's financial reports. Under the International Standards on Auditing (ISA) and the disclosure guidelines for Key Audit Matters (KAMs) introduced in jurisdictions such as the United Kingdom and the United States, regulators have sought to enhance both the clarity and the decision-usefulness of audit reports. These reports, which highlight sensitive and complex areas that require substantial audit judgment, play a crucial role in enhancing the public's understanding of firms' financial risks (FRC, 2013; PCAOB, 2018). Recent studies (e.g., Moroney et al., 2021; Smith, 2023; Seebeck & Kaya, 2023) provide evidence that the disclosure of KAMs enhances users' comprehension of company-specific audit risks and increases the overall usefulness of financial reports. Similarly, Liu et al. (2022), in a study of Chinese firms, found that such disclosures are significant for highly leveraged companies. However, other studies (e.g., Köhler et al., 2020; Camacho-Miñano et al., 2024) found no significant evidence that investors derive substantial benefits from the disclosure of critical audit issues.

Over the past two decades, international audit regulations have undergone substantial changes. For instance, in 2003, France introduced new auditing requirements mandating the disclosure of audit information for entities listed on the French stock exchange. Such disclosures enable users of annual reports to gain a clearer understanding of financial statements (Bédard et al., 2019). Likewise, since

2013, firms listed on the London Stock Exchange have been required to include specific audit-related details in their reports (Gutierrez et al., 2018). In addition, the International Auditing and Assurance Standards Board (IAASB) issued International Standard on Auditing (ISA) 701, which focuses on the disclosure of Key Audit Matters (KAMs) in audit reports across developed economies (Sierra-García et al., 2019). Under this standard, auditors must disclose significant matters that affect financial statements for periods ending on or after December 15, 2016 (Al Lawati & Hussainey, 2022; IAASB, 2015). Theoretical perspectives further support the importance of these disclosures. Agency Theory suggests that revealing key audit matters can mitigate information asymmetry between management and investors. Signaling Theory posits that such disclosures serve as signals of a company's financial condition and risk, thereby enhancing stakeholder confidence. Ultimately, Transaction Cost Theory posits that increased transparency, achieved through the precise disclosure of key audit matters, can reduce transaction costs and improve the efficiency of economic decision-making.

Given the above, further research is needed on the disclosure of key audit matters and their role in improving judgments about firms' financial conditions (Minutti-Meza, 2021). One of the most critical challenges auditors face in this context is assessing a company's going-concern status—particularly following the 2008 global financial crisis, which raised substantial concerns about auditors' ability to issue credible opinions in this regard (Laitinen & Laitinen, 2020). Empirical evidence suggests that precise and transparent disclosures in this area can play a crucial role in predicting corporate bankruptcy and assessing financial distress levels (Franzel, 2017; Gutiérrez et al., 2020; Muñoz-Izquierdo et al., 2020). Accordingly, the disclosure of Key Audit Matters may function as an early warning mechanism regarding firms' financial distress. Building on this foundation, the present study aims to investigate the role of KAM disclosures in assessing financial distress among firms listed on the national capital market. Specifically, it examines the potential association between the extent of KAM disclosure and firms' levels of financial distress.

2.1. Research background

Camacho-Miñano et al. (2024) examined the impact of disclosing Key Audit Matters (KAMs) on the assessment of financial distress among UK-listed companies. Using data from firms listed on the UK Stock Exchange beginning in 2013, their analysis examined the relationship between financial distress levels and various dimensions of KAM disclosures. The results revealed that firms experiencing higher levels of financial distress tended to disclose a greater number of KAMs.

Neiroukh and Caglar (2024) conducted an empirical study investigating how the characteristics of Key Audit Matter (KAM) disclosures affect the understandability of financial statements and investor decision-making. Their results indicate that KAM accuracy, reliability, audit quality, and financial reporting quality significantly enhance the perceived understandability of financial statements, which, in turn, positively influences investor judgments. The study highlights the crucial role of detailed and well-structured KAM disclosures in enhancing financial transparency and facilitating more informed decision-making.

Ram Roz et al. (2024) evaluated the impact of Key Audit Matter (KAM) disclosures on the relationship between credit risk and earnings quality among firms listed on the Tehran Stock Exchange (TSE). The findings reveal that KAM disclosures moderate the association between credit risk and earnings quality, implying that enhanced audit transparency strengthens the credibility of financial reporting.

Bepari et al. (2024) assessed the perceived impact of Key Audit Matter (KAM) disclosures on audit effort, audit fees, audit quality, and audit report transparency from the perspectives of auditors, regulators, and financial statement preparers. Their results suggest that although audit quality has

improved due to heightened professional and regulatory scrutiny, audit fees have not changed significantly. Nevertheless, the study raises concerns that some auditors tend to disclose generic KAMs rather than transparently report critical audit issues, which may diminish the effectiveness of KAM disclosures in enhancing audit transparency.

Batara et al. (2024) explored trends in Key Audit Matter (KAM) disclosures in Indonesia by reviewing the audit reports of 806 publicly listed firms for the year 2022. The findings indicate that the most frequently reported KAMs concern doubtful debt provisions, revenue recognition, inventory valuation, fixed asset depreciation, and property valuation. The study further reveals that firms operating in high-risk industries disclose a greater number of KAMs, and that Big Four audit firms tend to provide more detailed KAM disclosures than their non–Big Four counterparts. These results suggest that KAM reporting plays a vital role in enhancing financial reporting transparency and audit quality in emerging markets.

Abbaspour Sani et al. (2022) examined the impact of Key Audit Matter (KAM) disclosures on mitigating corporate failure risk in capital markets. Their findings indicate that firms exhibiting greater financial transparency in audit reports tend to experience lower bankruptcy risk. The study concludes that enhanced KAM disclosures strengthen stakeholders' ability to evaluate financial vulnerabilities, thereby contributing to more stable and sustainable business operations.

Malekan et al. (2022) investigated the effects of auditor rotation and Key Audit Matter (KAM) disclosures on the quality of financial reporting among firms listed on the Tehran Stock Exchange (TSE). Using regression analysis on a sample of 110 firms over the period 2017–2021, they found that auditor rotation has a positive influence on financial reporting quality. Moreover, KAM disclosures related to assets, liabilities, revenues, expenses, company outlook, and going-concern status were found to have a positive and significant association with reporting quality. In contrast, variables such as accumulated losses, interpretations of working capital, and management program insights showed no significant relationship with financial reporting quality.

2.2. Research hypotheses

To address the objectives of this study, the following hypotheses are proposed:

1. There is a significant association between the number of disclosed Key Audit Matters (KAMs) and the level of financial distress experienced by the company. The number of disclosed KAMs may reflect the complexity and risk profile of a firm's operations. Companies that disclose a larger number of these matters are likely to face greater challenges in their audit processes and internal financial controls. From the perspective of agency theory, an increase in the number of disclosed KAMs may indicate that auditors have identified higher risks within the financial statements, requiring additional clarification to mitigate information asymmetry between managers and stakeholders. Conversely, a high volume of KAM disclosures may also signal severe financial difficulties that contribute to corporate distress. In this context, enhanced audit transparency enables investors to identify early warning signs regarding a firm's financial condition and take timely corrective actions.

2. There is a significant relationship between the risk level of disclosed Key Audit Matters (KAMs) and the degree of financial distress experienced by the company. The risk level associated with disclosed KAMs reflects the sensitivity and materiality of these matters to stakeholders. High-risk KAMs often indicate weaknesses in internal controls, deficiencies in managerial decisions, or issues related to taxation—all of which can contribute to a company's financial distress. According to Signaling Theory, the disclosure of high-risk matters serves as a signal to stakeholders that the firm's financial condition is fragile or uncertain. Such signals can negatively affect investor confidence, potentially leading to declines in stock value and liquidity, thereby

increasing the likelihood of financial distress.

3. There is a significant relationship between the classification of disclosed Key Audit Matters (KAMs) and the level of financial distress faced by the company. The classification of KAMs refers to the type and specific nature of the issues disclosed, such as those related to liabilities, assets, cash flows, or taxation. Frequently disclosed matters within sensitive classifications may serve as important indicators for assessing a firm's financial distress risk. According to Stakeholder Theory, the accurate classification and disclosure of such matters enable stakeholders to better understand the risks associated with different components of the financial statements, thereby facilitating more informed investment and partnership decisions. Conversely, inaccurate or incomplete disclosures increase uncertainty regarding a company's financial condition and may ultimately contribute to financial distress.

4. There is a significant relationship between the nature of disclosed Key Audit Matters (KAMs) and the level of financial distress experienced by the company. The nature of KAMs refers to the specific characteristics and contextual conditions surrounding these issues, including their long-term implications for a firm's financial health. Matters that inherently reflect structural weaknesses in financial performance or deficiencies in internal oversight may serve as early warning indicators of financial distress. According to Transaction Cost Theory, greater transparency in disclosing the nature of such matters can reduce information costs and enhance the efficiency of economic decision-making. When KAMs highlight serious risks to a firm's viability, accurate and transparent disclosure enables investors to better assess associated risks and take appropriate measures to mitigate potential losses.

3. Methodology

This study is applied in nature, aiming to develop practical knowledge within a specific domain. From a methodological perspective, it is classified as descriptive and correlational research. In terms of data collection, the study adopts a retrospective approach, employing descriptive statistics, inferential statistics, and multivariate regression analysis for data evaluation.

In the theoretical framework section, the required information was collected from specialized academic literature and a review of recent articles published on reputable domestic and international databases. Additionally, the data necessary for calculating the research variables were obtained from the Rahavard Novin database and the financial reports of publicly listed companies on the Tehran Stock Exchange (TSE).

For data collection and analysis, Excel and EViews software were employed. To test the research hypotheses, the F-test was used first to assess the suitability of the data integration. Subsequently, based on the results of the Hausman test, the appropriate estimation method—either fixed effects or random effects—was selected. The F-statistic was then applied to evaluate the overall significance of the estimated model.

The statistical population of the study includes all firms listed on the Tehran Stock Exchange (TSE) that operated continuously from 2012 to 2022. During this period, a total of 716 firms were active in the market. Given the large population size, a systematic screening method was applied to obtain a suitable research sample. Accordingly, the final sample consists of 93 firms, as presented in Table 1.

Table 1. How to select the sample

Description	Number
Total number of firms registered on the stock exchange up to 2022.	716
Exclusion of companies delisted from the TSE between 2012 and 2022.	(213)

Exclusion of companies that experienced trading suspensions lasting six consecutive months or longer.	(148)
Exclusion of companies operating in the financial, services, insurance, banking, and holding sectors.	(131)
Exclusion of companies whose fiscal year-end did not fall on March 20.	(68)
Exclusion of companies for which the required research data were unavailable or incomplete during the study period.	(63)
The remaining firms, which had complete and accessible information, constituted the final research sample.	93

Based on the results obtained, the research sample comprises 93 companies over 11 years, from 2012 to 2022, resulting in 1,023 company-year observations.

3.1. Handling key audit matters (KAMs) data before 2022

Since Auditing Standard 701 was formally implemented in Iran in 2022, the disclosure of Key Audit Matters (KAMs) became mandatory. However, even before this regulation, many companies and auditors voluntarily reported significant audit risks in their audit reports. To ensure consistency within the dataset covering the 2012–2022 period, a manual content analysis of audit reports was conducted, focusing on the "Emphasis of Matter" and "Basis for Qualified Opinion" sections, which often contained information conceptually comparable to KAMs. Furthermore, consultations with senior auditors were undertaken to validate the classifications and ensure the accuracy of the extracted data. This methodological approach enhances the reliability of the dataset and mitigates potential biases that may arise from the regulatory transition.

3.2. Research model and variables

To examine the relationship between the disclosure of Key Audit Matters (KAMs) and firms' financial distress (corresponding to Hypotheses 1 through 4), the following regression models are employed, consistent with the approach of Camacho-Miñano et al. (2024).

For the first hypothesis, if the coefficient of the independent variable (β_1) in the model is statistically significant, it can be inferred that H1 is supported. The model is specified as follows:

$$FD_{it} = \beta_0 + \beta_1 NOKAM_{it} + \sum CONTROLS_{it} + \mu_{it} \qquad (1)$$

3.3. Dependent variable: Financial Distress (FD)

In this study, financial distress is measured based on the modified Altman Z-score model proposed by Kordestani et al. (2014), as presented below:

$$T\_score\_A = 0.291\,X_1 + 2.458\,X_2 - 0.301\,X_3 - 0.079\,X_4 - 0.05\,X_5 \qquad (2)$$

Where:
- X_1: Working capital, calculated as current assets minus current liabilities, is divided by total assets
- X_2: Retained earnings as a proportion of total assets
- X_3: Earnings before interest and taxes (EBIT) relative to total assets
- X_4: Book equity relative to total debt
- X_5: Sales divided by total assets

Interpretation of Tscores_A:
- If $T \leq -0.14$: Very high probability of bankruptcy (95%)
- If $-0.14 < T < 0.02$: Company is in complete financial distress
- If $0.02 < T < 0.36$: Company is in a cash shortfall and unable to meet financial obligations
- If $0.36 < T < 0.6$: Company is in a latent financial distress stage

- If $T \geq 0.6$: Company is financially healthy

3.4. Independent variable: Number of Key Audit Matters Disclosed (NOKAM)
Following the studies of Camacho-Miñano et al. (2024), Sierra-García et al. (2019), and Lennox et al. (2023), the independent variable—the disclosure of Key Audit Matters (KAMs)—is measured by the total number of KAMs reported in the auditor's report for each fiscal year. The disclosed KAMs typically encompass the following categories:

- Uncertainties arising from political and economic conditions (e.g., economic sanctions or the Joint Comprehensive Plan of Action – JCPOA)
- Revenue recognition issues
- Amortization of goodwill or other intangible assets
- Legal claims and contingent liabilities
- Ambiguous or disputed tax obligations
- Mergers and acquisitions
- Parent company risk (e.g., recoverability of investments in subsidiaries)
- Macroeconomic factors and their effects on operations
- Investment valuation and impairment issues
- Retirement plans and defined benefit accounting

3.5. Control variables
Several audit-related and firm-specific characteristics are controlled for in the regression models Camacho-Miñano et al. (2024), Francis and Wang (2008), Lennox et al. (2023), and Sierra-García et al. (2019) In line with previous studies in this area:

- **Audit Fees (AFEE):** Calculated as the natural logarithm of audit fees at the fiscal year-end.
- **Auditor Change (ACH):** A dummy variable equal to 1 if there was a change in the external auditor during the current fiscal year, and zero otherwise.
- **Auditor Opinion (OPIN):** A dummy variable that takes the value of 1 if the auditor issued a qualified opinion, and zero otherwise.
- **Firm Size (SIZE):** Measured as the natural logarithm of total assets at the end of the fiscal year.
- **Restatement of Financial Statements (REST):** A binary indicator equal to 1 if financial statements were restated during the period, and zero otherwise.
- **Company Loss (LOSS):** Assigned a value of 1 if the firm reported a net loss for the fiscal year, and zero if it reported a profit.
- **Ownership Concentration (CON):** Defined as the percentage of shares held by the largest shareholder relative to the total number of outstanding shares at fiscal year-end.

For Hypothesis 2, the study investigates the relationship between the risk level of disclosed Key Audit Matters (KAMs) and firms' financial distress using the following regression model. If the coefficients of the independent variables (β_1 and β_2) are statistically significant, H2 is considered supported:

$$FD_{it} = \beta_0 + \beta_1 ENTKAM_{it} + \beta_2 ACCKAM_{it} + \sum CONTROLS_{it} + \mu_{it} \qquad (3)$$

3.6. Independent Variables: Level of Risk in Disclosing Key Audit Matters
The independent variables in this model are defined in accordance with Camacho-Miñano et al. (2024) as follows:

- **ENTKAM:** Total number of Key Audit Matters (KAMs) reported at the *entity level* in the audit report.
- **ACCKAM:** Total number of Key Audit Matters (KAMs) reported at the *account level* in the audit report.
- For Hypothesis 3, the study examines the classification of KAMs and their relationship with firms' financial distress using the following regression model. If the coefficients of the independent variables (β_1 through β_5) are statistically significant, H3 is considered supported: (4)
- $FD_{it} = \beta_0 + \beta_1 GC + \beta_2 OTHERENT_{it} + \beta_3 PROF_{it} + \beta_4 LIQU_{it} + \beta_5 SOLV_{it} + \sum CONTROLS_{it} + \mu_{it}$
  In this model:
- **GC: Number** of KAMs related to uncertainties concerning the firm's going-concern status.
- **OTHERENT: Number** of KAMs disclosed at the entity level, excluding *GC*.
- **PROF, LIQU, SOLV:** Number of KAMs classified as having direct implications for profitability, liquidity, and solvency, respectively.

For Hypothesis 4, the study examines the nature of disclosed Key Audit Matters (KAMs) and their relationship with firms' financial distress using the following regression model. If the coefficients of the independent variables (β_1 to β_{18}) are found to be statistically significant, H4 is considered supported.

Table 2. Classification of key audit matters (KAMs)

Category	Classification	Variable	Explanation of Categorical Variables
Entity-level KAMs (ENTKAM)			
Going concern		GC	Total disclosed KAMs regarding the going concern status
Internal control and fraud		ICFRAUD	Total KAMs associated with internal control issues or fraud
Restructuring and discontinued operations		RDO	Total KAMs covering restructuring or discontinued operations
Merger and acquisition (M&A) accounting	Other Entity-level KAMs (OTHERENT)	MA	Total KAMs on mergers and acquisitions
Tax-related		TAX	Total KAMs addressing tax-related concerns
Exceptional items and specific disclosures		EIPD	Total KAMs on exceptional items or special disclosures
Litigation, macroeconomic, and system implementation		LITMACRO	Total KAMs about legal claims, macroeconomic issues, or system implementation
Account-level KAMs (ACCKAM)			
Management and/or performance fees		MGFEES	Total disclosed KAMs related to fees for management and performance
Revenue recognition	Profitability (PROF)	REV	Total KAMs concerning revenue recognition
Expense recognition		EXP	Total KAMs about expense recognition
Accruals, deferrals, and management estimates		ACCREST	Total KAMs associated with accruals, deferrals, and managerial estimates
Inventory	Liquidity (LIQU)	INV	Total KAMs related to inventory levels
Cash and receivables		CASHREC	Total KAMs covering cash and receivable matters
Investments and related impairment issues	Solvency (SOLV)	INVEST	Total KAMs for investment and impairment-related concerns

Intangibles and related impairment issues	INTANG	Total KAMs related to intangibles and their impairment
Property, plant, and equipment and related impairment issues	PPE	Total disclosed KAMs about property, plant, and equipment
Leases and long-term debt	LLTD	Total KAMs on leases and long-term liabilities
Pension and defined benefit plan accounting	PENS	Total KAMs related to pension and defined benefit plan obligations

$$FD_{it} = \beta_0 + \beta_1 GC + \beta_2 ICFRAUD_{it} + \beta_3 RDO_{it} + \beta_4 MA_{it} + \beta_5 TAX_{it} + \cdots + \beta_{18} PENS_{it} + \sum CONTROLS_{it} + \mu_{it} \qquad (5)$$

In this model:

- GC, ICFRAUD, RDO, MA, TAX, ..., PENS: Different categories of Key Audit Matters (KAMs), each referring to a specific nature of audit issues. These categories will be described in detail in the subsequent sections.

4. Findings

Table 3 presents the descriptive statistics for the study's main variables. The mean financial distress (FD) score is 1.67, with a standard deviation of 3.08, indicating substantial variation in the financial conditions of firms. On average, firms disclosed 1.40 company-level KAMs (ENTKAM) and 0.55 account-level KAMs (ACCKAM). The mean values for audit fees (AFEE) and firm size (SIZE) are 6.98 and 14.63, respectively, while ownership concentration (CON) averages 0.49.

The table also summarizes the frequency distribution of the binary variables. Approximately 35% of firms disclosed at least one KAM (NOKAM = 1). Going Concern (GC) uncertainties were reported in 364 cases, whereas Internal Control and Fraud-related disclosures (ICFRAUD) appeared in 241 instances. Among KAM classifications, issues related to liquidity (LIQU) and profitability (PROF) were disclosed more frequently than those associated with solvency (SOLV).

Overall, these descriptive statistics provide a comprehensive overview of the dataset and serve as a foundation for subsequent empirical analyses.

4.1. First regression model

The Partial Least Squares (PLS) method was employed. The details are presented below to evaluate the first regression model of the study:

4.1.1. Model fit tests

- **F-Test Significance**: Based on the model's goodness-of-fit indices, the significance level of the F-statistic from the analysis of variance is less than 0.05, indicating that the estimated regression model is statistically significant.
- **Adjusted R-Squared:** The adjusted R^2 value indicates that approximately 2% of the variation in firms' financial distress listed on the Tehran Stock Exchange is explained by the independent and control variables included in the model.
- **Multicollinearity**: Multicollinearity refers to a strong linear relationship among the explanatory variables in the regression model. Severe multicollinearity can distort the estimated coefficients and reduce the reliability of significance tests. The Variance Inflation Factor (VIF) was calculated to assess this issue. A VIF value below 10 suggests that multicollinearity is not a serious concern.
- **Autocorrelation of Residuals**: The presence of autocorrelation in the model residuals was examined using the Durbin–Watson (DW) test. A DW statistic between 1.5 and 2.5 indicates no

significant autocorrelation, confirming the independence of residuals.

A summary of the findings concerning model fit tests is provided in Table 4.

4.1.2. Estimation of the regression model

In this section, the estimated regression results are presented, with the detailed coefficients reported in Table 4.

The independent variable representing Key Audit Matters (NOKAM) shows a significance level below 5%, indicating a statistically significant relationship between the number of disclosed KAMs and firms' financial distress on the Tehran Stock Exchange. Moreover, the negative coefficient associated with this variable suggests an inverse relationship, thereby supporting the study's first hypothesis (H1).

Table 3. Descriptive statistics of variables

Variable	Symbol	Mean	Median	Maximum	Minimum	Standard Deviation
Financial Distress	FD	1.678516	1.047430	33.903	-25.190	3.089
Entity -Level KAM Disclosure	ENTKAM	1.401	0.000	14.000	0.000	2.256
Account -Level KAM Disclosure	ACCKAM	0.552	0.000	7.000	0.000	1.085
Audit Fees	AFEE	6.988	6.938	9.403	4.787	0.805
Company Size	SIZE	14.631	14.460	21.057	10.532	1.644
Ownership Concentration	CON	0.494	0.510	0.954	0.023	0.200

Variable	Symbol	Value = 0	Value = 1
KAM Disclosure	NOKAM	667	356
Going Concern Uncertainty	GC	659	364
Non-GC Key Audit Matters	OTHERENT	484	539
Profitability	PROF	457	566
Liquidity	LIQU	428	595
Solvency	SOLV	544	479
Internal Control and Fraud	ICFRAUD	782	241
Restructuring and Discontinued Operations	RDO	918	105
Mergers and Acquisitions Accounting	MA	879	144
Tax-Related	TAX	430	593
Exceptional Items and Special Disclosures	EIPD	789	234
Legal, Macroeconomic, and System Implementation	LITMARCO	963	60
Management and Performance Fees	MGFEES	969	54
Revenue Recognition	REV	451	572
Expense Recognition	EXP	548	475
Accruals and Managerial Estimates	ACCREST	688	335
Inventory	INV	198	825
Cash and Receivables	CASHREC	523	500
Investments and related impairment issues	INVEST	789	234
Intangibles and related impairment issues	INTANG	923	100
Property, plant, and equipment and related impairment issues	PPE	368	655
Leases and long-term debt	LLTD	843	180
Pension and defined benefit plan accounting	PENS	456	567
New Auditor	ACH	463	560

Auditor's Opinion	OPIN	420	603
Restatement of Financial Statements	REST	293	730
Company Loss	LOSS	906	117

4.2. Second regression model

To test the second regression model, the Partial Least Squares (PLS) method was employed, as described below.

4.2.1. Model fit tests

- Based on the model's goodness-of-fit metrics, the significance level of the F-statistic obtained from the analysis of variance is less than the Type I error threshold ($\alpha = 0.05$), indicating that the estimated regression model is statistically significant.

Table 4. The results of the first regression model estimation and goodness-of-fit tests

$$zeroeroeroFD_{it} = \beta_0 + \beta_1 NOKAM_{it} + \sum CONTROLS_{it} + \mu_{it}$$

Variable	Symbol	Beta	Standard Deviation	t-Statistic	Significance	VIF
Constant number		6.330	1.105	5.726	0.000	-
Number of KAMs	NOKAM	-0.439	0.194	-2.257	0.024	2.459
Audit Fees	AFEE	-0.049	0.150	-0.328	0.742	1.619
New Auditor	ACH	0.031	0.199	0.158	0.874	1.081
Auditor Opinion	OPIN	-1.118	0.302	-3.691	0.000	2.439
Company Size	SIZE	-0.207	0.074	-2.792	0.005	1.644
Restatement of Financial Statements	REST	-0.079	0.211	-0.375	0.707	1.008
Company Loss	LOSS	0.049	0.303	0.164	0.869	1.025
Ownership Concentration	CON	-0.739	0.481	-1.536	0.124	1.024
Coefficient of Determination				0.031		
Adjusted Coefficient of Determination				0.024		
F-Statistic				4.156		
Significance Level				0.000		
Durbin-Watson				2.021		

- The adjusted R^2 value indicates that the independent and control variables together explain approximately 2% of the variation in financial distress among publicly listed firms on the Tehran Stock Exchange (TSE).
- Multicollinearity refers to a strong linear relationship among the explanatory variables in the regression model. Severe multicollinearity can distort the estimated coefficients and reduce the reliability of their significance tests. To assess this issue, the Variance Inflation Factor (VIF) was calculated. A VIF value below 10 indicates that multicollinearity is not a serious concern.
- The Durbin–Watson (DW) test was applied to examine residual autocorrelation. Since the DW statistic falls within the acceptable range of 1.5 to 2.5, it suggests the absence of significant autocorrelation among the residuals.

A comprehensive summary of the results from the model fit tests is shown in Table 5.

4.2.2. Estimation of the regression model

In this section, the regression model has been estimated. The results for each variable are presented in Table 5:

- The independent variable representing company-level Key Audit Matters (ENTKAM) exhibits a significance level below 5% ($p < 0.05$), indicating a statistically significant relationship between the number of disclosed company-level KAMs and financial instability among firms listed on the Tehran Stock Exchange (TSE). Furthermore, the negative coefficient associated with this variable suggests an inverse relationship, thereby supporting the study's second hypothesis (H2).
- The independent variable representing accounting-level Key Audit Matters (ACCKAM) also shows a significance level below 5%, confirming a statistically significant association between the number of disclosed account-level KAMs and firms' financial distress on the TSE. The positive coefficient for this variable indicates a direct relationship, further validating the study's second hypothesis (H2).

4.3. Third regression model

To examine the third regression model of the research, the Partial Least Squares (PLS) model has been utilized, as detailed below:

Table 5. The results of the second regression model estimation and goodness-of-fit tests

$$FD_{it} = \beta_0 + \beta_1 ENTKAM_{it} + \beta_2 ACCKAM_{it} + \sum CONTROLS_{it} + \mu_{it}$$

Variable	Symbol	Beta	Standard Deviation	t-Statistic	Significance	VIF
Constant number		6.229	1.104	5.640	0.000	-
Entity-level KAMs	ENTKAM	-0.059	0.023	-2.525	0.011	2.078
Account-level KAMs	ACCKAM	0.164	0.063	2.579	0.010	2.165
Audit Fees	AFEE	-0.052	0.151	-0.344	0.730	1.621
New Auditor	ACH	0.031	0.199	0.157	0.874	1.081
Auditor Opinion	OPIN	-0.982	0.287	-3.417	0.000	2.191
Company Size	SIZE	-0.209	0.074	-2.808	0.005	1.649
Restatement of Financial Statements	REST	-0.077	0.212	-0.366	0.714	1.008
Company Loss	LOSS	0.061	0.303	0.201	0.840	1.026
Ownership Concentration	CON	-0.744	0.481	-1.544	0.122	1.026

Coefficient of Determination	0.031
Adjusted Coefficient of Determination	0.022
F-Statistic	3.606
Significance Level	0.000
Durbin-Watson	2.020

4.3.1. Model fit tests

- Based on the model's goodness-of-fit indices, the significance level of the F-statistic from the analysis of variance is less than the Type I error threshold ($\alpha = 0.05$), indicating that the estimated regression model is statistically significant.
- The adjusted R² value indicates that approximately 2% of the variation in financial distress

among firms listed on the Tehran Stock Exchange (TSE) is explained by the independent and control variables included in the model.

- Multicollinearity refers to a strong linear association among explanatory variables in the regression model. Severe multicollinearity can distort coefficient estimates and undermine the validity of their significance tests. The Variance Inflation Factor (VIF) was used to assess this issue, and a VIF value below 10 suggests that multicollinearity is not a serious concern.
- The Durbin–Watson (DW) statistic was employed to detect autocorrelation in the model's residuals. Since the DW value lies within the acceptable range of 1.5 to 2.5, it indicates the absence of significant autocorrelation among residuals.

A summary of the findings related to the model fit tests is presented in Table (6).

4.3.2. Estimation of the regression model

In this section, the regression model has been estimated. The results for each variable are presented in Table 6:

- The independent variable representing company uncertainty (GC) exhibits a significance level below 5% ($p < 0.05$), indicating a statistically significant relationship between going-concern uncertainty and financial distress among firms listed on the Tehran Stock Exchange (TSE). Moreover, the negative coefficient associated with this variable suggests an inverse relationship, thereby supporting the study's third hypothesis (H3).
- The independent variable representing other entity-level key audit matters (OTHERENT) has a significance level exceeding 5% ($p > 0.05$), indicating no statistically significant association between these matters and financial distress among TSE-listed firms. Accordingly, this result leads to the rejection of the third hypothesis (H3) for this specific variable.

Table 6. The results of the third regression model estimation and the Goodness-of-Fit tests

$$FD_{it} = \beta_0 + \beta_1 GC + \beta_2 OTHERENT_{it} + \beta_3 PROF_{it} + \beta_4 LIQU_{it} + \beta_5 SOLV_{it} + \sum CONTROLS_{it} + \mu_{it}$$

Variable	Symbol	Beta	Standard Deviation	t-Statistic	Significance	VIF
Constant number		5.743	1.070	5.364	0.000	-
Going concern	GC	-0.080	0.025	-3.175	0.001	1.035
Other Entity-level KAMs	OTHERENT	-0.298	0.204	-1.461	0.144	1.136
Profitability	PROF	0.557	0.141	3.925	0.000	1.145
Liquidity	LIQU	-0.051	0.026	-1.972	0.049	1.074
Solvency	SOLV	0.061	0.036	1.652	0.099	1.062
Audit Fees	AFEE	-0.046	0.151	-0.308	0.757	1.623
New Auditor	ACH	0.025	0.200	0.126	0.899	1.086
Auditor Opinion	OPIN	-0.662	0.196	-3.375	0.000	1.019
Company Size	SIZE	-0.189	0.075	-2.528	0.011	1.663
Restatement of Financial Statements	REST	-0.067	0.213	-0.314	0.753	1.017
Company Loss	LOSS	-0.009	0.306	-0.030	0.976	1.042

Ownership Concentration	CON	-0.760	0.482	-1.576	0.115	1.027
Coefficient of Determination				0.031		
Adjusted Coefficient of Determination				0.020		
F-Statistic				2.772		
Significance Level				0.001		
Durbin-Watson				2.030		

- The independent variable representing KAMs related to company profitability (PROF) has a significance level below 5% ($p < 0.05$), indicating a statistically significant relationship between profitability-related audit matters and financial distress among firms listed on the Tehran Stock Exchange (TSE). Furthermore, the positive coefficient associated with this variable suggests a direct relationship, thereby confirming the study's third hypothesis (H3).
- The independent variable for liquidity-related KAMs (LIQU) also shows a significance level below 5% ($p < 0.05$), highlighting a statistically significant relationship between liquidity-related disclosures and financial distress among TSE-listed firms. The negative coefficient indicates an inverse relationship, further supporting the study's third hypothesis (H3).
- The independent variable representing solvency-related KAMs (SOLV) yields a significance level greater than 5% ($p > 0.05$), indicating no statistically significant association between solvency-related disclosures and financial distress among firms listed on the TSE. Therefore, the third hypothesis (H3) is rejected for this variable.

4.4. Fourth regression model

To examine the fourth regression model of the research, the Partial Least Squares (PLS) model has been utilized, as detailed below:

4.4.1. Model fit tests

- Based on the model's goodness-of-fit indices, the significance level of the F-statistic from the analysis of variance is less than the Type I error threshold ($\alpha = 0.05$), indicating that the estimated regression model is statistically significant.
- The adjusted R^2 value shows that the independent and control variables collectively explain approximately 3% of the variation in financial distress among firms listed on the Tehran Stock Exchange (TSE).
- Multicollinearity refers to the presence of a strong linear relationship among the explanatory variables in the regression model. Severe multicollinearity can distort coefficient estimates and compromise the accuracy of their significance tests. To evaluate this issue, the Variance Inflation Factor (VIF) was calculated. A VIF value below 10 indicates that multicollinearity is not a serious concern.
- The Durbin–Watson (DW) statistic was used to test for autocorrelation in the residuals. Since the DW value falls within the acceptable range of 1.5 to 2.5, it confirms the absence of significant autocorrelation among the model's residuals.

A summary of the findings related to the model fit tests is presented in Table (7).

4.4.2. Estimation of the regression model

In this section, the regression model has been estimated. The results for each variable are presented in Table 7:

Table 7. The results of the fourth regression model estimation and goodness-of-fit tests

$$zeroeroeroFD_{it} = \beta_0 + \beta_1 GC + \beta_2 ICFRAUD_{it} + \beta_3 RDO_{it} + \beta_4 MA_{it} + \beta_5 TAX_{it} + \cdots + \beta_{18} PENS_{it}$$
$$+ \sum CONTROLS_{it} + \mu_{it}$$

Variable	Symbol	Beta	Standard Deviation	t-Statistic	Significance	VIF
Constant number		5.983	1.118	5.347	0.000	-
Going concern	GC	-0.150	0.072	-2.075	0.039	1.228
Internal control and fraud	ICFRAUD	-0.272	0.238	-1.143	0.253	1.135
Restructuring and discontinued operations	RDO	0.020	0.009	2.170	0.030	1.232
Merger and acquisition (M&A) accounting	MA	-0.187	0.094	-1.984	0.051	1.195
Tax-related	TAX	-0.199	0.068	-2.894	0.005	1.425
Exceptional items and presentation, and disclosure	EIPD	0.207	0.094	2.202	0.028	1.297
Litigation, macroeconomic, and system implementation	LITMARCO	0.552	0.435	1.266	0.205	1.164
Management and/or performance fees	MGFEES	-0.138	0.079	-1.740	0.083	1.106
Revenue recognition	REV	-0.161	0.069	-2.320	0.023	2.327
Expense recognition	EXP	0.058	0.292	0.199	0.841	2.361
Accruals, deferrals, and management estimates	ACCREST	0.087	0.036	2.380	0.017	1.399
Inventory	INV	0.241	0.322	0.750	0.452	1.799
Cash and receivables	CASHREC	0.222	0.252	0.881	0.378	1.772
Investments and related impairment issues	INVEST	-0.694	0.294	-2.360	0.018	1.696
Intangibles and related impairment issues	INTANG	1.450	0.379	3.820	0.000	1.411
Property, plant, and equipment and related impairment issues	PPE	-0.463	0.207	-2.236	0.025	1.096
Leases and long-term debt	LLTD	-0.388	0.290	-1.336	0.181	1.359
Pension and defined benefit plan accounting	PENS	-0.013	0.232	-0.058	0.953	1.483
Audit Fees	AFEE	-0.020	0.155	-0.129	0.896	1.742
New Auditor	ACH	-0.010	0.204	-0.048	0.961	1.151
Auditor Opinion	OPIN	-0.737	0.202	-3.645	0.000	1.098
Company Size	SIZE	-0.198	0.076	-2.579	0.010	1.769
Restatement of Financial Statements	REST	-0.036	0.213	-0.172	0.863	1.034
Company Loss	LOSS	-0.017	0.305	-0.055	0.955	1.051
Ownership Concentration	CON	-0.720	0.480	-1.498	0.134	1.033
Coefficient of Determination				0.058		
Adjusted Coefficient of Determination				0.034		
F-Statistic				2.468		
Significance Level				0.000087		
Durbin-Watson				2.078711		

- The significance levels obtained for the independent variables related to going-concern uncertainty, reconstruction and discontinued operations, tax-related matters, disclosure and presentation of specific items, revenue recognition, accrual items and managerial forecasts, investments and similar issues, intangible assets, and property, plant, and equipment (PPE) are all below 5% ($p < 0.05$). This finding indicates a statistically significant relationship between these specific categories of Key Audit Matters (KAMs) and the financial distress of firms listed on the Tehran Stock Exchange (TSE). However, this relationship was not confirmed for the remaining variables, thereby partially supporting the study's fourth hypothesis (H4).

5. Discussion and conclusions

The disclosure of accounting information has long been a central topic in financial and accounting research, due to its potential to mitigate agency conflicts within firms and reduce information asymmetry between organizations and their stakeholders, who rely on their financial reports. From the perspective of creditors, accounting disclosures also influence financing costs and affect firms' access to external funding sources. Consequently, managers often seek to positively influence creditors and financial providers by presenting transparent and comprehensive financial and accounting information. In this context, the present study examines the importance of Key Audit Matters (KAMs) in assessing financial distress levels among companies listed on the Tehran Stock Exchange (TSE). Following Camacho-Miñano et al. (2024), we analyzed the relationship between the volume and nature of KAM disclosures and corporate financial distress, as measured using the model by Kordestani et al. (2014), across four distinct regression frameworks.

The findings demonstrate a statistically significant association between the quantity, risk level, classification, and nature of disclosed Key Audit Matters (KAMs) and the financial distress of firms. These results are consistent with the principles of Agency Theory and Signaling Theory, suggesting that enhanced audit disclosures help reduce information asymmetry, thereby lowering agency risk, while simultaneously acting as signals of a company's financial condition—enabling stakeholders to make more informed assessments. The insights derived from this study contribute to the ongoing evaluation of emerging audit reporting standards and emphasize the critical role of KAM disclosures as an analytical tool for users to assess and monitor corporate financial health.

In testing the first hypothesis (H1), a significant inverse relationship was observed between the number of disclosed KAMs and the financial distress of firms. This finding aligns with prior research, including Malekan et al. (2022), Camacho-Miñano et al. (2024), and Wuttichindanon and Issarawornrawanich (2020), all of which reported that greater audit transparency contributes to improved understanding of financial risks and enhances the quality of financial reporting.

The second hypothesis (H2) examined the risk level of disclosed Key Audit Matters (KAMs) and revealed a significant direct relationship between the number of account-level KAMs and firms' financial distress. In contrast, an inverse relationship was observed between the number of entity-level KAMs and the level of financial distress. These results are consistent with the findings of Camacho-Miñano et al. (2024) and Abbaspour Sani et al. (2021), suggesting that the depth and scope of audit disclosures reflect differing dimensions of financial vulnerability across organizational levels.

Regarding the third hypothesis (H3), the analysis revealed a significant association between KAM classifications related to uncertainty, profitability, and liquidity, and the financial distress of firms. Specifically, profitability-related KAMs showed a direct relationship with financial distress, whereas uncertainty and liquidity-related KAMs demonstrated inverse associations. These findings align with previous research by Camacho-Miñano et al. (2024) and Gold et al. (2020), reinforcing the notion

that different KAM categories signal distinct risk patterns within firms.

Finally, the fourth hypothesis (H4) examined the nature of disclosed KAMs and found significant relationships between various KAM categories—such as going-concern uncertainty, tax issues, revenue recognition, and asset management—and corporate financial distress. In contrast, other KAM variables showed no significant effect. These results align with studies by Camacho-Miñano et al. (2024), Al Lawati and Hussainey (2022), and Malekan et al. (2022), which emphasize the significance of the qualitative dimensions of KAM disclosure in evaluating firms' financial stability.

5.1. Research implications and practical recommendations

This study provides significant theoretical, practical, and regulatory contributions to the literature on audit transparency and financial reporting quality.

From a theoretical perspective, the findings strengthen the assumptions of Agency Theory by demonstrating that the disclosure of Key Audit Matters (KAMs) reduces information asymmetry between managers and stakeholders. The results also support Signaling Theory, indicating that firms experiencing higher levels of financial distress tend to disclose more KAMs, thereby providing investors with early warning signals regarding potential financial risks.

From a practical standpoint, the study highlights the need to enhance the informativeness and specificity of KAM disclosures. Auditors should avoid using standardized or generic statements and instead provide tailored insights that accurately reflect the firm's specific financial risks. Investors and creditors can utilize the quantity, nature, and classification of KAMs as analytical tools to evaluate corporate financial health and make informed investment and lending decisions. Corporate managers, in turn, should recognize that transparent and substantive KAM disclosures strengthen investor confidence and corporate governance practices, motivating improvements in financial reporting quality and risk communication strategies.

From a regulatory perspective, the findings reaffirm the effectiveness of International Standard on Auditing (ISA) 701 in enhancing audit transparency. However, the observed inconsistencies in KAM reporting underscore the need for stricter and more standardized disclosure guidelines to ensure that such information remains both meaningful and comparable across firms. Regulatory bodies, such as the Tehran Stock Exchange (TSE) and the Audit Organization of Iran, should consider developing sector-specific KAM disclosure requirements, particularly for high-risk industries, to enhance the reliability and relevance of financial reports. Strengthening these regulations would also help prevent financially distressed firms from concealing material risks from stakeholders, thereby safeguarding the integrity of financial reporting.

Future research could extend this study by examining the long-term effects of KAM disclosures on market reactions, stock price volatility, and investor decision-making. Exploring these dimensions would further advance understanding of the role that KAM transparency plays in promoting financial stability, audit quality, and overall market confidence.

5.2. Future recommendations

To conduct further research aligned with this topic and to develop it, the following suggestions are offered for future studies:

- Future research is encouraged to investigate this topic specifically within the non-metallic mineral, pharmaceutical, and petrochemical industries.
- Subsequent studies could also examine how managerial characteristics—such as competence, narcissism, and overconfidence—moderate or influence the relationship between KAM disclosures and financial distress.

- Finally, further research may explore the impact of KAM disclosures on additional financial and accounting dimensions, including stock price crash risk, stock price synchronicity, and the readability of financial reports.

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