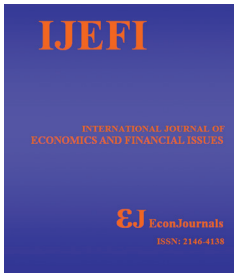

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The Impact of Financial Factors on Financial Distress in Life Insurance Companies: The Moderating Role of ESG

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ABSTRACT

The study aims to examine the influence of financial factors, consisting of: Leverage (DAR), Insurance Claims (KA), Liquidity (CR), Risk-Based Capital (RBC), and Sales Growth (SG) on Financial Distress (FD) with the role of Environmental, Social, and Governance (ESG) as a moderating variable. The study was conducted on insurance sector companies registered with the Indonesian Financial Services Authority (OJK) from 2020 to 2023. This study used a panel data regression method on 26 selected insurance companies. The results of the study from the model without the role of moderating variables found that DAR, RBC, SG, and ESG did not affect FD. At the same time, KA and CR had a positive impact on the likelihood of insurance companies experiencing FD. Different findings were revealed in the model with the role of ESG as a moderating variable; KA was positively related to FD, and the interaction of ESG with CR strengthened its influence on the likelihood of insurance companies experiencing FD. To our knowledge, this study, which investigates the determinants of FD with the role of the moderating variable ESH in insurance companies in Indonesia, has never been studied before. Furthermore, this study provides valuable information for regulators and policymakers to improve liquidity, insurance claim payments, and ESG practices in the insurance sector.

Keywords: Financial Distress, Environmental, Social, and Governance, Risk-Based Capital Insurance Firm
JEL Classifications: G22, G32, G33, M14

1. INTRODUCTION

The insurance industry, which is part of the financial system, plays a vital role in the economy through claims payments and investments. Furthermore, insurance helps protect the public by mitigating financial risk. Failure of the insurance industry can destabilize a country's financial system and negatively impact the economy. Many are currently concerned about the financial health and viability of insurance companies, which substantially affect the company's goal of maximizing shareholder wealth. To achieve this goal, every company activity must be directed toward attaining it. However, many businesses fail to achieve their goals due to financial difficulties.

The current state of the insurance industry in Indonesia is concerning, particularly related to default cases. Default cases set a bad precedent for the industry, leaving thousands of victims unable to receive their full insurance policy payments, totaling billions of Rupiah. Furthermore, insurance company performance, as measured by premium revenue, has experienced a significant decline in recent years. Increasing competition among life insurance companies has resulted in declining premium revenue and high customer claim payments. This situation contributes to declining financial performance, potentially putting companies in financial distress.

The insurance industry has also recently come under intense pressure regarding environmental, social, and governance (ESG) responsibilities. The United Nations introduced the Principles for Sustainable Insurance (PSI) at the 2012 Rio 2020 Summit to integrate ESG issues into insurance company management. Following this initiative, the insurance industry has increased its

commitment to incorporating ESG practices (Eling, 2024), and insurers accounting for more than 25% of global premium volume have ratified the PSI (Majewska, 2020). Although ESG issues are increasingly important in the insurance industry, the history of scandals may have damaged the sector's image and reputation, thus triggering negative perceptions from stakeholders and affecting the financial stability of companies (Tica and Weißenberger, 2022). In Indonesia, the obligation to implement ESG practices is already required to implement sustainability aspects in accordance with the Sustainable Finance Roadmap and regulations by the Financial Services Authority (OJK) through POJK No. 51/POJK.03/2017 concerning the implementation of sustainable finance for financial services institutions, issuers, and public companies. This regulation is a strategic step to encourage life insurance companies to apply sustainability principles in their business activities.

Studies investigating the determinants of Financial Distress (FD) in life insurance companies are limited. Kebede et al. (2024), Ayinaddis and Tegegne (2023), Isayas (2021), and Zelie and Wassie (2019) examined the impact of financial factors on FD in insurance companies in Ethiopia. Asmar and Farhood (2024) investigated the determinants of FD in insurance companies in Palestine and Jordan. Michira et al. (20210 examined the relationship between inadequate claim provisioning (IRC) and financial distress in non-life insurance companies in Kenya. Sharpe and Stadnik (2007) developed a statistical model to identify general insurance companies experiencing FD in Australia. El Bachir et al. (2024) investigated the effectiveness of financial ratios in predicting the financial health of public insurance companies in Algeria. In Indonesia, several studies have been conducted to investigate the determinants of FD in insurance companies, including Purwanto and Prastyo (2025), Mawardana and Pohan (2024), Kristanti et al. (2022), Liahmad et al. (2021), and Nustini and Amiruddin (2019). Evidence of factors that control FD in insurance companies from previous studies provides conflicting evidence.

Studies related to the relationship between ESG and financial performance have become increasingly common recently, but specifically for insurance companies, they are still limited. Giráldez-Puig et al. (2025) examined the relationship between ESG and bankruptcy risk in public insurance companies from the United States, Europe, and the Americas (Bermuda and Canada). Bressan (2023) investigated the ESG practices of Property and Casualty (P&C) insurance companies worldwide and their impact on financial stability. Elmaghrabi (2024) examined the relationship between the level of ESG risk management in the financial industry, including companies, and the likelihood of FD in 21 countries. Brogi et al. (2022) examined the relationship between ESG and the financial performance of listed US insurance companies. Setyaningrum and Shalihah (2025) analyzed the relationship between corporate governance and FD in listed general insurance companies in Indonesia.

This study makes several contributions to the existing literature. First, no study has examined the relationship between financial performance and FD and the moderating role of ESG in life insurance companies. Second, by analyzing the role of ESG in insurance company bankruptcy risk, this study highlights the financial implications of substandard ESG activities in the insurance industry. Third, this study provides additional evidence on ESG practices and bankruptcy risk, implying that the implementation of ESG practices by insurance companies acts as a safeguard against increasing FD.

2. LITERATURE REVIEW AND DEVELOPMENT HYPOTHESIS

2.1. Leverage and Financial Distress

The leverage ratio measures a company's ability to pay the total liabilities used to finance its business operations compared to its equity (Razak et al., 2020). The leverage ratio also measures the amount of debt a company has incurred from lenders. Companies with high levels of debt have a substantial debt burden, characterized by high interest payments (Isayas, 2021). Furthermore, a high leverage ratio increases the company's risk of FD (Endri et al., 2020). A high debt ratio encourages management to limit flexibility and make more conservative decisions to mitigate the risk of FD (Bhimavarapu et al., 2023). Companies with high debt ratios can avoid financial distress if they manage their debt effectively (Waqas and Md-Rus, 2018). Kebede et al. (2024) found that leverage has a positive impact on FD. Therefore, this study develops the following hypothesis:

H_1: Leverage has a positive effect on FD.

2.2. Insurance Claims and Financial Distress

Insurance claims are defined as one of the operational activities of an insurance company that must be resolved between the insurer and the insured or policyholder (Stempel, 2009). The claim ratio, also known as the Loss Ratio, describes the extent to which an insurance company must pay claims to policyholders as a percentage of the premiums they receive. A higher claim ratio means a smaller amount of funds available for cost recovery, thus positively impacting the insurance company's financial distress (Isayas, 2021). The Loss Ratio also measures losses incurred in proportion to premium income earned, which can help assess the health and profitability of an insurance company. Therefore, insurance companies with a higher claim ratio indicate a greater risk of bankruptcy. Kebede et al. (2024) and Zelie and Wassie (2019) revealed that insurance claims have a positive effect on FD. Isayas (2021) found that the loss ratio has a positive effect on the FD of insurance companies. Therefore, this study develops the following hypothesis:

H_2: Insurance claims have a positive effect on FD.

2.3 Liquidity and Financial Distress

Liquidity is a measure of a company's ability to meet short-term financial obligations as they fall due (Endri et al., 2019). Liquidity also indicates the ease with which current assets can be converted into cash to pay short-term obligations on time. When a company experiences a liquidity shortage, it is considered unhealthy. Conversely, companies with a high liquidity ratio are less likely to experience FD. Therefore, companies must have current assets greater than their current liabilities to remain liquid and avoid FD. Kebede et al. (2024), Naibaho and Natasya (2023), Ayinaddis and Tegegne (2023), and Ramadani and Ratmono (2023) all

demonstrate that liquidity negatively impacts FD. Therefore, this study develops the following hypothesis:
H_3: Liquidity has a negative effect on FD.

2.4. Risk-Based Capital and Financial Distress

Risk-Based Capital (RBC), also commonly known as the solvency level, is a measure that determines the level of financial security or financial health of an insurance company in meeting future obligations. RBC serves as a benchmark for assessing the financial performance of insurance companies in terms of capital adequacy, providing the public with a guideline for selecting an insurance company. The RBC method is also a method for measuring solvency limits and assessing the financial health of insurance companies to ensure insurance and reinsurance obligations are met. In Indonesia, RBC assessments are based on OJK Regulation No. 71/POJK.05/2016 concerning the financial health of insurance and reinsurance companies to anticipate the risk of losses arising from deviations in asset and liability management. Asmar and Farhood (2024) found that capital adequacy positively affects the Altman Z-Score, which reduces the likelihood of FD for insurance companies. Therefore, this study develops the following hypothesis:
H_4: Risk-Based Capital has a positive effect on FD.

2.5. Sales Growth and Financial Distress

Sales growth affects a company's ability to maintain profits and fund future investment opportunities. High sales growth in insurance companies can increase premium income and reduce the potential for FD. Premium income is the primary source of income for insurance companies and is more persistent than other sources of income. Premium growth can help predict future revenue and profit growth. The premium growth ratio can be used to indicate the level of premium stability in insurance companies (Kristanti et al., 2022). Empirical evidence shows that premium growth and FD in insurance companies have a negative relationship, as evidenced by Isayas (2021), Kebede et al. (2024), Harjadi and Sihombing (2020), and Ayinaddis and Tegegne (2023). Therefore, this study develops the following hypothesis:
H_5: Sales Growth has a negative effect on FD.

2.6. Moderating Role of ESG

ESG is a sustainability practice where existing actions and reports serve as the basis for decision-making based on non-financial information (Dorothy and Endri, 2024). Insurance companies make ESG a key agenda to implement to drive positive change. Insurance company management prioritizes the importance of integrating ESG considerations into business decisions (Bressan, 2023). Positive performance in ESG practices influences stakeholder attitudes and loyalty towards the company. Therefore, good ESG performance can reduce stakeholder sanctions against the company. Indonesia already has regulations regarding the implementation of sustainability reporting, specifically OJK Regulation No. 51/POJK.03/2017 concerning the implementation of sustainable finance for financial services organizations, issuers, and public companies. Stakeholder theory explains that a high ESG score improves a company's reputation and reduces financial risk (Luo and Bhattacharya, 2006).

According to stakeholder theory, the potential for high FD can reduce interest and raise concerns for stakeholders. High ESG disclosure can create trust and sustainability to mitigate the negative impact of leverage levels on FD. ESG disclosure is also one of the indicators investors consider when assessing company performance. High ESG disclosure can increase investor confidence and mitigate the impact of liquidity on a company's FD. Giráldez-Puig et al. (2025) revealed that insurance companies with strong ESG practices can reduce the potential risk of bankruptcy. Citterio and King (2023) found that ESG practices can reduce the risk of companies experiencing FD. Prameswari et al. (2024) proved that ESG disclosure has a negative impact on FD.

Regarding the role of ESG as a moderating variable in the relationship between financial factors and FD, there has been little research. Rosalika et al. (2024) found that ESG weakens the relationship between liquidity and FD, while ESG's influence on FD does not moderate leverage. Farooq et al. (2023) found that corporate governance strengthens the negative relationship between CSR and FD. Therefore, regarding the role of ESG as a moderating variable, the following hypothesis is developed:
H_6: ESG moderates the relationship between Leverage and FD
H_7: ESG moderates the relationship between Insurance Claims and FD
H_8: ESG moderates the relationship between Liquidity and FD
H_9: ESG moderates the relationship between Risk-Based Capital and FD
H_{10}: ESG moderates the relationship between Sales Growth and FD.

3. METHODOLOGY

3.1. Data and Samples

This study uses 57 life insurance companies registered with the OJK from 2020 to 2023 as the population. To determine the sample, a purposive sampling technique was used based on specific criteria. These criteria include life insurance companies registered with the OJK during the period 2020-2023, excluding Sharia life insurance companies, excluding companies that do not report their financial statements annually during the period 2020-2023, and excluding companies that do not report their sustainability reports during the period 2020-2023. Based on these selection criteria, the number of samples used in this study is 26 companies.

3.2. Variable Measurement

3.2.1. Financial distress

This study measures FD using the modified Altman Z-Score model due to its ability to predict corporate bankruptcy, particularly in the insurance sector. The modified Altman Z-Score is calculated using the following formula:

$$Z = 6.56X1 + 3.26X2 + 6.72X3 + 1.05X4$$

Information:
Z = bankruptcy index
X1 = working capital/total assets
X2 = retained earnings/total assets
X3 = earnings before interest and taxes/total assets
X4 = book value of equity/total liabilities.

3.2.2. Leverage

Leverage measurement in this study uses the Debt to Total Asset Ratio (DAR) to measure the ratio between total debt and total assets and to determine the proportion of assets financed with cash and the extent to which the company's assets influence its asset management. The DAR formula is as follows:

$$\text{Debt to Total Asset Ratio} = \text{Total Debt/Total Assets}$$

3.2.3. Insurance claims

The importance of measuring insurance claims in insurance companies, because this measurement can make a comparison between the number of claims submitted by policyholders to the insurance company with the amount of premiums paid by policyholders in a specific period so that it can provide a conclusion that high claims can indicate financial risk for the insurance company, while low claims can indicate the company's financial health. The calculation of insurance claims is as follows:

$$\text{Insurance Claims} = \text{Claims Expense/Premium Income}$$

3.2.4. Liquidity

Liquidity was measured in this study using the Current Ratio (CR). This ratio compares current assets with current liabilities, or short-term debt, and the company's ability to repay its short-term debt by converting non-cash assets into cash. The CR formula is as follows:

$$\text{CR} = \text{Current Assets/Current Liabilities}$$

3.2.5. Risk-based capital

Risk-Based Capital (RBC) is a measure of solvency and financial health for insurance companies, ensuring they meet their insurance and reinsurance obligations. In the context of insurance companies, RBC helps identify risks associated with an insurance portfolio, such as credit risk, market risk, underwriting risk, and investment risk. Insurance companies must ensure they have adequate capital to cover these risks. The calculation for RBC is as follows:

$$\text{RBC} = \text{Solvency Level/Minimum Solvency Level Limit}$$

3.2.6. Environmental, social, and governance (ESG)

The ESG disclosure measurement in this study refers to the Global Reporting Initiative (GRI) standards, which are global guidelines for reporting economic, environmental, and social activities. This method uses a ratio approach to calculate the ESG score, where a value of 1 is assigned to disclosed items and 0 to those not disclosed. The ESG score calculation for each company (ESG) is based on the ratio of the number of relevant disclosure items to the total applicable GRI disclosure standards. ESG can be measured using the formula:

$$\text{ESG} = \text{Sum of company disclosure items/Total of GRI disclosure standard items}$$

3.3. Estimation Model Specifications

Testing the relationship between Leverage (DAR), Insurance Claims (KA), Liquidity (CR), Risk-Based Capital (RBC), Sales Growth (SG), and Financial Distress (FD) moderated by ESG, formulated in two estimation equations of a panel data regression model. The dependent variable is FD, while the independent variables consist of DAR, KA, CR, RBC, and SG, with ESG as a moderator. Therefore, the study considers two models with and without moderation.

Model 1 tests the influence of DAR, KA, CR, RBC, SG, and ESG on FD.

$$FD_{it} = \alpha + \beta_1 DAR_{it} + \beta_2 KA_{it} + \beta_3 CR_{it} + \beta_4 RBC_{it} + \beta_5 SG_{it} + \beta_6 ESG_{it} + \varepsilon_{it} \quad (1)$$

Model 2 tests the effect of DAR, KA, CR, RBC, and SG on FD and the role of ESG as a moderator variable.

$$FD_{it} = \alpha + \beta_1 DAR_{it} + \beta_2 KA_{it} + \beta_3 CR_{it} + \beta_4 RBC_{it} + \beta_5 SG_{it} + \beta_6 DAR_{it} *ESG_{it} + \beta_7 KA_{it} *ESG_{it} + \beta_8 CR_{it} *ESG_{it} + \beta_9 RBC_{it} *ESG_{it} + \beta_{10} SG_{it} *ESG_{it} + \varepsilon_{it} \quad (2)$$

This study examines the relationship between several independent and moderating variables on firm value. FD, as the dependent variable, is measured using the Altman Z-Score, which predicts corporate bankruptcy, especially in insurance sector companies. The independent variables analyzed are DAR, KA, CR, RBC, and SG. Leverage is proxied by DAR, which is total debt to total assets. KA uses the calculation of claim expense/premium income. Liquidity is proxied by CR, which is current assets/current liabilities. RBC is measured by calculating the solvency level/minimum solvency level limit. In addition, this study also investigates the role of ESG moderating variables measured based on the Global Reporting Initiative (GRI) standards with a dummy variable approach (1 if disclosed, zero otherwise). The regression model used tests the direct effect of DAR, KA, CR, RBC, and SG on FD, as well as the moderating effect of ESG on the relationship between each of these independent variables and FD. The interaction between the independent variables and ESG (DAR * ESG, KA * ESG, CR * ESG, RBC * ESG, and SG * ESG) is included to test this moderating effect.

This study uses panel data regression analysis with the help of Eviews 13 software, which combines time-series data (2020-2023 period) and cross-sectional data (26 sample companies). The panel data regression model selection is carried out using the Chow Test, Hausman Test, and Lagrange Multiplier Test to determine the best model (Common Effect, Fixed Effect, or Random Effect). The suitability of the panel data regression model is evaluated through two main tests. First, the Model Significance Test (F-Test) is used to assess whether all independent variables simultaneously have a significant effect on the dependent variable. This test determines the overall validity of the model. Second, the Coefficient of Determination (R^2) measures how well the variation in the dependent variable can be explained by the variation in the independent variables, with values closer to 1 indicating a higher predictive ability of the model. Next, the hypothesis testing is carried out using the Independent Variable Significance Test (t-Test). This test serves to determine the individual influence of each independent

variable on the dependent variable, identifying which variables significantly influence FD.

4. RESULTS

4.1. Descriptive Statistics

Based on the descriptive statistical analysis of Table 1, the research sample consisting of 26 life insurance companies for the 2020-2023 period shows substantial heterogeneity across all variables. Financial Distress, as measured by the Altman Z-Score, varies extremely (−4.760000-17.42000, with an average of 2.435673). This indicates a broad spectrum of perceptions of corporate bankruptcy, ranging from companies that neglect their financial health to those that fail to pay their obligations. In the DAR variable, there is a significant disparity in the level of adoption and performance (0.080000-0.970000, with an average of 0.682019).

The Insurance Claims variable was found to have a very extreme range of values (−0.960000-5.200000, with an average of 0.519327). The presence of a negative and significant minimum value indicates that not all insurance companies were successful in providing claims. Then, to the policyholders. The CR variable also shows significant (1.030000-12.28000, with an average of 1.892212), which indicates that the company utilizes its current assets well in meeting its obligations. The RBC variable also shows significant (0.070000-0.810000, with an average of 0.568077), which indicates that the insurance company has reasonable regulations in determining its financial health. The SG variable also shows significant (−0.940000-6.920000, with an average of 0.135865), which is negative and significant, indicating that not all insurance companies have succeeded in optimizing their insurance sales increase.

Lastly, ESG, which shows a value (average 0.210481, minimum to maximum value 0.060000-0.850000), confirms that in sustainability disclosure, its value is diverse. Overall, this descriptive statistical data highlights deep and broad heterogeneity among Indonesian life insurance sector companies in their influence on FD, DAR, KA, CR, RBC, and SG. Extreme variations in some variables imply the existence of complex and unique dynamics in this sector, which is an important basis for further regression analysis.

4.2. Correlation Analysis

Table 2 presents the correlation matrix between research variables, including FD, DAR, KA, CR, RBC, and SG. The correlation results show that FD has both negative and positive relationships with all independent variables: a negative correlation with DAR (−0.731376), RBC (−0.728656), and SG (−0.025208), and a positive correlation with KA (0.383557), CR (0.824210), and ESG (0.127663). Conversely, ESG shows a positive correlation with FD (0.127663) and a weak positive correlation with DAR (0.020326) and RBC (0.019732). The relationship between DAR and RBC (0.999788) shows a moderate positive correlation, DAR with SG (0.055732) and ESG (0.020326) shows a weak positive correlation, the correlation between KA and FD (0.383557) and CR (0.291180) shows a moderate positive correlation, and the correlation between CR and FD (0.824210) and KA (0.291180) shows a moderate positive correlation and the correlation between RBC and DAR (0.999788) shows a moderate positive correlation, RBC with SG (0.057463) and ESG (0.019732) shows a weak positive correlation. The correlation between SG and DAR (0.055732) and RBC (0.057463) shows a weak positive correlation. Overall, there are no very high correlation coefficients, indicating that these variables are pretty independent of each other in the model.

4.3. Results Estimation

4.3.1. Determinant of FD

Estimation of FD was conducted on two research models: model one without moderation and model two with moderation. The panel data regression models used three methods: CEM, FEM, and REM. Table 3 presents the diagnostic results of model selection based on the Chow test, Hausman test, and LM test, which concluded that REM was the most appropriate method. Thus, the interpretation and analysis of the study were based on the REM estimation results. Table 4 presents the panel data regression model estimation based on the REM method. Hypothesis testing was conducted using a t-test on a random effects model with a significance level (α) of 0.05, to examine the partial influence of independent and moderating variables on financial distress in the life insurance sector registered with the OJK in 2020-2023.

The test results show that the DAR estimation coefficient does not affect FD. The t-statistic probability value (0.2371) > 0.05, and the regression coefficient is negative (−22.68972). This indicates

Table 1: Descriptive statistics

Description	FD	DAR	KA	CR	RBC	SG	ESG
Mean	2.435673	0.682019	0.519327	1.892212	0.568077	0.135865	0.210481
Maximum	17.42000	0.970000	5.200000	12.28000	0.810000	6.920000	0.850000
Minimum	−4.760000	0.080000	−0.960000	1.030000	0.070000	−0.940000	0.060000

Table 2: Correlation matrix

Variable	FD	DAR	KA	CR	RBC	SG	ESG
FD	1	−0.731376	0.383557	0.824210	−0.728656	−0.025208	0.127663
DAR	−0.731376	1	−0.381096	−0.799863	0.999788	0.055732	0.020326
KA	0.383557	−0.381096	1	0.291180	−0.379445	−0.025377	−0.074976
CR	0.824210	−0.799863	0.291180	1	−0.797732	−0.049459	−0.050975
RBC	−0.728656	0.999788	−0.379445	−0.797732	1	0.057463	0.019732
SG	−0.025208	0.055732	−0.074976	−0.049459	0.057463	1	−0.117155
ESG	0.127663	0.020326	−0.025377	−0.050975	0.019732	−0.117155	1

that a 1% increase in the DAR score is estimated to reduce FD by −22.68%. Meanwhile, KA has a positive and significant effect on FD. The t-statistic probability value (0.0163) < 0.05, but the regression coefficient is positive (0.569802). This means that every 1% increase in insurance claims has the potential to increase FD by 0.56%. The CR estimation coefficient has a positive and significant effect on FD. The t-statistic probability value (0.0000) < 0.05, and the regression coefficient is positive (0.970238). This indicates that every 1% increase in CR will increase FD by 0.97%. RBC does not affect FD. The probability value of the t-statistic (0.1998) is >0.05, but the regression coefficient is tremendous and negative (29.03430). SG does not affect FD. The probability value of the t-statistic (0.3219) is >0.05, but the regression coefficient is negative (−0.113997). This means that every 1% increase in SG is estimated to reduce FD by −0.11%. ESG does not affect FD. The probability value of the t-statistic (0.5290) is greater than 0.05, but the regression coefficient is negative (−0.823641). This means that every 1% increase in ESG is estimated to reduce FD by −0.82%.

4.3.2. Analysis of the moderating effect

Tables 5 and 6 present the estimated effects of DAR, KA, CR, RBC, and SG on FD, with ESG acting as a moderator variable. The results of the diagnostic test for selecting a panel data regression model indicate that REM is the appropriate method. Hypothesis testing was conducted using a t-test on a random effects t-model for the 2020-2023 period of financial distress in the life insurance sector registered with the OJK, with a significance level (α) of 0.05. The test results show that the estimated coefficients show varying findings regarding their effect on FD. DAR has no effect on FD (coefficient −21.15403; P = 0.5335), supporting the hypothesis that well-managed DAR can prevent FD. Conversely, Insurance Claims show a significant positive effect on FD (coefficient 1.720994; P = 0.0271), in accordance with the hypothesis that high claims can cause financial distress. For CR, it was found to have no effect (coefficient −8.419857; P = 0.1638), which means that increasing current assets tends to reduce FD, consistent with the hypothesis that increasing CR can prevent FD. RBC does not affect FD (coefficient 27.05260; p-value 0.5047), in accordance with the hypothesis that companies that have good RBC can improve financial performance and prevent FD. SG does not affect FD (coefficient −0.175652; P = 0.5104), in accordance with the hypothesis that increasing sales growth can prevent FD. In the moderation test, ESG was proven to significantly weaken the positive impact of DAR on FD (interaction coefficient 17.05802; P = 0.9185), supporting the moderation hypothesis. The ESG test was proven to significantly weaken the positive impact of KA on FD (interaction coefficient −6.959016; P = 0.1519), supporting the moderation hypothesis. However, ESG did not significantly moderate the relationship between CR and FD (interaction coefficient 9.982838; P = 0.0002). ESG was proven to significantly weaken the positive impact of RBC on FD (interaction coefficient −35.56426; P = 0.8587), supporting the moderation hypothesis. Finally, ESG is proven to significantly weaken the positive impact of SG on FD (interaction coefficient 0.614189; P = 0.8348), indicating that companies with ESG do not always weaken financial distress but can also strengthen the occurrence of FD.

Table 3: Diagnostic test results without moderation

Effects test	Statistics	Prob	Result
Chow test	197.705670	0.0000	CEM>FEM
Hausman test	15.860826	0.0145	REM>FEM
LM test	74.76987	0.0000	CEM>REM

Table 4: Panel data regression model estimation without moderation

Variables	Coefficients	t-value	P-value
DAR	−22.68972	−1.192281	0.2371
KA	0.569802	2.460100	0.0163
CR	0.970238	6.167143	0.0000
RBC	29.03430	1.294110	0.1998
SG	−0.113997	−0.997444	0.3219
ESG	−0.823641	−0.632545	0.5290
R^2		0.961744	
Adjusted R^2		0.945272	
F statistic		58.38823	

***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively

Table 5: Diagnostic test results with moderating effects

Effects test	Statistics	Prob	Result
Chow test	196.179923	0.0000	CEM>FEM
Hausman test	9.217036	0.5116	FEM>REM
LM test	74.76987	0.0000	CEM>REM

5. DISCUSSION

Leverage has no impact on FD, indicating that the debt-to-asset ratio does not increase the risk of insurance companies experiencing financial distress. Insurance companies have relatively low debt levels compared to their assets, so they have substantial reserves to cover liabilities in the event of FD. The study's findings contrast with many empirical findings that reveal an adverse effect of leverage on FD. Isayas (2021) showed that leverage is negatively correlated with FD. Rosalika et al. (2024), Zelie and Wassie (2019), and Zelie (2019) all demonstrated that leverage negatively impacts insurance companies' FD. Kebede et al. (2024) found the opposite, indicating that leverage has a positive impact on FD. Chiaramonte and Casu (2017) also revealed that companies with high leverage ratios generally face a greater risk of bankruptcy or FD because their liabilities exceed their assets or equity.

Table 6: Panel data regression model estimation with moderation effects

Variables	Coefficients	t-value	p-value
DAR	−21.15403	−0.624941	0.5335
KA	1.720994	2.245206	0.0271
CR	−0.645603	−1.403433	0.1638
RBC	27.05260	0.669730	0.5047
SG	−0.175652	−0.660749	0.5104
DAR*ESG	17.05802	0.102651	0.9185
KA*ESG	−6.959016	−1.444682	0.1519
CR*ESG	9.982838	3.851784	0.0002
RBC*ESG	−35.56426	−0.178514	0.8587
SG*ESG	0.614189	0.209197	0.8348
R^2		0.676206	
Adjusted R^2		0.641389	
F statistic		19.42197	

***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively

Insurance claims have a positive and significant impact on FD. This finding suggests that increasing insurance claims relative to premiums earned can increase the potential for insurance companies to experience FD. Insurance companies experience a significant decrease in cash flow when insurance claims are higher due to increased expenses in insurance business operations, resulting in a lower ability to pay obligations. The results of this study are in line with the findings of Kabede et al. (2024) and Yusuf and Dansu (2014), who proved that the higher the premium claims compared to premiums earned, the higher the likelihood of an insurance company experiencing FD. Isayas (2021) found that the ratio of claims incurred to premiums earned positively impacts the FD of insurance companies. Dewi (2017) revealed that the ratio of losses incurred positively impacts the occurrence of FD. Different results were revealed by Asmar and Farhood (2024), who found that the loss ratio negatively impacts the Altman Z-Score, increasing the likelihood of FD for insurance businesses.

Liquidity (CR) has a direct positive effect on FD, indicating that an increase in the ratio of current assets to current liabilities increases the likelihood of a company experiencing FD. The study's findings align with the findings of Rosalika et al. (2024), who demonstrated that the liquidity ratio positively impacts FD reduction. Zelie (2019) found that insurance companies' liquidity levels positively impact FD. Dewi (2017), Chiaramonte and Casu (2017), and Waqas and Md-Rus (2018) all revealed that liquidity positively impacts FD. A different finding was revealed by Liahmad et al. (2021), who demonstrated that liquidity has no impact on FD.

Risk-Based Capital (RBC) does not affect FD. This finding indicates that changes in RBC do not pose a concern for insurance companies in Indonesia regarding FD. For insurance companies, RBC is related to compliance with capital regulations and meeting the minimum thresholds set by regulators, which can impact financial health. RBC is A ratio that measures an insurance company's capital capacity to cover all the risks it faces. The higher the RBC ratio, the greater the insurance company's capital strength to meet long-term obligations (solvency), thus strengthening the brand in the event of FD. The research findings align with those of Kristanti et al. (2022) and Dewi (2017), who found that RBC had no impact on insurance companies' FD. A different finding was revealed by Asmar and Farhood (2024), who concluded that capital adequacy positively impacted the Altman Z-Score, reducing the likelihood of FD for insurance companies.

Sales growth does not affect FD. This finding indicates that premium income, which tends to experience unpredictable changes, impacts the uncertainty of insurance companies experiencing FD. The research findings align with Dewi (2017), who also proved that the premium growth ratio does not affect insurance company FD. Kebede et al. (2024) revealed that profit growth has a positive impact on the likelihood of insurance companies experiencing FD. Insurance companies that experience increased sales and profits improve their financial performance and reduce their risk of FD. Kristanti et al. (2022) found that premium growth has a positive effect on the FD of life insurance companies in Indonesia.

ESG, as a moderator variable in a study of five moderated financial factors, only liquidity has a positive impact on the likelihood of FD in insurance companies. This finding indicates that the interaction of ESG with liquidity reduces the likelihood of FD in insurance companies. Another explanation is that ESG practices improve the reputation of stakeholders, especially customers, and increase premium revenue, thus ensuring smooth company liquidity. Higher insurance company liquidity reduces the likelihood of FD. Conversely, FD occurs when liquidity is insufficient to cover liabilities (Citterio and King, 2023). Chang et al. (2013) revealed that good ESG performance can improve the quality, productivity, efficiency, and effectiveness of operational management, thereby reducing the likelihood of FD. A different finding was revealed by Rosalika et al. (2024), who found that ESG practices can weaken the relationship between liquidity and the potential for reducing FD. Antunes et al. (2023) found that companies with higher ESG risk scores were less likely to experience FD.

6. CONCLUSION

Factors that control insurance companies experiencing financial distress (FD) are crucial, especially considering the failure of many insurance companies in Indonesia to pay claims to customers. A study of 26 insurance companies in Indonesia selected as samples revealed that insurance claim payments, sufficient cash flow availability, and ESG practices are key factors in determining a company's potential for experiencing FD. Insurance companies with high liquidity have greater liquid assets, can more easily cover their fixed costs, and are less likely to go bankrupt. A positive relationship between the claims ratio and FD indicates that increasing claims burdens can damage the insurance company's financial health and, consequently, increase the risk of financial distress. The study also demonstrated that insurance companies experiencing FD are reluctant to disclose high-quality ESG reporting.

The research conducted is not without several limitations. First, ESG disclosure data is based solely on information provided in companies' sustainability reports. Meanwhile, there is no requirement to publish sustainability reports in Indonesia, thus limiting the research observations and sample size. Second, the assessment of ESG performance focuses solely on ESG reporting, not on actual activities. The weakness of using the Altman Z-score to measure financial distress, in addition to the emergence of many more contemporary and suitable financial distress models for insurance companies (Nurhayati et al., 2022). Fourth, the study only focused on the internal factors that control FD, suggesting that other factors may play a greater role in determining the likelihood of an insurance company experiencing FD. Therefore, it is recommended that further research incorporate other company-specific and macroeconomic factors, including profitability, board of directors, ownership structure, corrupt practices and abuse of authority, regulations, the rule of law, and other factors that impact an insurance company's financial performance.

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