

## GEOPOLITICAL RISK AND STOCK PERFORMANCE IN HEALTHCARE INDUSTRY (CASE STUDY IN SOUTHEAST ASIA)

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### Abstract

*The healthcare industry is historically viewed as a non-cyclical defensive safe haven to investors. The after-pandemic period has revealed the susceptibility of the industry to the impact of the world supply chains and geopolitical tensions, however. The present research examines the effects of Geopolitical risk (GPR) on stock performance of 76 publicly listed healthcare companies in Southeast Asia (Indonesia, Malaysia, Philippines, Thailand, Vietnam, and Singapore) in a timeframe of 2015-2024. According to the Caldara and Iacoviello GPR Index, this study utilizes Panel Autoregressive Distributed Lag (ARDL) the results show that though general Geopolitical Risk and Inflation are strongly negatively impacting the stock performance, specific Geopolitical Acts (GPRA) and Threats (GPRT) are having a positive response indicating a necessity premium in which investors expect a boom in demand of medical supplies once a conflict is realized. It concludes that the healthcare industry is not a safe haven but highly fragmented environment where inflation is an even bigger threat to the company as compared to the political instability itself. The study advises that the investors should consider a bottom-up approach, which is micro-resilience screening, and corporate managers should focus on supply chain decoupling and inflation hedging as a way of overcoming the Resilience Gap that has been found within the region.*

**Keywords:** *Geopolitical Risk (GPR); Healthcare Industry; Southeast Asia; Stock Performance; ARDL*

### 1. INTRODUCTION

Geopolitical risk (GPR) is an increasingly noticeable cause of uncertainty in the contemporary world, and it defines the way firms do business, and investors act in political and economic markets. The COVID-19 pandemic prompted businesses to discover that not only economic cycles disrupt them, but also political tension and conflict and international instability. Geopolitical risk is the likelihood, and the actuality of the occurrence of incidents like war, terrorism, sanctions, and interstate conflict that can disrupt the trade flows, investment choices, supply chains and confidence by the population (Aon, 2020)(D. , & I. M. Caldara, 2020).

Due to the swift reaction of the financial market to any form of uncertainty, increasing geopolitical risk tends to alter the prices of stocks even before the companies have begun to experience the effect in their day-to-day activities (Pastor, 2013). The necessity of this problem is obvious. Research always reveals that in a scenario where the geopolitical risk is increased, companies and individuals prefer to postpone making decisions. Firms are tendencies to be averse to expansion, hiring, or investment because they would rather wait

and watch what transpires (Shen, 2025). The investment-under-uncertainty theory explains this behavior better by stating that when uncertain, the value of delaying commitments goes up especially in situations in which investments are expensive and irreversible (Dixit, 1994).

Geopolitical risk is also associated with reduced stock returns and increased volatility, particularly in emerging markets where economic and institutional buffers might be less robust (Yilmazkuday, 2022). This is why geopolitical risk ceases to be a solely political issue, but a financial and a strategic one, which companies, investors, and policymakers need to take care of. The healthcare industry may appear to be a secure field at the time since the need to purchase medicine and health services will not decrease even in the time of the crisis. As a matter of fact, the pharmaceutical sector in the world economy is a significant part of the world economy and it also serves a significant share of global GDP (IFPMA & WiFOR, 2024).

Nevertheless, the healthcare companies rely on international supply chains, as well. Most companies are dependent on foreign raw materials like active pharmaceutical ingredients (APIs), medical equipment, and laboratory supplies. This pandemic showed the vulnerability of this global network, and it forced most companies to rethink their priorities instead of focusing on mere efficiency and start thinking about resilience (Javorcik, 2020). The weakness of supply is also worse since the production of API is concentrated in a small number of countries, which results in increased exposure to export bans, sanctions, logistical interference, and trade restrictions in the event of a geopolitical conflict (Kearney, 2022).

Consequently, a so-called defensive sector may also be stressed when geopolitical instability interferes with the supply, grows expenses, and obscures the prospects. These issues are particularly applicable in southeast Asia. The region is experiencing increased healthcare demand and is usually considered to be a potential market with a bright future of investment and is often considered a potential pharmerging market (DrugPatentWatch, 2025). Simultaneously, Southeast Asia occupies a geopolitically tense area which involves persistent conflicts in South China Sea and increasing US-China rivalry that influences trade and security in the region (Gong, 2025). The ASEAN stock markets have also been generally known to be susceptible to shocks in the world market since the region is largely dependent on trade and foreign investment (Hooper & Kim, 2018).

Moreover, other limiting factors to the healthcare system of Southeast Asian countries include comparatively low expenditure on the population health and reliance on the imported medical supplies, which can leave the segment more exposed to inflation and supply shocks (Comrise, 2024; Hooper & Kim, 2018). That is, the region is developing at a rapid pace, yet the healthcare sector is still vulnerable to geopolitical and macroeconomic vulnerability (Comrise, 2024; Pholpark et al., 2025), which means that it is a viable research subject. It is against this background that the aim of this study is to help improve the decision-making process by healthcare companies, investors, and policymakers in the region by offering evidence on the impact that geopolitical risk and macroeconomic conditions have on the performance of healthcare stocks in southeast Asia.

The paper concentrates on the impact of (1) aggregate geopolitical risk (GPR), (2) geopolitical threats (GPRT), and (3) geopolitical acts (GPRA) and takes into consideration essential macroeconomic controls economic growth, exchange rate and inflation. The study will be aimed at addressing the following questions: (1) Does the overall geopolitical risk influence healthcare stock performance in Southeast Asia? (2) What is the impact of

geopolitical threats (GPRT) on the performance of healthcare stocks? (3) What is the relationship between geopolitical acts (GPRA) and healthcare stock performance? (4) What are the impacts of macroeconomics (economic growth, exchange rate, and inflation) on the stock performance in the healthcare industry?

As a solution to these aims, the analysis will employ a panel ARDL design with healthcare firms listed in Southeast Asia in the period between 2015 and 2024. The proposed modeling approach is beneficial as it enables the study to investigate long-run relationships and consider the macroeconomic factor and evolving geopolitical factors in the long run (Pesaran et al., 2001).

It is anticipated to contribute to the literature in two respects: academically, the research will contribute to the accumulating debate on the question of the relationship between geopolitical risk and sectoral stock valuation; and practically, the study will offer an avenue of risk management (diversifying the supply chain and insuring against inflation) and investment strategy (risk-adjusted allocation) and policy response (macroeconomic stability and supporting domestic production capacity).

## 2. RESEARCH METHOD

The proposed research design is a quantitative, explanatory research design, which is to assess the effect of geopolitical risk and macroeconomic factors on the stock performance of healthcare firms in Southeast Asia in 2015-2024. The method employed in the study is a panel-data approach that will entail the time-series behavior as well as cross-sectional variance across firms. The estimation method is a Panel Autoregressive Distributed Lag (Panel ARDL) model since it can capture both short-run dynamics and long-run relationships when the variables are integrated at mixed orders,  $I(0)$  and  $I(1)$ , but not  $I(2)$  (Pesaran et al., 2001).

The design in general is composed of the following phases: identifying the target audience (sample companies), preparation and cleaning of secondary data, measuring the dependent, independent and control variables, carrying out stationarity checks, estimation of the Panel ARDL model, explaining how the independent and control variables impact on the dependent variable. The selection of target audience (sample / unit of analysis) will be carried out.

The target population in this study is the publicly listed healthcare firms in Southeast Asia. The sampling is the purposive sampling, and the inclusion criteria are as follows: 1) The company belongs to the pharmaceuticals, healthcare equipment, medical services, hospitals, or related subsectors of its national exchange (healthcare-related); 2) This is a publicly traded company with apparent stock performance data and; 3) the company has full annual observations within the period of study (2015-2024) or enough data points to be used in the balanced panel estimation.

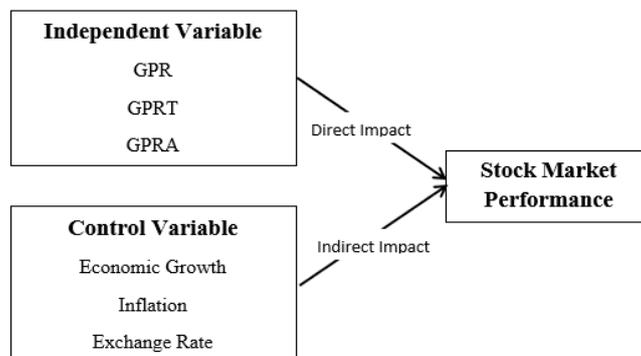
The firm-year observation is the unit of analysis, and the sample size is companies in the Southeast Asian stock exchange like Indonesia, Malaysia, the Philippines, Thailand, and Vietnam and Singapore (depending on the availability of consistent data over the period) in the dataset.

**Materials and Tools** In this research, secondary data is used which are gathered as follows: 1) The information on stock performance (annual/periodic stock prices based

measures) of national stock exchange and financial market databases; 2) The global Geopolitical Risk Index (GPR) and its sub- indices, which are Geopolitical Threats (GPRT) and Geopolitical Acts (GPRA), by Caldara and Iacoviello; 3) Macroeconomic indicators (inflation, GDP growth, exchange rate) of official sources (central banks, national statistics offices, international databases e.g. World Bank/IMF indicators). Econometric estimation will rely on the main analytical tool, which is EViews 13, and spreadsheet processing (Microsoft Excel) will be used to clean the initial data and construct variables.

The instrument in this research is the specification of the econometric models operationalizing the relationship between explanatory variables and the dependent variable. This model aims to be productive and valid by that the variables are not integrated at I(2), using lag selection to stabilize the inertia in stock returns, with long-run and short-run ARDL estimates that make the omitted-variable bias common in a static regression small, comparing significance with standard measures of inferential tests.

The research model for this study could be seen in figure 1 below.



The main model includes Dependent variable: performance of healthcare companies in terms of stock. Independent variables: GPR, GPRA, GPRT. Control variables: exchange rate, GDP growth, inflation. The variable is operationalized through the variable method, which is the second approach. The variables are defined as follows so that they can be clear and reproducible: Dependent Variable (Y): Healthcare Stock Performance (SP): an indicator of the stock performance of a firm, which is determined by the stock price movement (e.g. annual return, stock price index growth, or logged price change - depending on the dataset definition). Independent Variables (X): Geopolitical Risk (GPR): aggregate index of geopolitical risk. Geopolitical Threats (GPRT): the sub-index that represents the intensity of news content that is associated with threats. Geopolitical Acts (GPRA): sub-index that represents realized geopolitical events. Control Variables (C): Inflation (INF): the yearly rate of consumer prices inflation (%) Economic Growth (GDP): percentage per annum GDP growth. Exchange rate (EXR): exchange rate of the local currency to the USD.

The procedure of collecting data is as follows: select firms of the healthcare sector in every national stock exchange, calculate stock prices and the annual stock performance measures, extract GPR, GPRT, and GPRA indices of the published data of Caldara and Iacoviello, take macroeconomic indicators (INF, GDP, EXR) official, consoled all the data into a structured panel (firm x year), clean missing data and ensure unit of measurement consistency.

Stationarity Testing Prior to the estimation of ARDL models, the study verifies the stationarity nature of individual variables with the help of panel unit-root tests (e.g., Phillips-

Perron, CADF, or a range of other tests depending on the type of file methodology). This is to make sure that no variable is incorporated of order two, I(2), as ARDL demands I(0) or I(1) variables (Pesaran et al., 2001). Once stationarity is obtained, the paper approximates a panel ARDL model with a lag structure selected using standard criteria (AIC/SC). The overall long-run equation may be expressed as:

$$\Delta Y_t = \alpha_0 + \sum_{i=1}^p \beta_i \Delta Y_{t-i} + \sum_{j=0}^q \gamma_j \Delta X_{t-j} + \delta_1 Y_{t-1} + \delta_2 X_{t-1} + \epsilon_t$$

Where:

1.  $Y_t$  = Stock market performance (returns, volatility, market value)
2.  $X_t$  = Geopolitical Risk Index (overall, threats, acts)
3. Control variables = inflation, GDP growth, exchange rates
4.  $\Delta$  = first difference operator
5.  $\epsilon_t$  = error term

### 3. RESULTS AND DISCUSSION

#### 3.1 Model Feasibility and Descriptive Results.

This research analyses the effects of geopolitical risk and macroeconomic indicators on the healthcare stock performance in Southeast Asia between the year 2015 and 2024. The time-series characteristics of the variables also underwent scrutiny prior to estimating the main model to deem it appropriate in estimating a Panel ARDL framework. The stationarity tests results suggest that most of the variables are at the level of I(0) and exchange rate becomes at level I(1) after first differencing. These results meet the main ARDL criterion that variables are not to be integrated at I(2) which enables the estimation of the long-run relationship reliably (Pesaran, 2007). Upon establishment of the stationarity conditions, the pooled Panel ARDL model was estimated with the objective of establishing the long-run impact of each independent and control variable on healthcare stock performance.

#### 3.2 Long-Run Estimation Results

The estimates of the long-run coefficients show that geopolitical uncertainty and inflation are closely correlated with the determinants of stock performance in the healthcare sector in Southeast Asia. The major long-run outcomes are presented in Table 1.

**Table 1. ARDL Results**

Variable	Coefficient	Std. Error	t-Statistic	P-Value
<b>Long-run (Pooled)</b>				
<b>GPR Index (X1)</b>	-0.0179***	0.0055	-3.2469	0.0012
<b>GPRA Index (X2)</b>	0.0090***	0.0026	3.4421	0.0006
<b>GPRT Index (X3)</b>	0.0056**	0.0021	2.5654	0.0105
<b>Economic Growth</b>	0.0000	0.0000	-0.8878	0.3749
<b>Exchange Rate</b>	-0.0669	0.0610	-1.0962	0.2733
<b>Inflation</b>	-0.0402***	0.0098	-4.0951	0.0000

Variable	Coefficient	Std. Error	t-Statistic	P-Value
Constant (C)	0.5813***	0.1053	5.5182	0.0000
<b>Short-run (Mean-Group)</b>				
COINTEQ	-0.1388***	0.0403	-3.4445	0.0006
Log-likelihood	618.80			

It is indicated in the table that there are two predominant negative forces, which are overall geopolitical risk (GPR) and inflation (INF). Conversely, both the elements of geopolitical risks, namely, geopolitical acts (GPRA) and geopolitical threats (GPRT), are linked positively with the performance of healthcare stocks. The pooled long-run specification indicates that the statistically significant factors contributing to healthcare equities in the region in the pooled long-run are GDP growth and exchange rate, which indicates that the region is more susceptible to risk or uncertainty and price stability than the macro cycles.

### 3.3 Discussion and Interpretation of Findings

#### 3.3.1 Geopolitics Risk (GPR) and Stock Performance

The correlation is negative between the aggregate GPR index  $b = -0.0179$ , which means that increasing geopolitical uncertainty lowers healthcare stock performance in Southeast Asia. This observation confirms the thesis that with increased geopolitical tensions, the uncertainty and risk premiums are higher, and this lowers the appeal of equities (D. Caldara & Iacoviello, 2022; Pastor, 2013).

With uncertainty, investors would move the portfolio to lower-risk assets or require greater returns to expectation, and this would hold down equity prices (Dixit, 1994). Corporately, increasing GPR may also indirectly undermine performance of healthcare firms by affecting supply chains and causing procurement ambiguity. Southeast Asian healthcare companies remain somewhat reliant on imported pharmaceutical inputs (particularly of APIs and high-tech medical equipment) so that geopolitical instability can potentially increase costs by imposing trade limitations, logistical disruptions, or constraints on sanctions (Javorcik, 2020). In this way, the negative correlation that is witnessed in the model is a combination of financial market response and actual sector weaknesses.

#### 3.3.2 The most negative Control Variable is the Strategy with the Highest Control (INF).

The findings indicate that inflation  $b = -0.0402$  affects negatively the performance of healthcare stocks and is very significant. This means that price volatility is a significant factor which determines the valuation in the healthcare industry in the Southeast Asian region. The adverse impact of inflation is intersector with the stock valuation theory and the empirical finance evidence indicating that inflation decreases the real returns and generates pressure on firm profitability because of increased costs of production and increased discount rates (Fama, 1981; Geske & Roll, 1983).

Inflation can also be more pernicious in the context of healthcare since most companies cannot fully pass on the increased costs to consumers as a result of regulation, prices offered by the government through public purchasing and their affordability. Thus, the inflation shocks may decrease the anticipated gains enhancing the negative risk and lowering the stock performance.

### **3.3.3 The reason why GPRA and GPRT have positive effects**

An important observation is that the geopolitical risk-GPRA and GPRT components are positively correlated. However, this may be counterintuitive, but it is explained logically in terms of sectoral behavior and market expectations. To start with, healthcare is a necessity industry. Investors can use healthcare equities during the geopolitical tension periods or during the geopolitical occurrences, which are relatively defensive, when the cyclical sectors (tourism, manufacturing, discretionary consumption) rotate into healthcare stocks (Bouri et al., 2020). Second, geopolitical shocks tend to raise government preparedness expenditure, emergency medical expenditure budgets and public/private demand of medicines and medical equipment. This demand expectation effect can take hold and boost investor confidence in the prospects of revenue growth of healthcare companies, boosting stock performance even in times of crisis (Conlon & McGee, 2020). This positive coefficient, however, must be interpreted as how events-related information is reacted to in the market rather than to show that geopolitical instability is good in general. The overall GPR is negative, which means that consistent geopolitical uncertainty is harmful, and threat/act signs might reflect attention-seeking or event-driven market re-positioning.

### **3.3.4 GDP Growth and Exchange rate are not significant**

The pooled long-run model does not find any statistical significance in GDP growth and exchange rate. It does not imply that these variables are insignificant, but it shows that their overall effect is not the same across the sample. Indicatively, a healthcare company that gains export earnings in the currency may be positively impacted by currency depreciation, whereas pharmaceutical companies that are dependent on imports suffer because of the increased input costs. The offsetting effects have the capability of canceling (Bodnar & Bartram, 2007). In the same vein, the performance of the healthcare sector might not be directly proportional to the growth in GDP as healthcare demand is relatively inelastic and not entirely dependent on the business cycle conditions, particularly when the consumption levels of the population are kept at the necessary levels by the public spending and demand needed.

## **3.4 Implications of the Findings**

The findings offer several practical implications to the stakeholders of the healthcare sector in southeast Asia: For healthcare companies: To overcome geopolitical uncertainty

caused by demand and supply, firms must create resilience in their supply chains by enhancing diversification of supply chains, keeping strategic inventories, and minimizing reliance on imported APIs and medical equipment via regional sourcing or local production initiatives (Javorcik, 2020). Increased inflation risk management (cost controls, hedging, flexible procurement contracts) should also be put in place by businesses. For investors: Geopolitical risk measures should be put in the portfolio risk assessment by the investors. Although event-related geopolitical shocks (GPRA, GPRT) can be accompanied by positive healthcare returns, geopolitical uncertainty (GPR) decreases performance in the long run. Consequently, investors ought to differentiate between chronic uncertainty risk, and event-oriented sector rotation behavior (Bouri et al., 2020; D. Caldara & Iacoviello, 2022). For policymakers: The controllability of inflation becomes essential. Macroeconomic stability policies could empower the stock market and finance the healthcare sector's valuation. Moreover, the industrial policy that facilitates the local production of the pharmaceutical input can help to ensure that the vulnerability to external geopolitical disruptions is decreased (Javorcik, 2020).

#### 4. CONCLUSION

The following research was carried out in order to respond to the primary expectation made in the Introduction: to comprehend how geopolitical risk and significantly important macroeconomic conditions determine the stock performance of healthcare companies in Southeast Asia in the period between 2015 and 2024. These findings affirm that other geopolitical processes like geopolitics and domestic price stability are relevant in explaining the performance of healthcare equity in addition to the traditional macroeconomic variables in the form of growth and exchange rates. According to the findings and discussion, it is possible to draw several conclusions.

To begin with, geopolitical risk (GPR) on a general basis has major negative impact on the stock performance of health care and this implies that the ongoing geopolitical uncertainty lowers the investor confidence, raises risk premiums, and decreases equity value. Second, inflation presents the most negative effect, which implies that domestic price instability is a key risk to the value of healthcare firms in the area, which is probably due to the inflation increasing production costs, buying power, and the discount rates in the financial markets.

Third, the breakdown of the geopolitical risk is not a non-significant finding: the geopolitical threats (GPRT) and geopolitical acts (GPRA) are positively related to healthcare stock performance. It means that in times of increasing tensions or actualized geopolitical developments, healthcare equities can be viewed as a somewhat defensive one or they can gain more expected demand and governmental health-related reactions.

Finally, the economic growth and the exchange rate variables are not found to be statistically significant in the pooled long-run model, which implies that the performance of healthcare stocks in Southeast Asia is more vulnerable to uncertainty and inflation than to the broad cyclical conditions and currency movement in the long-run. Practically, the research points out that the healthcare industry in Southeast Asia is not totally resistant to

external shocks. Despite the necessity of healthcare demand, firm valuations are susceptible to the existing levels of uncertainty and inflationary forces.

Consequently, businesses ought to enhance supply-chain resiliency and input-cost management and decrease their vulnerability to geopolitical disturbance. Portfolio strategies must include indicators of geopolitical risk and inflation conditions instead of the defensiveness of their respective sectors. This research can be extended in various directions as a development plan of future services implementation. Future research can use company-specific indicators of resilience like import dependency ratios, hedging policy, or ESG performance to clarify better the variation in the healthcare stock reacts of different companies.

Moreover, the division of healthcare subsectors (pharmaceuticals, hospitals, equipment, and services) can help give more specific suggestions on corporate strategy and investor decision-making. Lastly, the findings could be utilized by policymakers and stakeholders in the industry to create programs that encourage local manufacturing of pharmaceutical inputs, enhance control of inflation, and promote crisis preparedness, such that healthcare companies can be stable and competitive despite the current geopolitical and macroeconomic uncertainty.

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