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# THE INFLUENCE OF GEOPOLITICAL RISKS ON STOCK PRICE CRASH WITH ESG MODERATION IN INDONESIA

**Katherine Hartati, Kim Sung Suk**
Universitas Pelita Harapan

A R T I C L E I N F O

**Keywords:** System of Information Management Utilization, Organizational Performance, Knowledge Management, Employee Engagement

**Kata Kunci**: Pemanfaatan SIM, Organizational Performance, Knowledge Management, Employee Engagement

Corresponding author:

**Kim Sung Suk**
Sungsuk.kim@uph.edu

***Abstract***. Stock prices can indicate a company's development activity and show the investment commitment made by investors. However, under certain conditions, there is often a significant decline in stock prices which is called a market crash, such as due to geopolitical risk. This study aims to examine how geopolitical risk affects market crashes and how ESG performance is able to suppress market crashes. This study was conducted quantitatively on 64 companies with a sample of 353 data in the period 2013-2022. Testing was carried out using panel data regression. The results of the study showed that GPR did not have a significant effect on market crashes, so ESG performance was also unable to moderate the effect of GPR on market crash risk.

**Abstrak.** Harga saham dapat menunjukkan aktivitas perkembangan suatu perusahaan dan menunjukkan komitmen investasi yang dilakukan oleh investor. Namun, pada kondisi tertentu, sering terjadi penurunan harga saham yang signifikan yang disebut dengan market crash, seperti akibat risiko geopolitik. Penelitian ini bertujuan untuk mengkaji bagaimana risiko geopolitik mempengaruhi market crash dan bagaimana kinerja ESG dapat menekan market crash. Penelitian ini dilakukan secara kuantitatif terhadap 64 perusahaan dengan sampel sebanyak 353 data pada periode 2013-2022. Pengujian dilakukan dengan menggunakan regresi data panel. Hasil penelitian menunjukkan bahwa GPR tidak memiliki pengaruh yang signifikan terhadap market crash, sehingga kinerja ESG juga tidak mampu memoderasi pengaruh GPR terhadap risiko market crash.

## INTRODUCTION

One of the indicators for measuring a country's economy is the stock price index (Barone, 2023), because stock prices can indicate a company's development activity and show the investment commitment made by investors. Investments made by investors show a commitment to a certain amount of funds or other resources placed in a particular company with the aim of gaining profits in the future, so that when investors make an investment it is the same as showing the investors' optimism towards the economic conditions of a country.

The rise and fall of a company's share price is greatly influenced by economic factors, especially global factors such as geopolitical risk. Caldara & Iacoviell (2022) defines geopolitical risk as the risk associated with various types of geopolitical events that affect peace in international relations, such as war, terrorism, and tensions between countries. Geopolitical events such as the trade war between China and the United States, tensions between Russia and the United States, the war between Syria, the North Korean crisis, and the fragmentation of Europe raise concerns about geopolitical risk because they have a potentially negative effect on economic prospects (Kaligis et al., 2023).

Geopolitical risks have the potential to become one of the obstacles to global economic growth (Jung et al., 2021). Especially in the Indonesian economy which is dominated by Micro, Small and Medium Enterprises (MSMEs), where the MSME sector contributes to 61% of Indonesia's Gross Domestic Product (GDP) value (Noviyanti, 2022). MSMEs are known to be more vulnerable to instability in the business environment because macroeconomic and corporate-level changes have a significant impact on their policies, especially investment. Thus, geopolitical risk can be seen as a negative shock to small and medium-sized business investment because small companies often do not have the organizational capabilities in project management to deal with uncertainties caused by the business environment (Le & Tran, 2021). Therefore, the Indonesian economy, which is still supported by MSMEs, can be very easily disrupted if geopolitical risks occur, which can then create economic instability and of course have an impact on investors' views. Fiorillo et al. (2024) in his research, he showed that geopolitical risk can cause the stock market to crash, which means there is a significant decline in stock prices.

Geopolitical risk is the risk associated with war, terrorist acts, and tensions between countries that affect the normal and peaceful course of international relations (Caldara & Iacoviell, 2022). If this risk occurs, it can cause various negative impacts on international trade such as increasing import and export tariffs, decreasing supply of certain goods, and changes in government regulations in a country (Tan et al., 2022). The uncertainty of the risks that occur will have an impact on the financial market, potentially causing stock prices to crash or fall.

Geopolitical risk can also trigger the government to implement monetary policy, especially when there is an increase in the price of basic goods or inflation by increasing interest rates (Bossman et al., 2023). Increasing interest rates can of course also affect the price of shares in circulation and even crash due to the uncertainty of geopolitical risk. Previous studies have shown that stock returns (Bevilacqua et al., 2020; Corbet et al., 2019), commodity markets (Hayati & Rifaldi, 2023), and economic output and growth (Akadiri et al., 2020; Lee & Lee, 2020) are all affected by geopolitical risk. Fiorillo et al. (2024) in their study also showed that geopolitical risk can significantly affect stock price crash risk. Similar research conducted by Sumarjo & Mangantar (2022) also showed that geopolitical risk can affect stock returns in the Indonesian market. Geopolitical risk is the risk associated with war, terrorist acts, and tensions between countries that affect the normal and peaceful course of international relations (Caldara & Iacoviell, 2022). If this risk occurs, it can cause various negative impacts on international trade, such as increasing import and export tariffs, decreasing the supply of certain goods, and changes in government regulations in a country (Tan et al., 2022). The uncertainty of the risks that occur will have an impact on the financial market, potentially causing stock prices to crash or fall.

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*Market crash or stock price crash risk is an extreme drop in stock prices in a short period of time.* (Murata & Hamori, 2021) A crash is a terrible event for market participants. Such negative movements can occur at the aggregate market level or at the single stock level. When an investor with a large position in a stock experiences a significant crash, it can have a major impact on his reputational capital. Indonesia itself has experienced several market crashes in the last 20 years, where in 2008 there was a crash caused by the Mortgage crisis, the financial crisis in 2014 and 2016, and the crisis that occurred in 2020 due to the Covid-19 pandemic (Sitorus et al., 2022). Stock Price Crash Risk can occur globally, nationally or at the company level itself. Stock Price Crash Risk that occurs at the company level usually occurs when there is a negative issue regarding the company. So at the company level, Stock Price Crash Risk can also be avoided by strengthening the internal conditions of the company itself.

Companies can mitigate the potential for Stock Price Crash Risk by strengthening internal conditions and showing the public that the company is also focused on development activities, investments and sustainable businesses which are then related to the ESG concept. ESG is an abbreviation for the concept of Environmental, Social and Governance (de Villiers et al., 2023).

ESG is a non-financial analysis framework that comprehensively evaluates a company's sustainability in the areas of environment (E), social (S), and corporate governance (G) (S. Wang & Wang, 2022). When a company meets all aspects of ESG, the company is considered to be able to prove that they care about the surrounding environment and implement applicable regulations correctly (Nisa et al., 2023). This will then give rise to the perception that the company does not have significant internal problems because it can still prioritize the benefits of the wider community, which of course will attract the attention of many investors to make investments.

Investors who pay attention to a company because of its high ESG disclosure will certainly give more value to the company, so it is thought that it can survive the Stock Price Crash Risk even though the geopolitical risk situation occurs (Liu, 2023). Because the risk of falling stock prices often affects the stability of the company's development, causing disruption of the financial order and loss of market financing capacity, ESG performance needs to be applied to the analysis of the risk of falling stock prices (Liu, 2023). Research conducted by Fiorillo et al. (2024) shows that ESG disclosure can negatively moderate the effect of geopolitical risk on Stock Price Crash Risk.

ESG is a non-financial analysis framework that comprehensively evaluates a company's sustainability in the areas of environment (E), social (S), and corporate governance (G) (X. Wang et al., 2023). When a company fulfills all aspects of ESG, then the company is considered to be able to prove that they care about the surrounding environment and implement the applicable rules correctly. This will then give rise to the perception that the company does not have significant internal problems because it can still prioritize the benefits of the wider community, which of course will attract the attention of many investors to make investments.

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Companies that implement the ESG concept well show that the company will be able to survive complex social challenges and environmental changes.Investors who pay attention to a company because of its high ESG disclosure will certainly have a high company value, so it is thought that it can survive the Stock Price Crash Risk even though the geopolitical risk situation occurs. Research conducted by Fiorillo et al. (2024) shows that ESG disclosure can negatively moderate the effect of geopolitical risk on Stock Price Crash Risk.

## DATA AND EMPIRICAL MODEL

This study aims to examine the influence of geopolitical risk and how ESG can mitigate the influence of geopolitical risk on the stock price crash. This study was conducted using a sample of public company data in Indonesia for the period 2010–2022, where the sample companies used were all public companies that had ESG disclosure data. There are 3 variables in this study, namely stock price crash risk, geopolitical risk, environment, social, and governance (ESG), and several control variables with the following measurement details:

***Table 1.*** *Measurement Variable*

| Variable | Definition | Operational |
|---|---|---|
| Stock Price Crash | *Market crash or stock price crash risk is an extreme drop in stock prices in a short period of time.* | $NCSKEW = \frac{n(n-1)^{\frac{3}{2}} \sum_{i=1}^{n} R_{i,t}^3}{(n-1)(n-2)(\sum_{i=1}^{n} R_{i,t}^3)^{\frac{3}{2}}}$ <br> $DUVOL = \ln\left(\frac{(n_{up}-1)\sum_{down} R_{i,t}^2}{(n_{down}-1)\sum_{up} R_{i,t}^2}\right)$ <br> N_Crash. The number of crashes in a given fiscal year. A crash occurs each time a firm-specific weekly return is 3.09 standard deviations below the firm's average residual return |
| Asset | Total assets of the company | Ln (Total asset) |
| *Debt to equity ratio (DER)* | A financial ratio that shows the relative proportions of shareholders' equity and debt used to finance a company's assets. | $DER = \frac{\text{Total liabilities}}{Total\ equity}$ |
| *Profitability* | EBIT to total book assets ratio | $BEP = \frac{EBIT}{Total\ book\ asset}$ |
| *Market value* | The ratio of trading volume to market value of equity | $MKT = \frac{\text{Trading volume}}{Market\ value}$ |
| *Market Value to Book value* | Market value to book value ratio | $MTB = \frac{\text{Market value}}{Book\ value}$ |

Data analysis was carried out using panel data regression with the following empirical model:

$$Stock_{i,t} = \alpha_0 + \beta_1 GPR_{i,t} + \beta_2 ESG_{i,t} + \beta_3 GPRxESG + \beta_4 Controls + \varepsilon_{i,t}$$

Information :

$\beta_1\ GPR_{i,t}$ : Geopolitical Risk

$\beta_2\ FinCrisis_{i,t}$ : Financial Crisis

$\beta_3\ ESG_{i,t}$ : ESG ratio

$\beta_3\ GPR\ x\ ESG_{i,t}$ : Moderasi ESG Ratio

$\beta_4\ Control_{i,t}$ : Variabel Kontrol

## EMPIRICAL RESULTS

### Descriptive Statistic

Table 2 shows that the GPR value in the observation data has an average value of 4,637 with a minimum value of 4,356 and a maximum value of 5,249. The GPR variable in this study uses the LN value in the GPR data obtained from the measurements Caldara & Iacoviell (2022).

**Table 2.** Descriptive Statistic

| Variable | Obs | Mean | Std. dev. | Min | Max |
|---|---|---|---|---|---|
| **GPR** | 353 | 4.637 | 0.293 | 4.356 | 5.249 |
| **ESG** | 353 | 3.682 | 0.518 | 2.100 | 4.496 |
| **ESGxGPR** | 353 | 17.085 | 2.717 | 9.770 | 23.298 |
| **NCSKEW** | 353 | -2.863 | 11.457 | -104.774 | 76.355 |
| **DUVOL** | 353 | -0.138 | 0.872 | -5.811 | 0.867 |
| **ASET** | 353 | 17.422 | 1.014 | 13.620 | 19.840 |
| **DER** | 353 | 1.201 | 1.396 | 0.115 | 9.874 |
| **BEP** | 353 | 0.241 | 0.468 | -4.527 | 3.531 |
| **MKT** | 353 | 1.267 | 2.110 | 0.000 | 14.382 |
| **MTB** | 353 | 3.305 | 5.082 | -14.378 | 34.393 |

N_Crash variable in this study was measured by using dummy data that pada penelitian ini diukur menggunakan data dummy according to the specified criteria. Out of 353 samples data, 43 of them received a value of 1, which means that a crash was considered to have occurred, while 310 of them received a value of 0, which means that a crash was considered not to have occurred.

**Empirical Findings**

The market crash variable in this study was measured by using 3 different measurements, namely NCSKEW, Duvol, and N_Crash, so that hypothesis testing was carried out on 3 different measurements. The results of the classical assumption test showed that there was autocorrelation in the research model that tested the influence on Ncksew and N_Crash, so the estimation was carried out using the feasible generalized least squares approach, while the model that tested the influence on Duvol experienced heteroscedasticity and autocorrelation, so the estimation was carried out using the Driscoll and Kraay approach. The following are the test results in this study :

**Table 3.** Impact of the ESG via moderation effect to stock crash risk

| Variable | NCKSEW | Duvol | Ncrash |
|---|---|---|---|
| **GPR** | 3.54 | -1.53 | -0.18 |
| | (0.18) | (-1.71) | (-0.72) |
| **ESG** | 4.96 | -1.46 | -0.21 |
| | (0.21) | (-1.45) | (-0.76) |
| **ESGxGPR** | -0.99 | 0.31 | 0.04 |
| | (-0.19) | (1.47) | (0.68) |
| **ASET** | -0.54 | 0.04 | -0.01 |
| | (-0.83) | (0.57) | (-1.46) |
| **BEP** | 0.40 | 0.17 | 0.01 |
| | (0.21) | (4.03)*** | (0.58) |
| **DER** | -0.70 | 0.01 | 0.03 |
| | (-1.59) | (0.27) | (2.95)*** |
| **MKT** | 0.13 | 0.05 | 0.00 |

| | | | |
|---|---|---|---|
| | (0.43) | (3.00)*** | (-1.71)* |
| **MTB** | -0.34 | -0.02 | 0.00 |
| | (-1.89) | (-0.95) | (-0.34) |
| **_cons** | -9.63 | 6.24 | 1.03 |
| | (-0.10) | (1.21) | (0.89) |
| **Obs** | 353 | 353 | 353 |
| **F Stat** | 11.95 | 18058.37 | 12.92 |

The absence of a significant influence of geopolitical risk on the stock market crash in Indonesia shows that global risk does not always evenly affect stock market conditions in all countries in the world. The absence of a significant influence between geopolitical risk and the stock market in Indonesia can also be caused by the fact that the effects of geopolitical risk tend not to always occur in the long term and only have an effect of a few months, such as what happened when there was a geopolitical trade risk between China and America in the first quarter of 2018. Where the stock market in Indonesia experienced a significant decline but recovered at the end of the year, as well as when the COVID-19 pandemic occurred, stock prices experienced a significant decline in the first quarter of 2020 but recovered at the end of 2020.

Geopolitical risk and financial crises have a direct impact on stock price crashes, and environmental performance disclosure as measured by ESG (Environmental, Social, and Governance) cannot mitigate this effect. More than 70% of businesses have canceled merger and acquisition agreements because of environmental, social, and governance (ESG) concerns, according to a survey by the global survey institute Delloite (Segal, 2024). They are also prepared to pay extra for targets that have strong environmental, social, and governance (ESG) attributes, according to the survey results. 500 M&A executives from $500 million and above in revenue as well as private equity firms managing $1 billion or more in assets were polled by Deloitte across North America, Europe & the Middle East, and Asia Pacific. This demonstrates that ESG is a crucial component that investors take into account before making an investment.

The standard of non-financial information released by the board of directors has a direct impact on the sustainability of the business. Investor decisions to purchase the company's shares are influenced by growing investor confidence in the non-financial information the company currently provides (Gregorius Jeandry & Nurdin, 2023). Using it to clarify non-financial data is a sustainability reporting strategy for crash risk. They discovered that investors' information asymmetry is lessened by high-quality sustainability reporting, which lowers the likelihood of future corporate collapses. Pereira (2022) in his research showed ESG disclosure with crash risk in global companies from 2007-2019, concluding that ESG disclosure was able to weaken the risk of a company's crash in the future. So it can be concluded that ESG disclosure is able to mitigate the risk of a company's stock price falling in the future.

Although various literature shows that ESG is able to mitigate the risk of a crash in the stock market, the results of this study show that ESG is unable to moderate geopolitical risk and financial crisis. The absence of ESG moderation on the influence of geopolitical risk and financial crises on stock price crashes could possibly occur due to several factors, such as when a crisis occurs, investors pay more attention to the sustainability or survivability of the company.

## CONCLUSIONS

The findings indicate that geopolitical risk has a major impact on the collapse of Indonesian stock prices. Therefore, it is advised that investors consider geopolitical concerns when making investments as they have an impact on the stock prices that investors will buy. The study's findings suggest that geopolitical risk has a negative impact on stock price crashes, but the monthly stock price data trend indicates that stock prices have dropped sharply in just one or two quarters before rising sharply in the subsequent period. This demonstrates that the stock market crash in Indonesia is only momentary. By paying attention to geopolitical risk, investors can avoid a crash on the Indonesian stock market. It is hoped that further research can conduct analysis on the same type of industry with additional wider samples such as in the ASEAN market, because not many companies in Indonesia have carried out good ESG disclosures.

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