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Fraud detection: An empirical study of publicly listed manufacturing in Indonesia (2020-2022)

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ABSTRACT

Financial statements are the final result of the accounting process that contains company financial information presented to both internal and external parties. External parties such as investors use these financial statements as a tool in making investment decisions. Currently, many competing companies show improved performance through financial statements. The necessity to continue to make improvements and improve performance in order to get a good impression from various parties, especially investors, is one of the incentives that force company management to manipulate financial statements. This study aims to detect fraud or financial statement fraud with the influence of Nature of Industry, Change in Director, Frequent Number of CEO's Picture factors in manufacturing companies on the IDX (Indonesia Stock Exchange) for the 2020-2022 period, using the F-Score model. Method the data used is secondary data obtained from the company's financial and annual statements. This study used a purposive sampling technique obtained by 12 companies. The data analysis technique used in this study is logistics regression analysis using SPSS 25 software. The results of this study show that the variables External Pressure and Change in Auditor partially have a significant negative effect on the dependent variable. While Nature of Industry, Change in Director, Frequent Number Of CEO's Picture partially shows positive for the dependent variable. Simultaneously, all variables have a significant negative effect on financial statement fraud.

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1. INTRODUCTION

Financial statements are the final result of the accounting process that occurs during a certain period which contains the company's financial information presented to users of financial statements. The financial statements must be prepared based on the Financial Accounting Standards (SAK) set by the Indonesian Institute of Accountants (IAI). In the Indonesian Financial Accounting Standards Guidelines (PSAK) 201 states that the purpose of financial statements is to provide information regarding the financial position, performance and changes in the financial position of an

entity that is useful for a large number of users in making economic decisions. Information in financial reports can be used by both stakeholders as a basis for making decisions. The financial statements also show what has been done and the accountability of the management decisions themselves.

Every company has an obligation to present financial reports both financial and operational performance in the form of the ability to manage company resources as a form of accountability to stakeholders during the current period. Financial reports are expected to function optimally in providing the information needed by interested parties, especially investors. This financial report is a tool in making investment decisions.

Currently, many companies compete to show improved performance through financial reports, for example Jordanian manufacturing firms were engaged in the conduct of false financial statements, (Saleh et al., 2021). They need to continue to make improvements and improve performance in order to get a good impression from various parties, especially investors, is one of the impulses that forces company management to manipulate financial statements. They manipulate some financial statements so that the report shows excellent financial performance. In fact, the company is not necessarily in good condition. Financial statement fraud is found to be the most worrying as it involves management of the company and causes the highest loss to investors, (Aghghaleh et al., 2016).

Association of Certified Fraud Examiners in a report state that there are three types of fraud: corruption, misappropriation of assets and financial statement fraud, (Murdock, 2018). Based on the results of a survey conducted by ACFE Indonesia, the most common fraud in Indonesia is corruption. A total of 154 respondents or 67% chose corruption. Asset misappropriation was chosen by 71 respondents or 31% of the total number of respondents. Fraud in the form of financial reports was the third most common type of fraud chosen by 4 respondents or 2%. The Supreme Audit Agency (BPK) pocketed 9,261 findings that have the potential to harm state finances of up to IDR 18.19 trillion in the first semester of 2023, (BPK, 2023).

In Indonesia, cases of financial reporting fraud also occur in the banking sector. The modus operandi of crimes that often occur is borrowing the name of the debtor, fictitious credit, and collusion in applying for credit, (Wibisono, 2023). An example is the *fraud* case at Bank Rakyat Indonesia (BRI) Tapung Raya District, Kampar Regency, Riau. The case was a fictitious signing made by the head of the unit of Rp 1.6 billion. The chronology of the discovery of the fictitious transfer was revealed on February 23, 2015, when the internal inspection team from the Bangkinang branch of BRI conducted an inspection of the Tapung BRI unit to find transaction irregularities. The inspection results show that there is a mismatch between the balance sheet and the unbalanced cash. This was caused by money transfer records but not accompanied by the money.

In sector property, we know Waskita Karya (WSKT) and Wijaya Karya (WIKA) manipulated financial report that causes loss from 2020 until 2022. They are hiding some of vendor invoices from 2016. The debt burden to shrink and the financial condition to appear to be healthty, but they are in financial difficulty (Tempo, 2023).

Another case that occurred in Indonesia is in the transportation sub-sector. In April 2019, it was revealed that PT Garuda Indonesia Tbk committed financial statement fraud. Starting from the 2018 financial statements published by PT Garuda Indonesia Tbk, recording a net profit of USS 809.85 thousand. The profit increased sharply compared to the 2017 profit which recorded a loss of USS 216.5 million. Two commissioners of PT Garuda Indonesia Tbk, namely Chairul Tanjung and Dony Oskaria, consider that the 2018 financial statements are not in accordance with the Indonesian Accounting Standards Statement (PSAK).

PT Garuda Indonesia Tbk recorded profits from PT Mahata Aero Teknologi related to wifi installation which had not been paid until the end of 2018. This is one of the most notorious cases of fraud proven to violate OJK regulations in relation to the preparation

of public company annual reports. PT Garuda Indonesia Tbk used the principle of improper revenue recognition so that the company's books were calculated as profit for the current year. PT Garuda Indonesia was sanctioned by the OJK for fraudulent financial reporting, (Otoritas Jasa Keuangan, 2019).

Indonesia is the largest archipelago in the world with a strategic location. Along Indonesia's main sea route between the Indian Ocean and the Pacific Ocean, it is recognized as a country with abundant natural resources. Reported by the CIA (2012), Indonesia is currently. Indonesia is in the top four most populous countries in the world with around 249 million people. Today, with its abundant resources Indonesia plays a major role domestically and in the export market. With total exports of US$203.50 billion and imports of US$177.44 billion in 2011 (BPS- Badan Pusat Statistik, 2012).

The main contribution of Indonesia's exports, namely the manufacturing sector as reported by the Central Statistics Agency (BPS), is dominated by food and beverages 23.99%; textiles and apparel 22.26%; wood products, furniture 14.86%; non-metallic mineral products 6.98%; plastics and rubber 6.73%; metal products 4.70%; chemical products 4.31%; tobacco products 4.27%; in addition to industrial machinery, electronics,motor vehicles 6, 44%.

In this study, the authors chose various industrial sector manufacturing companies with shares above 1 billion listed on the Indonesia Stock Exchange (IDX) in detecting fraudulent financial statements. The number of shares is quite a lot traded on the IDX, so this is one of the interest factors for investors. Based on the background described above, the study aims to analyze and find empirical evidence regarding the effect of *fraud* pentagon, namely *Pressure* (pressure) consisting of *External Pressure (*external party pressure / X1); *Opportunity (*opportunity) consisting of *Nature of Industry (*ideal conditions of a company / X2); *Rationalization* (rationalization)consisting of *Change in Auditor (change* of auditor). external/X3); *Capability* consists of *Change in Director* (change or change in directors/X4); *Arrogance* consists of *Frequent Number of CEO's Picture* (number of CEO photos displayed in the annual report/X5). According to (Christian et al., 2019), all the variant of fraud theory (fraud triangle theory, fraud diamond theory and fraud pentagon theory) can be investigated for its significant effect on corporate fraud.

2. RESEARCH METHOD

The objects in this study are financial reports and annual reports of manufacturing companies listed on the Indonesia Stock Exchange (IDX) for the period 2020-2022. The type of data in this study is quantitative data, namely data in the form of numbers and can be expressed in counting units. The data source used in this research is secondary data, where data is obtained from indirect sources. The data needed for this research is the annual report data of companies listed on the Indonesia Stock Exchange (IDX) for the 2020-2022 period, which can be obtained from the official website of each company and the Indonesia Stock Exchange (IDX), namely www.idx.co.id.

The data analysis technique used in this research is logistic regression. The method standard assisted by the Statistical Package Social Science (SPSS) program and Microsoft Excel. Thisstudy consists of the minimum value,maximum value and standard deviation which aims to determine the distribution of data in the research sample. The minimum value is used to determine the smallest amount of data that varies. The maximum value is used to determine the largest amount of data that varies. Standard deviation is used to determine how much the data in question varies.

3. RESULTS AND DISCUSSIONS

3.1 Logistic Regression Model

This study uses logistic regression to determine the effect of independent variables, namely *External Pressure* (EP), *Nature of Industry (*NOI), *Change in Director (CID*), *Change In Auditor (*CIA), *Frequent Number Of CEO's Picture* (PIC) with the dependent variable, namely *financial statement fraud* (F-Score). The F-Score, an evolutionary derivative of the Beneish M-Score, accentuates nine financial criteria for comprehensively evaluating a company's performance and integrity. This model has substantiated its efficacy in signalling potential fraud, serving as a valuable tool in assessing fraud risk, (Miharsi et al., 2023).

Based on the results of the classical assumption test that has been carried out, it is known that the data in the study is normally distributed, there is no multicollinearity, no heteroscedasticity. Thus, the data that has been available in the study has met the requirements for the logistic regression model. Logistic regression test results obtained in this study are as follows:

Table 1. Logistic Regression Test Results

Variables in the Equation

		B	S.E	Wald	df	Sig.	Exp(B)
Step 1[a]	LEV	-.063	.026	5.825	1	.016	.939
	REC	.000	.001	.045	1	.832	1.000
	AUDCHANGE	-.167	1.118	.022	1	.861	.846
	DCHANGE	19.199	40192.969	.000	1	1.000	217832290.916
	CEOPIC	-.826	.625	1.748	1	.186	.438
	Constant	5.920	2.810	4.440	1	.035	372.528

a. Variable(s) entered on step 1: LEV, REC, AUDCHENGE, DCHANGE, CEOPIC

Based on the results of table 1, the regression equation is obtained as follows:

$$Y = \alpha + \beta 1\ X1\ (EP) + \beta 2\ X2\ (NOI) + \beta 3\ X3\ (CID) + \beta 4\ X4\ (CIA) + \beta 5\ X5\ (PIC) + \varepsilon$$

Description:

A = Constant

β1-5 = Regression Coefficient

ε = Error (Other Unexamined Variable Coefficients)

EP = External Pressure

NOI = *Nature of Industry* or Ideal Condition of a Company

CID = Change *in Director*

CIA = *Change in Auditor* or External Auditor Change

PIC = *Frequent Number of CEO's Picture* or Number of CEO Photos displayed in the annual report

$$F\text{-}Score = 5.920 - 0.063\ (EP) + 0.000\ (NOI) + 19.199\ (CID) - 0.167\ (CIA) - 0.826\ (PIC) + \varepsilon$$

From the results of the regression equation above, it can be explained as follows: (a) The constant value (α) of 5,920 indicates that if all independent variables, namely *External Pressure (*EP), *Nature of Industry (*NOI), *Change in Director (*CID), *Change in Auditor (*CIA), *Frequent Number of CEO's Picture* (PIC) are constant, the level of *financial*

statement fraud (F- Score) is 5,920 or 592%. (b) The value of the *External Pressure* (EP) regression coefficient is negative by - 0.063. This shows that every EP increases by 1% and the other independent variables remain constant, it will reduce the detection of financial statement fraud by - 0.063 or 6.3%. (c) The *Nature of Industry* (NOI) regression coefficient has a positive effect of 0.000, where if NOI increases by 1% and the other independent variables remain constant, there will be a decrease in detecting financial statements by 0 or 0%. (d) The regression coefficient value of *Change in Director* (CID) has a positive effect with a value of 19.199, where if CID increases by 1% and the other independent variables remain the same. will experience a decrease in detecting financial statements by 19,199 or 1919.9%. (e) *The Change in Auditor* (CIA) regression coefficient value is negative -0.167. This shows that every CIA increases by 1% and the other independent variables remain constant, it will reduce the detection of financial statement fraud by -0.167 or 16.7% (f) The regression coefficient value of *Frequent Number of CEO's Picture* (PIC) is negative -0.826. This shows that every PIC increases by 1% and the other independent variables remain constant, it will reduce the detection of financial statement fraud by -0.826 or 82.6%.

3.2 Hypothesis Test

a. Partial Significance (T Test)

The T test is used for partial or individual testing, in other words, testing the presence or absence of the influence of each independent variable on the dependent variable using a significance test. In the T test the following hypothesis is used: (a) H_1: External pressure can affect financial statement fraud (b) H_2: Ideal conditions of a company can affect financial statement fraud (c) H_3: Change of directors can affect financial statement fraud (d) H_4: Auditor change external can affect financial statement fraud (e) H_5: The number of CEO photos displayed can affect financial statement fraud

The effect of the independent variables on the dependent variable partially with logistic regression (T test) is as follows: (a) If the significance value <0.05 then the independent variable partially affects the dependent variable (H0 is rejected) (b) If the significance value> 0.05 then the independent variable partially has no effect on the dependent variable (H0 is accepted).

The results of the T test test obtained from the processed data through SPSS 25 in the *Output,* namely:

Table 2. Results of Partial Significance Test or T Test

Coefficients*

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	2.348	56.133		4.185	.000		
EP (X1)	-1.455	.495	-.472	-2.938	.006	.904	1.106
NOI (X2)	.067	.092	.114	.730	.471	.958	1.044
CID (X3)	.577	66.336	.155	.871	.391	.737	1.356
CIA (X4)	-.776	34.645	-.398	-2.241	.333	.741	1.349
PIC (X5)	-1.600	14.320	-.175	-1.117	.273	.951	1.052

a. Dependent Variable: F-SCORE

The significance value of *External Pressure* (EP) is 0.006 <0.05 and T_{hitung} 2.938> T_{table} 2.03951, then the *External* to financial statement fraud. External pressure based on the test results that the significance level is 0.006. The significance level is <0.05, so the H1 hypothesis is accepted, which indicates that the external pressure variable can affect financial statement fraud. This result linier with (Achmad et al., 2022), (Harpan

& Kuntadi, 2023) state that experience external pressure has an effect on fraudulent financial statements.

The significance value of *Nature of Industry* (NOI) is 0.471> 0.05 and T_{hitung} 0.730 < T_{table} 2.03951, then the *Nature of Industry* (X2) variable has no effect on financial statement fraud. The ideal condition of a company based on the test results that the significance level is 0.471. The significance level is > 0.05, so the H2 hypothesis is rejected, which indicates that the variable ideal condition of a company can affects financial statement fraud. This is in line with research (Rahmani & Oktalita, 2023), (Rahma & Sari, 2023), and (Hastuti et al., 2023) which state that the nature of the industry has no effect on financial statement fraud.

The significance value of *Change in Director* (CID) is 0.391> 0.05 and T_{hitung} 0.871 < T_{table} 2.03951, then the *Change in Director* (X3) variable has no effect on financial statement fraud. Change of directors based on the test results that the significance level is 0.391. The significance level is > 0.05, so the H3 hypothesis is rejected, which indicates that the variable change of directors can affect financial statement fraud. This is in line with research (Dwiningsih & Firdaus, 2024) and (Kharisma & Rachman, 2024).

The significance value of *Change in Auditor* (CIA) is 0.333 > 0.05 and T_{hitung} -2.241 < T_{table} 2.03951, then the variable Change in Auditor (CIA) is 0.333 > 0.05. Change in Auditor (X4) has no effect on financial statement fraud. The change of external auditors based on the test results that the significance level is 0.333. The significance level is > 0.05, so the H4 hypothesis is rejected, which indicates that the external auditor turnover variable can affect financial statement fraud. This is in line with research (Fajri et al., 2023), (Jannah & Suwarno, 2023), and (Yadiati & Rezwiandhari, 2023).

The significance value of *Frequent Number of CEO's Picture* (PIC) of 0.273 > 0.05 and T_{hitung} -1.117 < T_{table} 2.03951, then the *Frequent Number of CEO's Picture* (X5) variable has no effect on financial statement fraud. The number of CEO photos displayed in the financial statements based on the test results that the significance level is 0.273. The significance level is worth > 0.05, the hypothesis H5 is rejected, which indicates that the variable of the number of photos of the CEO in the financial statements can affect financial statement fraud. This is in line with research (Chan & Marlinah, 2023), and (Wilantari & Ariyanto, 2023).

Table 3. Summary of T Test Results

Hypotesis	Variable	Standardized CoefficientB	Probability (sig t)	Results
H_1	EP	-1.455	0.006	H_1 Accepted.
H_2	NOI	0.067	0.471	H_2 Non-Accepted
H_3	CID	57.751	0.391	H_3 Non-Accepted
H_4	CIA	-77.654	0.333	H_4 Non-Accepted
H_5	PIC	-16.001	0.273	H_5 Non-Accepted

b. *Wald* test

Wald test is this test shows that how far the influence of independent variables individually in explaining the dependent variable.

Table 4. *Wald* Test

Variables in the Equation							
		B	S.E	Wald	df	Sig.	Exp(B)
Step 1[a]	LEV	-.063	.026	5.825	1	.016	.939
	REC	.000	.001	.045	1	.832	1.000
	AUDCHANGE	-.167	1.118	.022	1	.861	.846

DCHANGE	19.199	40192.969	.000	1	1.000	217832290.916
CEOPIC	-.826	.625	1.748	1	.186	.438
Constant	5.920	2.810	4.440	1	.035	372.528

a. Variable(s) entered on step 1: LEV, REC, AUDCHENGE, DCHANGE, CEOPIC

Based on the table above, the pressure variable which is proxied by *External Pressure* (EP) has a Wald value of 5,825 and a significance level of 0.525. 0.016. significance value of 0.016 < 0.05, then H1 is accepted so that it can be concluded that *External* Pressure / *pressure* from external parties effect on financial statement fraud.

The Nature of Industry (NOI) variable has a Wald value of 0.045 and a significance level of 0.832. The significance value of 0.832 > 0.05, then H2 is rejected so it can be concluded that *Nature of Industry / the* ideal *state of* a company has no effect on financial statement fraud.

The Change in Director (CID) variable has a Wald value of 0.000 and a significance level of 1,000. The significance value of 1,000 > 0.05, then H3 is rejected so it can be concluded that *Change in Director / change of* directors has no effect on financial statement fraud.

The Change in Auditor (CIA) variable has a Wald value of 0.022 and a significance level of 0.881. The significance value of 0.881 > 0.05, then H4 is rejected so it can be concluded that *Change in Auditor / change of* external auditor has no effect on financial statement fraud.

The Frequent Number of CEO's Picture(PIC) variable has a Wald value of 1.748 and a significance level of 0.186. The significance value of 0.186> 0.05, then H5 is rejected so it can be concluded that *Frequent Number of CEO's Picture* has no effect on financial statement fraud.

3.3 Simultaneous Significance Test (F-Test)

The F test is used to determine whether all independent variables included in the regression model have a simultaneous / joint influence on the dependent variable. The effect of the independent variables on the dependent variable depends simultaneously with logistic regression (F test) is as follows: (a) If the significance value <0.05, the effect of fraud on financial statements. (b) If the significance value > 0.05 then there is no effect of fraud on financial statements. The results of the F test test obtained from the processed data through SPSS 25 in the *Output,* namely:

Table 5. Simultaneous Significance Test Results or F Test

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	42367.176	4	10591.794	3.087	.030[b]
	Residuals	106367.574	31	3431.212		
	Total	148734.750	35			

a. Dependent Variable: F-score
b. Predictors: (Constant), PIC, EP, NOI, CIA

Based on the results of the F significance test in the anova table above, it can be seen that the F value is 3.087 with a significance value of 0.030. The number of samples (n) in this study was 36 with 5 variables. F table value with significance level α = 5% *degree of freedom* dfl F (k; n-k) = F (5; 31), then an F value of 2.52 is obtained.

Based on the results of the anova test in the table between the independent variables on the dependent variable, the F count is greater than the F table (2.52 > 0.05) with a significance level of 0.03 < 0.05. This shows that EP, NOI, CID, CIA, PIC simultaneously affect the significance of financial statement fraud proxied by the *Fraud Score Model* (F- Score). These results are in line with research conducted by (Situngkir & Triyanto, 2020) that financial stability, external pressure, nature of the industry, effective

monitoring, change in auditors, total accruals, change in directors, the proportion of independent commissioners, frequent numbers of CEO's picture and family firms simultaneously affect the fraudulent financial reporting.

4. CONCLUSION

The pressure, opportunity, and rationalization in the fraud pentagon can be used to detect bogus financial reporting, (Putra, 2021). Based on the results of the research, *External* Pressure / *pressure* from external parties effect on financial statement fraud. These results are in line with research (Dewi & Yulianti, 2023) which states that financial instability has a significant positive effect on financial statements. Whereas (Harman & Bernawati, 2021) states that financial targets have a significant impact on the negative direction on financial statement fraud. While *Nature of Industry, Change in Director, Change in Auditor, and Frequent Number of CEO's Picture* have no effect on fraudulent reports. I*ndustry* with high inventory turnover with sales resulting in inventory payables rarely occur because inventory continues to cycle, so that does not indicate the occurrence of fraudulent financial statements. Change In Director aim to improve company performance. The main stakeholders of the change the position of the old director with a director who is more competen in managing the company, so that has no effect on fraudulent reports. These results are in line with research (Fadhlurrahman, 2021) witch state that changes in directors has an influence in predicting financial statement fraud. Change In Auditor has no effect on report fraud, because of Government Regulation Number 20 of 2015 concerning public accountant practices, article 11 states that the limit for public accountants to provide general audit services for the financial statements of a company is 5 years. As for the Frequent Number of CEO's Picture has no effect on fraudulent reports, because this can occur due to the assumption of a high sense of responsibility because he will be recognized by the wider community so that he must prove that he can lead the company by being recognized by the public through his products, awards and activities made for the community such as social assistance. These results are not in line with research (Gong et al., n.d.) witch state that the fit of CEO–CFO high promotion focus increases the likelihood of new venture IPO fraud.

Fraud Pentagon Model consisting of pressure *(Pressure),* opportunity *(Opportunity)*, Rationalization *(Rationalization)*, ability *(Competence* and *arrogance)* simultaneously or together have a significant effect on fraudulent financial statements of manufacturing companies in various industrial sectors. This founding are in line with (Carla & Pangestu, 2021) mention that financial target, external pressure, personal financial need, nature of industry, change in auditor, and CEO duality significantly affect fraudulent financial reporting.

This research is limited to the 2020-2022 research period in the manufacturing sector. Future research is expected to use a sample of state-owned enterprises in the transportation, construction and banking sectors that control the lives of many people.

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Based on the research results that have been concluded, there are several things that still need to be considered for parties who will be directly related to the object of research, namely as follows: For users of financial statements, especially investors who want to invest in companies that do not have the potential for fraud in their financial statements. Hoped that for pay more attention to low *External Pressure* (EP) conditions, which can increase the risk of potential financial statement fraud. For companies, it is expected to increase the level of supervision by the independent board of commissioners so that financial conditions remain stable and reduce the risk of potential financial statement fraud. And finally for future researchers, it is hoped that they can use other

measuring instruments of financial statement fraud such as *Earning Management. In* addition, *External Pressure, Nature of Industry, Change in Director, Change in Auditor, Frequent Number of CEO's Picture. It* is also recommended for future researchers to expand the population not only companies listed on the Indonesia Stock Exchange (IDX) manufacturing companies in various industrial sectors but can use from other sectors.

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