The Influence of Environmental Investment, Climate Risk Exposure, and Earnings Quality on Cost of Debt in Energy Companies Listed on the Indonesia Stock Exchange Period 2021–2024

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Abstract

This study aims to analyze the influence of Environmental Investment (EI), Climate Risk Exposure (CRE), and Earnings Quality (EQ) on Cost of Debt (COD) in energy sector companies listed on the Indonesia Stock Exchange (IDX) for the period 2021–2024. This study employs a quantitative approach using unbalanced panel data comprising 17 companies and 68 observations. Model selection was conducted through the Chow test, Breusch-Pagan LM test, and Hausman test, resulting in the Random Effects Model (REM) with robust standard errors as the best-fit model. The partial test (z-test) results indicate that Environmental Investment, Climate Risk Exposure, and Earnings Quality do not significantly affect Cost of Debt, leading to the rejection of all main hypotheses. Firm size is the only variable that shows a significant negative effect on Cost of Debt. Simultaneously, all variables significantly influence Cost of Debt with an overall R-squared value of 17.74%. These findings suggest that the transmission mechanism of climate risk and environmental investment signals to the cost of debt has not yet functioned effectively in Indonesia's credit market during the study period.

Keywords : *environmental investment, climate risk exposure, earnings quality, cost of debt, energy sector.*

Pengaruh *Environmental Investment, Climate Risk Exposure, dan Earnings Quality* terhadap *Cost of Debt* pada Perusahaan Energi yang Terdaftar di Bursa Efek Indonesia Periode 2021–2024

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Abstrak

Penelitian ini bertujuan untuk menganalisis pengaruh *Environmental Investment* (EI), *Climate Risk Exposure* (CRE), dan *Earnings Quality* (EQ) terhadap *Cost of Debt* (COD) pada perusahaan sektor energi yang terdaftar di Bursa Efek Indonesia (BEI) periode 2021–2024. Penelitian ini menggunakan pendekatan kuantitatif dengan data panel tidak seimbang yang terdiri dari 17 perusahaan dan 68 observasi. Pemilihan model estimasi dilakukan melalui uji Chow, uji BreuschPagan LM, dan uji Hausman yang menghasilkan *Random Effects Model* (REM) dengan *robust standard errors* sebagai model terbaik. Pengujian asumsi klasik meliputi uji normalitas, multikolinearitas, heteroskedastisitas, dan autokorelasi. Hasil uji parsial (uji z) menunjukkan bahwa *Environmental Investment, Climate Risk Exposure*, dan *Earnings Quality* tidak berpengaruh signifikan terhadap *Cost of Debt*, sehingga seluruh hipotesis utama ditolak. Satu-satunya variabel yang berpengaruh signifikan adalah *firm size* yang menunjukkan pengaruh negatif terhadap *Cost of Debt*. Secara simultan, seluruh variabel berpengaruh signifikan terhadap *Cost of Debt* dengan nilai *overall R-squared* sebesar 17,74%. Temuan ini mengindikasikan bahwa mekanisme transmisi risiko iklim dan sinyal investasi lingkungan terhadap biaya utang belum bekerja secara efektif di pasar kredit Indonesia selama periode penelitian.

Kata kunci : *environmental investment*, *climate risk exposure*, *earnings quality*, *cost of debt*, sektor energi