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Investigating the Effect of Earnings Quality and Earnings Transparency on the Crash Risk- Applied study

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التحقيق في أثر جودة الأرباح وشفافية الأرباح على مخاطر الانهيار دراسة تطبيقية

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Abstract:
The purpose of this research is to investigate the impact of earnings quality and earnings transparency on the crash risk in companies listed on the Tehran Stock Exchange. The type and method of fundamental research is experimental. The statistical population of this research was all the companies admitted to the Tehran Stock Exchange and systematic random sampling was used to select them. The sample size was 120 cases. In this research, the relevant financial information of these companies was examined in the 11-year period (2012-2022). In order to collect the data needed for testing the theories, the data of the accepted companies in the Tehran Stock Exchange were extracted using the Roh Arod Novin software and the databases of the Iran Stock Exchange Organization. The multivariable linear regression model will be used in this research to test the hypotheses. In the statistical method, the regression method based on combined data is used to analyze the data related to the research hypotheses. And Eviews and Excel software were used for data analysis. According to the results, earnings quality doesn't have any significant relationship on the crash risk of companies listed on the Tehran Stock Exchange. However, earnings transparency has significant effect on the crash risk of companies listed on the Tehran Stock Exchange.**Keywords:** earnings quality, earnings transparency, crash risk

الملخص:

يهدف هذا البحث إلى دراسة أثر جودة الأرباح وشفافية الأرباح على مخاطر الانهيار في الشركات المدرجة في بورصة طهران للأوراق المالية. نوع ومنهج البحث الأساسي هو تجريبي. وقد شملت المجتمع الإحصائي جميع الشركات المدرجة في بورصة طهران، وتم اختيار عينة منها باستخدام أسلوب المعاينة العشوائية المنتظمة. بلغ حجم العينة ١٢٠ شركة. في هذا البحث جرى فحص المعلومات المالية ذات الصلة لهذه الشركات خلال فترة ١١ سنة (٢٠١٢-٢٠٢٢). ولغرض جمع البيانات اللازمة لاختبار الفرضيات، تم استخراج بيانات الشركات المدرجة في بورصة طهران باستخدام برنامج "ره‌آورد نوين" وقواعد بيانات هيئة الأوراق المالية الإيرانية. وسيتم استخدام نموذج الانحدار الخطي المتعدد لاختبار الفرضيات وفي المنهج الإحصائي، جرى الاعتماد على طريقة الانحدار القائم على البيانات المجمعة لتحليل البيانات المتعلقة بفرضيات البحث، كما استُخدم برنامجا (Eviews) و (Excel) للتحليل. ووفقاً للنتائج، فإن جودة الأرباح لا ترتبط بشكل معنوي بمخاطر الانهيار للشركات المدرجة في بورصة طهران، بينما لشفافية الأرباح تأثير معنوي على مخاطر الانهيار في هذه الشركات.**الكلمات المفتاحية:** جودة الأرباح، شفافية الأرباح، مخاطر الانهيار

1. Introduction Millions of people who have deposited their savings by investing in corporate securities, to ensure that their invested funds are used correctly and effectively, to annual and interim financial statements of companies. They rely almost every person directly or indirectly has interests in companies, and maintaining public interests requires reliable and timely financial reports on the operations and financial health of public companies (Asheri & Nikbakht, 2018). In fact, financial reporting is one of the most important products of the accounting system, and one of its main goals is to provide the necessary information to evaluate the performance, earnings ability of companies and predict future cash flows. One of the accounting items, which is presented in the earnings and loss statement is net earnings. This earnings is calculated in the accrual system and under the influence of the accounting procedures chosen by the management (Wongchoti, Tian, Hao, Ding, & Zhou, 2021).In determining the value of the company, not only the quantity of earnings, but also its quality should be considered. The earnings quality is defined as the extent to which the reported earnings expresses the economic truth of the company. The importance of the earnings quality from the three perspectives of investment, users the financial statements and the compilers of the standards can be explained. From the investment point of view, the earnings quality indicates how resources are allocated (da Silva, 2019). The low earnings quality due to the incorrect allocation of resources causes a decrease in economic growth, so it is inefficient and undesirable. From the perspective of users of financial statements, interest is commonly used in reward and debt contracts. Since earnings is considered as an indicator of managers' performance, over-reporting it will result in over-rewarding managers, in addition, over-reporting earnings can cause problems in paying the debts of the business unit. The third point of view is related to the compilers of the standards, which are a feedback regarding the efficiency of the accounting standards and focus on the results of the activities, including the reported earnings (Khajavi & Zare, 2016)From the perspective of investors, low-earnings quality are unpleasant and inefficient because they reduce economic growth through suboptimal allocation of capital. Earnings quality reduces the cost of capital in terms of reducing information risk, which is related to reducing the cost of equity and increasing the volume of transactions (Kousenidis, Ladas, & Negakis, 2014). If the general public does not have confidence in the financial reporting process or the published financial information, they will refrain from investing, and this in turn prevents the expansion of the capital market

and economic growth. Therefore, the earnings quality makes investors more eager to invest (Beaver, 2002)From the point of view of researchers and the results obtained from their studies, the low and stable fluctuation of earnings indicates the quality of earnings. In this way, investors invest with more confidence in the stocks of companies whose earnings trends are more stable (Dang & Nguyen, 2021). As a result, it is expected that in companies where earnings management is performed, the degree of correlation between earnings and company value is lower than in companies where earnings management is not performed (Wongchoti et al., 2020). Apart from the motivation of the managers to manipulate the earnings, they say that the management should manage the earnings for various reasons, including personal benefits, bonuses based on accounting figures and numbers, as well as reducing cold fluctuations and attracting investors, this action of the managers It can be done in two ways: earnings management through discretionary accruals and earnings management through manipulation of the actual activities of the company. One of the important factors in the fall of stock prices is the deliberate manipulation of information by the management, or in other words, earnings management. Wongchoti et al. (2020) predict that hiding negative information by people inside the organization and the company will lead to a fall in the stock price in the future. Especially when the accumulation of negative information reaches its climax, the managers must disclose all the information they have hidden to the market at once, and this will have a very negative effect on the stock price. The results of recent surveys in the field of earnings management show that after the Sarbanes-Oxley law, managers have turned from accrual earnings management to real earnings management. In other words, managers have replaced accruals with actual operations to achieve earnings management goals. One of the dimensions of real earnings management is the deviation from real operations, which affects stock prices through various mechanisms (Xinyi & Jun, 2020). In this research, due to the earnings quality variable, earnings management indicator will be used to measure and achieve earnings qualityOn the other hand, the unfortunate events and crises that occurred in the world stock markets, especially in September 1997 and then the 11th of September 2000 incident, the disclosure of the Worldcom, Enron, and then Xerox cases worldwide and the fall of the Tehran Stock Exchange indices in 2003 caused so that the category of transparency of financial reporting is given more attention (Foroughi & Ghasemnejad, 2015). In addition, in today's turbulent environment, many investors do not agree with extreme fluctuations in earnings and usually invest in companies that have more stability in their earnings (Chen, Kim, & Yao, 2017)According to previous studies, most investment decisions are made in conditions of uncertainty, therefore, the existence of information related to the issue of decision-making plays an important role in reducing this uncertainty. In fact, low transparency and low quality of financial information provide conditions that make decision-making difficult for investors and make them face ambiguity. In this situation, only the information risk increases. On the contrary, full disclosure of information along with transparency of financial reporting can create reliable conditions that increase investors' confidence and subsequently support the interests of shareholders and have a positive effect on companies' stock returns and prevent the crash risk (Wangchoti et al., 2020; Ahmed, D. M., Azhar, Z., & Mohammad, A. J. 2024). In this regard, Ryu and Chae (2021) investigated whether the asymmetry of information between shareholders affects the crash risk. They stated that in non-transparent stocks, the risk of falling prices is higher because managers do not want to disclose bad newsTherefore, in a non-transparent reporting environment, investors are unable to identify and discover the company's unprofitable projects. Because there is no clear information to make a decision (Zhang, Mol, & He, 2016; Jafar, R., et al; 2023). Therefore, they cannot separate the loss-making projects from the earnings able ones. The inability of investors to distinguish between earnings able and unprofitable projects makes unprofitable projects continue and their losses increase over time. The negative returns of these types of projects are accumulated within the company over time, and when information about them is disclosed, the stock price will fall sharply (Khan & Watts, 2009). Based on this, this research seeks to answer the question, what is the effect of the earnings quality and earnings transparency on the crash risk?

2. Theoretical background and Hypotheses Formulation

2.1 Earnings Quality and Crash Risk

Some managers, with the powers they have, try to cover up their poor performance for reasons such as staying in the company and receiving an earnings management bonus by using a set of accounting methods and principles, and finally provide useless financial statements to present to the users. If managers disclose all information quickly, this action causes stock returns to have a symmetric distribution (Wongchoti et al., 2020); But managers always have the motivation to hide information and negative news from investors and accumulate them inside the company. If managers can avoid disclosing bad news for a long time due to management incentives, including bonuses, negative news inside the company accumulates On the other hand, the amount of bad news that managers

can accumulate is limited (Hamdan, 2020). The reason for this is that when the volume of accumulated negative news reaches a certain threshold, it will be impossible and expensive to maintain and not disclose it for a longer period of time (da Silva, 2019). As a result, the mass of unfavorable news enters the market at once after reaching its peak, and this leads to crash risk Accordingly, Wangchoti et al. (2020) investigated the impact of earnings quality on the crash risk of stock price. The researchers determined the proxy of earnings management for earnings quality. In this study, the researchers found that better earnings quality is associated with fewer falls. However, very high earnings transparency can exacerbate the fall in stock prices. Also, Asheri and Nikbakht (2018) investigated the effect of earnings quality on the crash risk in companies listed on the Tehran Stock Exchange. A sample of 95 companies listed on the Tehran Stock Exchange. The study conducted in the period of 2009 to 2013. The variable of earnings quality was evaluated using four criteria, including the quality of accruals, stability of earnings, predictive value of earnings and smoothing of earnings, as well as the variable of the crash risk using three criteria including the period of falling stock prices, negative skewness of stock returns. And low-to-high swing was evaluated. When the stock price fall period is dependent on the variable, the percentage model is used to test the hypothesis. The research findings show that earnings smoothing, earnings stability and earnings predictive value have a positive and significant relationship and the quality of accruals has a negative and significant relationship with the crash risk. In general, the earnings quality has a significant relationship with the crash risk, but it cannot be said that this relationship is positive. Heshmat and Baradaran (2018) investigated the distinct effect of deviation from real activities and real earnings management on the crash risk. The results showed that the deviation of the company's actual activities compared to the average of the related industry has an effect on the risk of the future fall of the stock price. The results showed that companies with real management of increasing earnings experience a large increase in the fall of their stock prices in the next year. According to the issues raised, the first research hypothesis is presented as follows:

H1: Earnings quality has a significant effect on crash risk.

2.2 Earnings Transparency and Crash Risk According to previous studies, most investment decisions are made in conditions of uncertainty, therefore, the existence of information related to the issue of decision-making plays an important role in reducing this uncertainty (Hung & Qiao, 2017; Muhamed, C. A. S. 2024). In fact, low transparency and low quality of financial information provide conditions that make decision-making difficult for investors and make them face ambiguity. In this situation, only the information risk increases. On the contrary, full disclosure of information along with transparency of financial reporting can create reliable conditions that increase investor confidence and subsequently support the interests of shareholders and have a positive impact on corporate stock returns (Saleem & Usman, 2021; Mohammad, A. J., & Ahmed, D. M. 2017)Accordingly, Liang et al. (2020) conducted a study on managerial overconfidence, firm transparency, and stock price crash risk: Evidence from an emerging market. Based on a large sample of Chinese non-state-owned firms from 2000 to 2012, this study employs methods including multiple linear regression model, Heckman two-stage treatment effect procedure, firm fixed effects model and event study to clarify the causality relationship between managerial overconfidence and crash risk. Firms with overconfident managers (chief executive officer or board chairs) are more likely to experience future stock price crashes than firms with non-overconfident managers. The effect of overconfidence on crash risk is more pronounced for firms with low transparency, suggesting that firm opacity facilitates overconfident managers' bad news hoarding activities, which, in turn, increases stock price crash risk. The authors also show evidence that overconfident managers tend to disclose good news in a timely manner.Hung and Qiao (2017) conducted a study entitled "Shadows in the Sun: Crash risk behind Earnings Transparency". It was concluded that there is a positive relation between the firm-specific earnings transparency and crash risk. In addition, the above relation is more pronounced with respect to selling and profitable insider transactions. Overall, we demonstrate a potential dark side of high earnings explanatory power on stock returns, conditional on higher likelihood of non-earnings information hoarding. Hajiha and Shaker (2016) investigated the impact of earnings volatility and lack of transparency on the crash risk in companies listed on the Tehran Stock Exchange for the period of 2017-2018. A logistic regression model was used to test the hypotheses. The results of the survey of 124 companies show that there is a positive and significant relationship between the lack of transparency of earnings and the instability of earnings on the crash risk. Fakhari and Hosna (2012) investigated the relationship between operating cash flows, lack of earnings transparency and the crash risk. The examined sample includes 90 companies from the companies admitted to the Tehran Stock Exchange, whose data has been analyzed during the years 2016 to 2018. The research findings show that there is a negative relationship between the information content of operating cash flows and the crash risk. That is, by increasing the information content of operating

cash flows, the crash risk in the future will decrease. Also, the findings show that operating cash flows can affect the relationship between earnings opacity and the risk of future stock price fall, that is, by increasing the information content of operating cash flow, the relationship between earnings opacity and the crash risk of stock price (Abdullah, L. A. S., Degan, L. M., & Mohammad, A. L. A. J. 2024). Therefore, the second hypothesis is as follows:

H2: Earnings tranceparecy has a significant effect on crash risk.

3. Research Methods This research is the purpose of basic empirical research, because it has been done through the financial data of organizations' past and also in nature, it can be considered a descriptive-correlational research. This research includes the statistical population of all companies approved on the Tehran Stock Exchange during the period 2022-2012. The sampling method in this study is systematic: The financial year of these organizations must end at the end of March; during this research, the financial year of these organizations has not changed; Organizations that have an intermediary role should not be other than these companies; all information required in this research should be available in these organizations. Considering the above conditions and restrictions, a total of 120 organizations were selected from the listed organizations.In this research, the library method will be used to collect the theoretical foundations and literature of the research subject. Thus, by studying the relevant books and publications and referring to specialized sites, the necessary data is collected. Therefore, the document extraction method is used to collect the required data. The required data and financial information are collected and reviewed from the financial statements of the organizations, the stock exchange website, the stock exchange website, Development and Islamic Studies of the Exchange Organization and databases such as Rahvard Novin. Therefore, the variables of this research include dependent, independent and control variables which will be explained below.

3.1 Independent variable

1) Earnings quality: In this research, due to the quality of the earnings quality variable, the earnings management index has been used to evaluate the earnings quality. In this research, earnings management based on discretionary accruals has been used as a dependent variable. It should be noted that according to the definition of Jones (1995), accruals are the most important indicators of earnings management. For this reason, the following relationships are used to calculate earnings management.$NDACC/A_{it-1} = \beta_{1j}(1/A_{it-1}) + \beta_{2j}(\Delta REV/A_{it-1} - \Delta REC_{it}) / TA_{it-1} + \beta_{3j}(PPE_{it} / A_{it-1}) + \varepsilon_{it}$ Where NDACC: is non-discretionary accruals; A_{it-1}: is the sum of the company's assets at the beginning of year t-1 and the denominator of the fraction to scale the variables; TA: Total amount of assets in one year; ΔREV_{it}: is the percentage change in the operating income of company i in year t compared to the previous year and explanatory variable; ΔREC_{it}: is the percentage change in the commercial accounts receivable of my company in the t year compared to the previous year and the explanatory variable; PPE_{it}: consists of real estate, machinery and equipment (gross) of company i to total assets in year t and explanatory variable; ε_{it}: error or model residual in the regression estimation is defined for i-1 company and t-1 year.$TACC_t/A_{it-1} = \beta_{1j}(1/A_{it-1}) + \beta_{2j}(\Delta REV/A_{it-1} - \Delta AR_{it}) / A_{it-1} + \beta_{3j}(PPE_{it} / A_{it-1}) + \varepsilon_{it}$Where ΔAR_{it} is the change in accounts receivable; and total liabilities (TACC) can be calculated using the balance sheet method:$TACC= (\Delta CA - \Delta CASH - \Delta CL + \Delta STDEBT - DEPN)$Where TACC is total accruals; ΔCA change in current assets; ΔCASH change in available cash; ΔCL change in current liabilities; ΔSTDEBT change in short-term debt; DEPN Depreciation. In the following, the amount of optional accrual items is obtained by calculating the following formula:DACC = TACC-NDACCFinally, the total absolute value of three periods of optional items is used to measure the amount of accrual earnings management.

2) Earnings transparency: In this research, the annual rate of return of company i in industry j is used.

$$\mathrm{RETURN}_{i,j,t} = \alpha_0^1 + \alpha_1^1\left(\frac{E_{i,j,t}}{P_{i,j,t-1}}\right) + \alpha_2^1\left(\frac{\Delta E_{i,j,t}}{P_{i,j,t-1}}\right) + \varepsilon_{i,j,t}$$

3.2 dependent variableCrash risk: two criteria are used to measure it according to the first measure of the crash risk is the negative skewness of stock returns (NCSKEW), which is calculated through the following relationship.

$$\mathrm{NCSKEW}_{i,t} = \left(-n(n-1)^{\frac{3}{2}}\sum R_{i,d}^3\right) \Big/ (n-1)(n-2)\left(\sum R_{i,d}^2\right)^{\frac{3}{2}}$$

R is the specific monthly return of company i in month d and n is the number of monthly returns observed during the financial year. In this model, the higher the value of the negative skewness coefficient, the more the company is exposed to a fall in the stock price. The specific monthly return of the company, denoted by R, is equal to the natural logarithm of 1 plus the remainder obtained from the following relationship.

$$R_{i,d} = \ln(1 + \varepsilon_{i,d})$$

The second criterion for the crash risk of price is the downward to upward fluctuations (DUVOL), which can be measured by first obtaining the average of the specific returns of the companies, then separating the related data into two groups, less than the average and more than the average. Drag and standard deviation of each are calculated separately. The following relationship is used to calculate the downward to upward fluctuations.

$$DUVOL_{i,t} = log\left(\frac{Down_{i,t}}{Up_{i,t}}\right)$$

Down is the standard deviation of observations is less than the average and Up is the standard deviation of observations more than the average for the specific yield of the company i in year t.

3.3 Control variable

1) Firm size: is the natural logarithm of total assets in year t.

2) Market to book ratio: the total market value of shares plus the book value of unsaleable shares divided by the book value of shares

3) Financial leverage: It is the ratio of assets to liabilities.

4) Return on assets: It is the ratio of earnings before interest and taxes to total assets at the beginning of the year.

In this regard, the following model is used to evaluate research hypotheses. To analyze the data and test the first hypothesis, the multivariate regression model and composite data according to Equation (1) are used as follows:

Equation (1):$NCSKEW_{it+1} = \beta_0 + \beta_1 RETURN_{it} + \beta_2 DACC_{it} + \beta_3 SIZE_{it} + \beta_4 ROA_{it} + \beta_5 MB_{it} + \beta_6 LEV_{it} + \varepsilon_{it}$

The statistical method in this research is panel data method. First, the panel data method and related experiments are described. Then the tests related to the importance of the whole model and the importance of independent variables are explained. Finally, after describing the tests related to classical regression hypotheses, the method of deciding whether to reject or accept the research hypotheses is stated. It should be noted that in this study, Eviews and Excel software were used for data analysis. In this study, to test the hypotheses, first using the F test (if the calculated F value is less than 0.05, Hypothesis H1 is confirmed and the importance of the model is confirmed at the 95% confidence level). The model was tested according to the type of method. Multiple linear regression is used when two or more variables have a major effect on the dependent variable.

4. Data Analysis Descriptive statistics (mean, median, standard deviation) of research variables are described in the Table 1. The time period of the obtained information includes 11 years and from 2012 to 2022 and consists of 120 firms.Table 1. *Descriptive statistics of research variables*

Variable	Mean	MD	SD	Min	Max	kurtosis	Skewness
DACC	0/001	0/002	0/108	-0/546	0/682	0/683	8/93
RETURN	1/173	0/423	2/031	-0/791	18/227	2/78	6/13
NSKEW	-0/738	-0/26	2/745	-14/54	11/95	-1/316	7/131
SIZE	14/605	14/39	1/52	11/03	20/18	0/97	4/47
MB	3/118	2/57	1/26	46/21	-22/64	3/77	8/961
LEV	0/566	0/576	0/21	0/013	1/274	-0/145	3/004
ROA	0/121	0/98	0/41	-0/404	0/627	0/486	3/996

Examining the averages shows that the average earnings quality is equal to 0.001 with a standard deviation of 0.108, the average earnings transparency is equal to 1.173 with a standard deviation of 2.031, and the average crash risk s is equal to -0.738 with The standard deviation is 2.745, the average size of the company is equal to 14.605 with a standard deviation of 1.525, the average ratio of market to book account is equal to 3.118 with a standard deviation of 5.271, the average financial leverage is equal to 0.566 with a standard deviation 0.210 and the average return of assets is equal to 0.121 with a standard deviation of 0.140. In the following, to determine the method of using combined data and to determine whether they are homogeneous or heterogeneous, Chave's

test and Limer's F statistic were used. The results are shown in Table 2.Table 2. F-Limer and Hausmann tests to evaluate the regression model estimation method

Type of test	H0	F-statistic	F Probe	Test result
F-Limer	Cross-sectional and temporal effects are not significant	11/30	0/001	Combined data
Hausman test	Independence of the stochastic effects model	14/21	0/001	Fixed effects

The results of Chow's test indicate that the probability obtained for the F statistic is greater than 5% (p=0.637), so for the model test, the data are analyzed in a consolidated way. This means that because the probability value of the F statistic is greater than 5%, consolidated regression models have been used instead of combined (tabular) models. Next, it should be stated that the normality of the distribution of residuals or errors is one of the assumptions of using linear regression. Table 3 shows the results of the Jarque-Bera test to determine the normality of the distribution of the residuals. Figure 1 also shows the histogram of the residual values of the regression model.Table 3. The results of the Jarque-Bera test to determine the normality of the distribution of the residuals

Type of test	F-statistic	F Probe	Test result
Jarque-Bera	2/43	0/297	The normality of the residuals

The results obtained from the Jarque-Bera statistic show that the probability level of the Jarque-Bera statistic for the error variable is equal to 0.297, which can be concluded that because this value is greater than the value of 0.05 is located, it is possible to accept the normality of the distribution of the error variable in this model, and as a result, the assumption of the normality of the distribution of the residuals is confirmed. In the next section, the researcher tested the assumptions of the classical model or linear regression, and examine the main assumptions including error variance instability, misalignment between independent variables, and automatic error correlation. One of the assumptions of the regression equation is that the variance of the error sentences is constant, which is known as the assumption of homogeneity of variance. If the error expressions do not have a fixed variance, it is said that there is a heterogeneous variance. This problem is more common in cross-sectional data. One of the tests for detecting variance is the Pagan Godfrey test, which is about constant or variable sentences. The results of Table 4 are presented.Table 4. Results of Bruch-Pagan-Godfrey test to check for constant variance of error

F-statistic	The significance level	Result	Estimation method
2/17	0/116	Homogeneity of variance	OLS

Taking into account the values of test statistics and probability values obtained, the assumption that the variance of the error is constant at the 95% confidence level is confirmed. The probability value obtained for the model is 0.116 which is greater than 0.05, indicating that the variance of the error is accepted as constant. Severe mismatch between independent variables is one of the presuppositions of the regression test that has been investigated using tolerance statistics and variance inflation coefficient. If the tolerance value is greater than 0.20 and the variance inflation coefficient is less than 5, it means that there is not much alignment between the independent variables. The linear relation indicates that an independent variable is a linear function of other independent variables. To detect collinearity, we can use tolerance statistics or inflation coefficient of variance (VIF). Tolerance ratio is an independent variable that is not explained by other independent variables. Table 5. Collinearity test to check the independence of independent variables

independent variable	VIF-statistic	Tolerance-statistic

DACC	1/03	0/97
RETURN	1/4	0/71
SIZE	1/05	0/95
MB	1/33	0/75
LEV	1/7	0/58
ROA	1/75	0/57

Examining the collinearity of the independent variables shows that the values obtained for the tolerance statistics are acceptable values and are greater than 0.20, and the variance inflation factor for all variables is less than 5, which these two statistics show that the assumption of non-collinearity of independent or predictor variables is confirmed. After determining the type of estimation method (Limer's F test) and checking the assumptions of the model, the estimation of the model was done. In this part of this research, the variables were estimated based on the combined data method. Table 6 shows the results of the multiple linear regression test for the research model test.Table 6. *Test results of the first model of research*

$NCSKEW\ it+1 = \beta0 + \beta1RETURNit + \beta2DACCit + \beta3\ SIZE\ it + \beta4ROA\ it + \beta5MBit + \beta6\ LEVit + \varepsilon it$				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	Prob.
DACC	0.06	0.85	0.731	0.465
RETURN	0.47	0.06	7.739	0.000
SIZE	0.12	0.06	1.972	0.049
MB	0.33	0.02	5.592	0.000
LEV	0.03	0.56	0.943	0.346
ROA	0.14	0.08	2.095	0.037
C	-2.87	0.90	-3.177	0.002
R-squared=0/175				
Adjusted R-squared= 0/171				
F-statistic=11/02, P>0/001				
Durbin-Watson stat= 1/80				

The F test was conducted to check the fit of the model, and this test was significant ($p<0.05$) and it shows that the regression model is suitable and the independent variables have the ability to predict the dependent variable of crash risk. The value of the adjusted coefficient is equal to 0.171 and it shows that the independent variables of the model have been able to explain 17.1% of the changes in the dependent variable of the crash risk. Durbin-Watson's test was conducted with the aim of checking residual independence, and the value of this test in the regression model was equal to 1.80, which is a suitable value and confirms the residual independence.The results of the multiple regression test showed that the relationship between the independent variable (earnings quality) and the crash risk was rejected ($p>0.05$). The significance level of this relationship is equal to 0.465, which is more than the assumed value of 0.05, which means that there is no relationship between the quality (management) of earnings and the crash risk. Therefore, the significant analysis of the coefficients showed that the relationship between earnings transparency and the crash risk of stock was confirmed ($p<0.05$). The significance level of this relationship is less than 0.05, and it shows that the relationship between earnings transparency and the crash risk is statistically significant. The direction of the relationship between earnings transparency and crash risk is positive.

5. Conclusion

The results of the multiple regression test showed that the relationship between the independent variable of earnings quality and the risk of stock crash was rejected ($p>0.05$). The significance level of this relationship is

equal to 0.465, which is more than the assumed value of 0.05, which means that there is no relationship between the quality (management) of earnings and the crash risk. Company management uses accounting choices to manipulate earnings and mislead users. In this case, earnings do not reflect the actual performance of companies. Manipulating earnings to hide the poor performance of management leads to a decrease in the reliability of the earnings of said companies; As a result, the earnings quality decreases (da Silva, 2019). Managers, in line with their motivations and personal interests, tend to avoid spreading bad news and accumulate them inside the company, keeping bad news by managers continues up to a certain threshold, and when it reaches the climax, it continues to fail. Its disclosure is impossible and costly, and the manager will be forced to disclose it. After that, a huge amount of news enters the market at once and leads to the fall of stock prices (Foroughi & Ghasemnejad, 2015). In some circumstances, the costs of maintaining and not disclosing negative news will be more than its benefits; But in a situation where the information asymmetry between managers and investors is high, the costs of not disclosing negative news and accumulating them inside the company will be less than its benefits, and therefore managers will be motivated to accumulate negative news inside the company and Do not disclose them (Foroughi & Ghasemnejad, 2015). The test results of this hypothesis are consistent with the results of (Wongchoti et al. 2020; Abdullah, L. A. S., Degan, L. M., & Mohammad, A. L. A. J. 2024).The significant analysis of the coefficients showed that the relationship between earnings transparency and the crash risk was confirmed ($p<0.05$). The significance level of this relationship is less than 0.05, and it shows that the relationship between earnings transparency and the crash risk s is statistically significant. The direction of the relationship between earnings transparency and stock fall risk is positive. In today's turbulent environment, many investors emphasize the importance of earnings transparency, and lack of information or uncertainty about it has become a major problem in financial markets. One of the factors that lead to the lack of earnings transparency is the management or manipulation of earnings (Saleem & Usman, 2021). In the absence of full transparency in earnings, managers have the opportunity to hide negative information within the company in order to preserve their jobs and professional reputation. Hence, this negative information accumulates within the company. When the mass of accumulated negative information reaches its peak, it becomes impossible and costly to maintain it for a longer period of time. As a result, the mass of negative information entered the market all at once, leading to a fall in stock prices. One of the factors that lead to the lack of earnings transparency is the management or manipulation of earnings. Managers of economic units try to hide bad news as much as they tend to publish good news about the company. These different motivations for disclosure stem from various factors, such as remuneration contracts and job concerns (Khan & Watts, 2009). If managers are able to hide bad news for a long period of time, it seems that negative information will be stored within a company. However, managers are limited in terms of absorbing and concealing bad news. This limitation is due to the fact that if, at a certain time, the amount of bad news that has been collected reaches a threshold or a certain and special limit, from then on it is either very costly to hide them, or at all. It will be impossible. When the accumulation of bad news reaches its final tipping point, all of it is suddenly released, followed by investors selling their stocks, causing high negative returns for stocks, which is the stock price crash. Therefore, earnings transparency can lead to the crash risk. The results of this hypothesis are consistent with the findings of Hajiha and Shaker (2016) and Wongchoti et al. (2020) and Ahmed, D. M., Azhar, Z., & Mohammad, A. J. (2024).The findings of the first hypothesis test showed that the relationship between the independent variable of earnings quality and the crash risk has been rejected, however, investors are advised to pay attention to the quality of the company's earnings while investing. Therefore, the results of the second hypothesis test showed that earnings transparency is related to the crash risk, so investors are advised to check the earnings transparency of the target company when buying shares. Also, the limitations of the present study can be mentioned as follows: The time frame of the present study is from 2012 to 2022, so caution should be taken in generalizing the results to the periods before 2012 and after 2022; In this research, the method of systematic elimination of sampling was used, so other sampling methods can be used in other researches.

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