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IMPACT OF STOCK MARKET RETURNS AND GEOPOLITICAL RISKS INDEX ON BUSINESS CONFIDENCE: EMPIRICAL EVIDENCE FROM OECD COUNTRIES

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Abstracts

The business confidence index is a key indicator of a country's economy, reflecting economic cycles and the business climate (Los & Ocheretin, 2019). Nowadays, there is much research studying the relationships between stock market/uncertainties with business confidence (Tan et al., 2022; Montes & Nogueira, 2021; Ayuningtyas, R., & Koesrindartoto, D. P., 2014). However, there is a lack of study discovering the relationship between the three factors. This study examines the influence of stock market returns and geopolitical risk (GPR) on business confidence across OECD countries, using regression analysis. The findings reveal that stock market returns do not show significant impact on business confidence, while heightened geopolitical risks dampen it. The study also reveals that with the stock market returns in the model, the effect of geopolitical risks on business confidence tends to be higher, offering valuable insights for policymakers and investors aiming to foster stable and resilient business environments.

Keywords: Business confidence, Stock market returns, Geopolitical risks, OECD countries

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TÁC ĐỘNG CỦA LỢI NHUẬN THỊ TRƯỜNG CHỨNG KHOÁN VÀ CHỈ SỐ RỦI RO ĐỊA CHÍNH TRỊ ĐẾN NIỀM TIN CỦA DOANH NGHIỆP: BẰNG CHỨNG THỰC NGHIỆM TỪ CÁC NƯỚC OECD

Tóm tắt

Chỉ số niềm tin kinh doanh là một chỉ số quan trọng của nền kinh tế một quốc gia, phản ánh chu kỳ kinh tế và môi trường kinh doanh (Los & Ocheretin, 2019). Ngày nay, có nhiều nghiên cứu nghiên cứu mối quan hệ riêng rẽ giữa lợi nhuận thị trường chứng khoán/rủi ro địa chính trị với niềm tin kinh doanh (Tan và cộng sự, 2022; Montes & Nogueira, 2021; Ayuningtyas, R., & Koesrindartoto, D. P., 2014). Tuy nhiên, vẫn còn thiếu nghiên cứu khám phá mối quan hệ giữa cả ba yếu tố này. Nghiên cứu này xem xét ảnh hưởng của lợi nhuận thị trường chứng khoán và rủi ro địa chính trị đối với niềm tin kinh doanh trên các quốc gia thuộc OECD, sử dụng phân tích hồi quy tác động cố định (FEM). Các phát hiện cho thấy lợi nhuận thị trường chứng khoán không cho thấy tác động đáng kể đến niềm tin kinh doanh, trong khi rủi ro địa chính trị gia tăng sẽ làm giảm nó. Nghiên cứu cũng cho thấy rằng nếu có lợi nhuận thị trường chứng khoán trong mô hình, tác động của rủi ro địa chính trị đến niềm tin kinh doanh có xu hướng cao hơn, cung cấp những hiểu biết có giá trị cho các nhà hoạch định chính sách và nhà đầu tư nhằm thúc đẩy môi trường kinh doanh ổn định và bền vững.

Keywords: Chỉ số niềm tin kinh doanh, Lợi nhuận thị trường chứng khoán, Rủi ro địa chính trị, OECD.

1. Introduction

The business confidence index is a crucial economic indicator, closely tied to stock market performance and influenced by geopolitical events (Guo & Shi, 2024). Shifts in business confidence often impact market trends, while geopolitical situations can shape both business sentiment and market stability.

Geopolitical risks have an influence on economic activity to some extent (Liu et al., 2019). Increased geopolitical risk is correlated with negative stock returns, which is consistent with geopolitical risk being more directly tied to disruption (Smales, 2021). In order to determine geopolitical risk, Caldara and Iacoviello (2022) utilize a specific technology to compute the GPR index, which serves as one of the important matters of our study. This index focuses on assessing the risk of geopolitical events such as wars, terrorism, and tensions between states that disrupt normal and peaceful international relations. Even after controlling for global financial conditions and terms of trade, geopolitical risks remain an important factor in explaining the stock variations (Cheng & Chiu, 2018). In other words, geopolitical risks have the potential to profoundly influence sectors heavily reliant on international trade, such as agriculture, information technology, and manufacturing. These risks can disrupt the stability of profitable investments and significantly contribute to increased stock market volatility within these industries. Moreover, geopolitical uncertainties can reshape government spending priorities, disrupt economic cycles, and create prompt shifts in macroeconomic policies, including adjustments to national security measures and fiscal budgets. Such unpredictability can create challenges for investors in forecasting future trends, further exacerbating fluctuations in the stock market (Guo & Shi, 2024).

Besides, classical finance theory and the efficient market hypothesis both hold that investors are logical beings who can obtain and use stock market data to make completely proper and logical judgments (Fama, 1965). When stock prices rise, businesses generally experience increased confidence, as higher valuations signal strong economic prospects, greater investor trust, and easier access to capital. Companies may respond by expanding operations, increasing hiring, or pursuing new investments. Conversely, declining stock prices can erode confidence, leading to cost-cutting measures, reduced hiring, and more cautious business strategies. Moreover, stock market volatility itself can create uncertainty, which affects corporate decision-making. Sharp fluctuations in market prices may cause firms to delay expansion plans or investment decisions due to concerns about financial stability. This is particularly relevant for publicly traded companies, whose stock prices influence their ability to raise funds through equity markets. Additionally, stock market performance impacts consumer confidence, which in turn affects business confidence. Rising stock prices can lead to a "wealth effect", where consumers feel financially secure and increase their spending, driving business growth (Case et al., 2005). On the other hand, market downturns can lead to reduced consumer spending, negatively affecting corporate revenue projections and investment decisions.

The authors find that previous research has primarily explored either the relationship between business confidence and stock market returns, stock market returns and geopolitical risk, or geopolitical risk and business confidence. However, there remains room for studying the impact of both stock market returns and geopolitical risk on business confidence, particularly in the OECD region. The authors aim to find if there are both geopolitical risks and stock market returns in the model, will the impact of them to business confidence be higher. This study will take a more comprehensive approach by discussing in depth such correlation as well as comparing how stock market returns versus geopolitical risk influences business confidence. We will also examine the interaction between the two independent variables.

Against this backdrop, recognized the study **"Impact of stock market returns and geopolitical risks index on business confidence: empirical evidence from OECD countries"** as a pressing need with theoretical and practical significance as there remain questions and arguments about the relations between geopolitical risk and business confidence. The study aims at studying the influence of the stock market returns and geopolitical risks index on business confidence in 38 OECD countries between 1990 and 2024. First, study the effect of stock market returns and geopolitical risks index on business confidence. Second, consider the level of impact of stock market returns compared to that of the geopolitical risk index on business confidence. From a scientific aspect, this research result contributes to the system of previous studies on the effect of the global competitiveness index on export and self-employment, specifically clarifying the relationship between global competitiveness's impact and income levels through statistical data and econometric models. Therefore, this study can serve as a suggestive foundation, and a direction for other research in the future. From a practical aspect, this research will facilitate governments and businesses with a better insight into the impact of stock market return and geopolitical risk index on business confidence. In addition, the topic suggests critical tactics for the government and businesses to tackle with the uncertainties of the stock market and geopolitical situation.

2. Literature review

2.1. Theoretical foundation of stock market returns, geopolitical risks and business confidence

Stock market returns

Stock market returns in this study refer to the returns earned from stock investments. These returns may consist of two main components: dividends and spreads in stock transactions (Reddy & Parab, 2016). Since it is susceptible to macroeconomic and business fluctuations and risks, both systematic and unsystematic (Reddy & Parab, 2016), it is an important financial indicator in the process of reflecting the performance of the stock market, especially in warning of market downturns (Bhowmik & Wang, 2020). A declining stock market depresses business confidence by implying trouble ahead (Van, 2019). The recent stock market collapse poses a danger to confidence in the existing economic outlook. When companies became more gloomy about their prospects for making money, they could cut back on spending, which would be bad for the economy. The study by Çevik et al. (2016) employs a time-varying Markov regime-switching model to analyze the dynamic relationship between business confidence and stock returns in the United States. The research identifies distinct regimes characterized by varying levels of volatility and interdependence between the two variables. Findings suggest that during periods of economic expansion, there is a positive correlation between business confidence and stock returns, whereas in times of economic contraction, this relationship weakens or becomes negative. This nuanced understanding underscores the importance of considering regime shifts when evaluating the interaction between business sentiment and market performance.

Geopolitical risks

Given the increasing geopolitical turmoil in recent times, geopolitical risks have garnered more traction among businessmen and policymakers. Geopolitical risk is defined by Caldara and Iacoviello (2022) as "associated with wars, terrorist acts, and tensions between states that affect the normal and peaceful path of international relations"(Caldara and Iacoviello, 2018). We use GPR (Geopolitical Risk Index) as a consistent measure of geopolitical risk in this research. This index is perceived by the press, the public, investors, and policymakers; and is measured daily and monthly, in a global world and in a specific country. This area of interest was explored from different angles, many of which focused on the influence of geopolitical risk in the world's economy. GPRs is argued to engender wild fluctuations in the overall economy, the impact of which was exerted on anything from trade, fiscal, and monetary policies, the commodities markets (Kwame Ofori Asomaning et al., 2024) to financial markets, turning it into one of the most carefully considered index among investors, analysts and researchers (Apergis et al., 2018).

Business confidence

Business confidence reflects the extent of firms' optimism or pessimism about the future wellness of businesses and that of the overall economy (Hardi et al., 2024). Such perception is of utmost significance towards the ease of doing business and the foreseeability of future economic growth trajectory (Adekoya & Oliyide, 2021). Business confidence can also be seen as a common indicator of economic growth and investment trends, which mainly thanks to its

acknowledged role of expectations in economic activity (ECB, 2013). Specifically, given the pervasiveness of business activities across all the economic sectors, business confidence can play a pivotal role in monitoring output growth and anticipating prospective economic growth and downturn (Adekoya & Oliyide, 2021). Furthermore, business confidence was found to have predictive ability for investment growth on which market participants can base informed business decisions to take an opportunity or hedge against risks or constraints (Khan & Upadhayaya, 2019).

2.2. Hypothesis framework

As for stock market returns, many studies have shown a close relationship between stock market returns and business confidence. Business confidence indicators provide crucial information for stock market players during times of economic crisis, since they can discount future economic forecasts. This is also strengthened by the research of Ayuningtyas and Koesrindartoto (2014) and Atukeren et al. (2013).While most often focusing on the impact of business confidence on the stock market, the reverse direction seems more complex and varies by economic condition. Collins (2001) first considered stock returns as a better indicator to predict business confidence since the growth of stock returns leads to a more positive economic environment with higher business confidence. In 2012, Atukeren et al. found a unidirectional causal relationship from stock returns to the business confidence index in Spain and Italy, while in Portugal, the two factors have a feedback relationship, i.e. influence each other. According to Pinho & Madaleno (2017), stock market shocks can also affect business confidence, but the influence is not always strong, and factors such as industrial output also play an important role in shaping this confidence.

In addition, Van Zandweghe (2019) argues that high stock returns can boost business confidence, as they signal positive future earnings and earnings prospects, thereby encouraging spending, investment, and production. However, in developed financial markets, this effect may be diminished in the short term as the information is already reflected in business confidence. The presence of an active stock market means that shocks from one region—such as sanctions, regulatory changes, or political unrest—are quickly priced into global markets. This interconnectedness heightens the perception of risk for businesses that rely on international trade, supply chains, or investment flows, making them more reactive to geopolitical uncertainties. Therefore, the authors propose the following hypothesis:

Hypothesis 1: In the model with only stock market returns, stock market returns have a positive relationship with business confidence.

As for the impact of geopolitical risk on the business confidence index, there is still not much research on this topic. Geopolitical risk and economic policy uncertainty are also grouped as a measure of policy risk to measure its impact on Bitcoin investment (Mamun, Gazi, Muhammad, and Kang, 2019). Therefore, due to the novelty of the article, this study borrows literature from the studies on the relationship between economic policy uncertainty and business confidence (Montes & Silva Leite Nogueira,2021; Adekoya & Johnson, 2021) as a discussion for this section.

The studies by Montes and Silva Leite Nogueira (2021) and Adekoya and Johnson (2021) both explore factors influencing business confidence but differ in their geographic scope, focus variables, and methodologies, offering complementary insights. Montes and Silva Leite Nogueira analyzed Brazil from May 2004 to December 2017, examining the impact of economic policy uncertainty (EPU) and political uncertainty (PU) on business confidence and investment. They highlight how uncertainty, particularly during political crises and economic slowdowns, negatively affects business sentiment, delays investments, and shifts preferences toward liquidity, ultimately hampering economic activity. In contrast, Adekoya and Johnson investigate EPU and oil price volatility across OECD countries from January 2000 to March 2020, comparing Eurozone and non-Eurozone economies. Their findings reveal that EPU exerts a stronger negative impact on business confidence than oil price changes, with the Eurozone being more vulnerable due to its reliance on oil and shared monetary system. Both studies emphasize the need for tailored policy interventions to mitigate uncertainty, though their contexts differ. Montes and Silva Leite Nogueira focus on enhancing political stability and monetary policy credibility in an emerging market, while Adekoya and Johnson advocate for reducing oil dependency and addressing EPU in advanced economies. For the effect between geopolitical risk and business confidence, it is synonymous that firms tend to postpone their business actions under undetermined circumstances. This can be explained by "The delay effect" which comes from the uncertainty. Besides, as stated above, geopolitical risk is a factor constituting "uncertainty trinity" causing caution about future decisions (Carney 2016). Therefore, an increase in geopolitical risk heightens strong sensitivity towards business conditions, which slow down or even deter firms from making business decisions. Therefore, the authors propose the following hypothesis:

Hypothesis 2: In the model with only geopolitical risks, geopolitical risks have a negative relationship with business confidence.

Rising stock prices enhance firms' valuations and signal robust economic conditions, thereby fostering an environment conducive to investment and expansion (Van, 2019; Sum et al., 2019). Conversely, increased geopolitical risks have been shown to negatively affect business confidence. Such risks introduce uncertainty, leading to potential declines in industrial production, employment, and international trade, as businesses may adopt a more cautious approach in response to an unpredictable geopolitical landscape. Therefore, while favorable stock market performance can bolster business confidence, the presence of geopolitical risks can undermine it, resulting in a complex effect that influences corporate decision-making and economic stability.

Hypothesis 3a: In the model with stock market returns and geopolitical risks, stock market returns have a positive relationship and geopolitical risks have a negative impact on business confidence.

Stock markets serve as real-time indicators of investor sentiment, swiftly reflecting geopolitical tensions through increased volatility and declining valuations. The global financial system's intricate interdependencies mean that geopolitical events in one region can have spillover effects on stock markets worldwide. This interconnectedness amplifies the transmission of geopolitical shocks, leading to broader market reactions and a more significant

impact on business confidence. Such market reactions heighten uncertainty, making businesses adopt more cautious strategies (Bouoiyour & Selmi, 2019). Empirical studies support this relationship; for instance, research analyzing the 2017 Gulf crisis demonstrated that geopolitical tensions led to increased stock market volatility in affected regions, which likely influenced business sentiments negatively (Bouoiyour & Selmi, 2019). Thus, the interaction between stock market dynamics and geopolitical events intensifies the adverse impact on business confidence. Incorporating stock market returns into models assessing the impact of geopolitical risks on business confidence reveals a more pronounced negative effect of these risks.

Hypothesis 3b: In the model with stock market returns and geopolitical risks, the geopolitical risks have a greater negative impact on business confidence than in the model with only geopolitical risks.

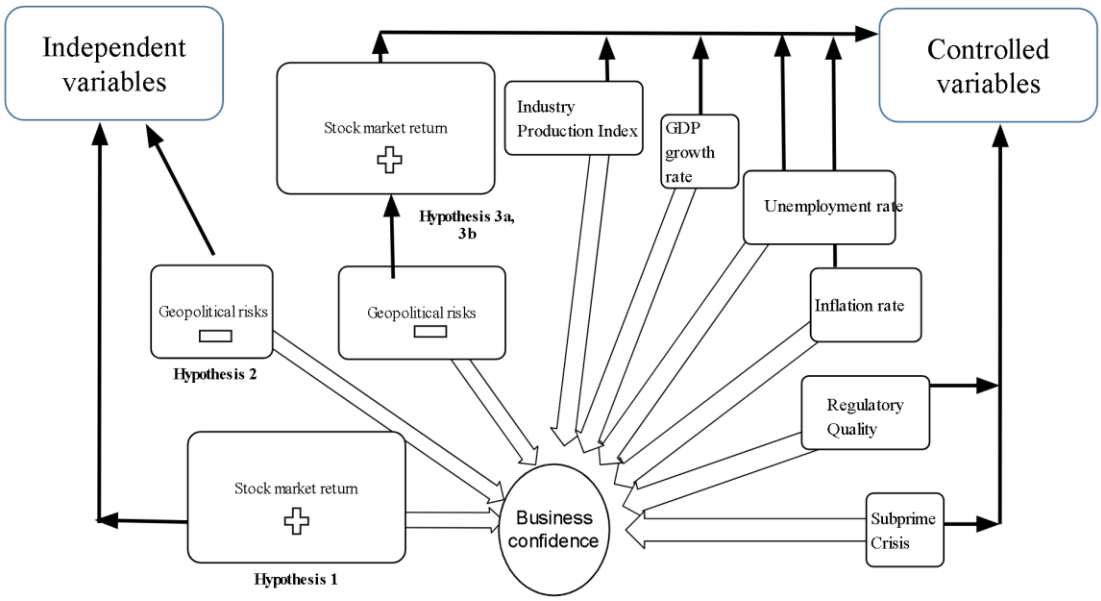

Figure 1: The hypothetical framework proposed by the authors

Source: The authors (2025)

The study provides a paradigm for regression analysis that will establish panel regression models to examine the dynamics of stock market returns with geopolitical risk and business confidence. The choice of these variables is inspired by previously defined empirical works (Montes & Nogueira, 2021; Adekoya & Johnson, 2021), which have forwarded direct and indirect effects of financial markets and economic uncertainty on business sentiment.

This econometric model refers to standard econometric approaches in macro-financial research, meanwhile taking into account as much as possible relevant control variables such as GDP growth, industrial production, inflation, and regulatory quality to economize their external economic conditions. It creates an understanding of this phenomenon more fully than previous research against which the integrated view of both financial (stock market return) and macroeconomic uncertainty (geopolitical risk) factors has been compared.

3. Research method

3.1. Sample data

The study employed data from 38 countries in the OECD including Australia, Austria, Belgium, Canada, Chile, Colombia, Costa Rica, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, and United States (OECD, 2024) from 1990 to 2024. The data is collected on the basis of availability.

The Geopolitical Risk Index (GPR) is measured by analyzing the frequency of terms related to geopolitical risks in news articles over a specific period (Caldara and Iacoviello, 2010). The index is considered valid as it is consistent with key indicators, including military expenditures, war-related fatalities, financial market volatility, and economic policy uncertainty (EPU).

3.2. Regression model

Aligning with the database, we employ panel analysis with regression models to analyze the panel including the Ordinary least square (OLS), Fixed effects model (FEM), and Random effects model (REM). Pooled OLS assumes that the coefficient is fixed across cross-units, however, this is inconsistent with our data because our research countries have different baseline conditions and levels of variables, with missing data. Remaining fixed effects and random effects. Based on the results of the Hausman test, the probability p value of the Chi-squared statistic is less than 1%, so we choose FEM.

In general, our regression model can be written as:

$$BCI_{i,t} = \alpha_1 + \beta_1.BCI_{i,t-1} + \beta_2.GP_{i,t} + \gamma.\ CONTROLS_{i,t} + \varepsilon_{i,t}$$

$$BCI_{i,t} = \alpha_1 + \beta_3.BCI_{i,t-1} + \beta_4.SMR_{i,t} + \gamma.\ CONTROLS_{i,t} + \varepsilon_{i,t}$$

$$BCI_{i,t} = \alpha_1 + \beta_3.BCI_{i,t-1} + \beta_2.GP_{i,} + \beta_4.SMR_{i,t} + \gamma.\ CONTROLS_{i,t} + \varepsilon_{i,t}$$

Where

$BCI_{i,t}$: the business confidence index for country i in month t.

Based on the model of Montes and Silva Leite Nogueira, 2021 when examining whether EPU affects BCI, the dependent variables are regressed on country-fixed effects (α_1) to account for differences in baseline conditions and levels of variables across countries.

$BCI_{i,t-1}$: the lagged variable of BCI in one period with β_1 is the coefficient.

GRi,t: the geopolitical risk index for country i in month t, with β2 is the coefficient. CONTROLSi,t is a vector of k control variables of country i on month t with γ is the coefficient. The vector includes four main groups of variables based on the literature that investigate the determinants of the business confidence (Mustafa and Ayhan, 2012; Montes and Silva Leite Nogueira, 2021): Industrial production index (IPI), unemployment rate, inflation rate and interest rate.

$SMR_{i,t}$: the stock market returns for country i in month t, with β_4 is the coefficient.

ε is the error term.

A set of control variables such as Industry Production Index, GDP growth rate, unemployment rate, inflation rate, regulatory quality and subprime crisis is used in research to account for factors that might influence the relationship between the independent and dependent variables. By including control variables, researchers aim to isolate the true effect of the independent variable on the dependent variable, reducing the risk of confounding factors distorting results, ensuring that the observed relationship between geopolitical risk, stock market returns and business confidence is not driven by these external factors.

Table 1. Sources and description of study variables

Variables	Description	Expected sign	Previous research	Source
	Dependent variables			
BCI	Business Confidence Index (OECD) is a standardised confidence indicator providing an indication of future developments in business.			OECD
	Independent variables			
LNSMR	Natural logarithm of Stock Market Returns	+	Collins (2001), Atukeren et al. (2012), Pinho & Madaleno (2017), Van Zandweghe (2019),	Trading Economics
GR	Geopolitical Risk, collected from Caldara and Iacoviello (2022), assesses the risk of geopolitical events such as wars, terrorism, and tensions between states that disrupt normal and peaceful international relations.	–	Montes & Nogueira (2021), Adekoya and Johnson (2021)	Caldara, & Iacoviello (2010)
	Control variables			
BCI_LAG	1-year lag variable of Business Confidence Index	+		OECD

Variables	Description	Expected sign	Previous research	Source
IPI	Industry Production Index measures the real production output of manufacturing, mining, and utilities.	+	Pinho & Madaleno (2017), Montes & Nogueira (2021)	UNECE
rGDP	GDP growth rate is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products.	+	Collins (2001), Hardi et al. (2024) and Akron et al. (2020)	World Bank
UNEM	Unemployment, total (% of total labor force) (modeled ILO estimate)	-	Gonzalo and Taamouti (2017)	World Bank
rINF	Inflation rate based on CPI	-	Montes & Nogueira (2021) Hardi et al. (2024)	OECD
RQ	Regulatory quality reflects perceptions of a government's ability to develop and implement sound policies and regulations that promote and facilitate private sector development.	+	World Bank (2015) Wong et al. (2015) Leibrecht & Pitlik (2019)	World Bank
Dummy variables				
SC	Subprime Crisis	-	de Mendonça & Almeida (2018) Montes & Nogueira (2021)	OECD

Source: Synthesized by the authors (2025)

4. Results and discussion

4.1.Results

4.1.1. Descriptive statistics

The variables used in our model are described as table 2. In particular, LNSMR and GR variables have less data compared to others due to the restraint in the studies on these two variables. The number of observations for each variable varies, with the largest dataset belonging to rGDP (1,285) and the smallest to IPI (714). The key variables show that BCI is relatively stable (mean: 99.91, Std. Dev.: 3.46), while LNSMR (mean: 2.65, range: -3.03 to 8.93) and GR (mean: 0.33, range: 0.006 to 5.62) exhibit moderate variability.

Table 2 – Descriptive statistics of variables

Variable	Obs	Mean	Std. Dev.	Min	Max
BCI	1,188	99.91413	3.458518	0	105.7556
LNSMR	635	2.647682	1.236812	-3.028593	8.929246
GR	635	.3309378	.6128167	.0056394	5.618021
BCI_LAG	1,152	100.0257	1.888565	87.85075	105.7556
IPI	714	106.627	23.83992	36.6	286.9
rGDP	1,285	2.482896	3.773533	-32.1186	24.47525
UNEM	1,254	7.669204	4.097938	1.1	27.686
rINF	1,281	8.251211	47.46931	-4.447547	1020.621
SC	1,330	.0571429	.2322027	0	1
RQ	1,330	.860985	.6875678	-.25	2.08

Source: The authors (2025)

4.1.2. Model testing

We use VIF to check multicollinearity, if the result is bigger than 10 then there is definitely multicollinearity. If VIF is <2, there is no multicollinearity.

Table 3: Variance Inflation Factor testing

Variable	VIF	1/VIF
UNEM	2.20	0.454951
IPI	1.58	0.632751
SC	1.57	0.638280
RQ	1.56	0.641237
rGDP	1.53	0.652458
rINF	1.18	0.844035
LNSMR	1.17	0.851470
BCI_LAG	1.14	0.879358
GR	1.03	0.967507
Mean VIF	**1.44**	

Source: The authors (2025)

The results of the VIF (Variance Inflation Factors) test all yielded results below 10, showing that multicollinearity does not occur between the independent variables in the model and the dependent variable.

Before reaching the final results with the FEM, the project performed an F-test to select the most suitable model among two models: Pooled OLS and FEM For the dependent variable of BCI and Stock Market return (LNSMR) with the Geopolitical Risk (GR), the F-test result is Prob>F=0.0000, with specific descriptive and analyzed numbers in appendix 2, 3. So the hypothesis H0 is not accepted at the 1% significance level. Therefore, the Pooled OLS model is not as suitable as the FEM model.

4.1.3. Regression results

Table 4 - Regression results using the Fixed Effect Model estimation method

Variable name	**BCI**		
	Model with only stock market returns	**Model with only geopolitical risks**	**Model with stock market returns and geopolitical risks**
LNSMR	**0.0237**		**0.0392**
	(0.44)		**(0.65)**
GR		**-0.319***	**-0.532****
		(-2.15)	**(-2.79)**
BCI_LAG	0.214***	0.305***	0.268***
	(5.45)	(8.54)	(5.35)
IPI	-0.000975	0.0140**	0.0198**
	(-0.28)	(3.18)	(2.83)
rGDP	0.309***	0.381***	0.412***
	(14.71)	(18.52)	(13.41)
UNEM	-0.00116	0.0545	0.0916*
	(-0.04)	(1.92)	(2.17)
rINF	0.0219	-0.0812**	-0.0648
	(1.57)	(-3.14)	(-1.47)
SC	-2.126***	-1.038***	-1.170***

Variable name	BCI		
	Model with only stock market returns	**Model with only geopolitical risks**	**Model with stock market returns and geopolitical risks**
	(-6.87)	(-5.71)	(-3.55)
RQ	0.330	0.687***	0.708
	(0.91)	(4.60)	(1.66)
_cons	77.78***	66.56***	69.16***
	(18.38)	(17.88)	(12.72)
Observations	*377*	*327*	*191*

Robust standard errors in parentheses

****p<0.01, ** p<0.05, * p<0.1*

Source: The authors (2025)

Results of regression of independent variables

For stock market returns, the results show that the coefficient for LNSMR is positive but not statistically significant in any of the models. This suggests that LNSMR has no strong or reliable effect on the dependent variable (BCI) in this context. These results may not align with Hypothesis 1 of the authors. This can be explained by the Efficient Market Hypothesis by Fama (1970) assumes that investors and businesses act rationally, meaning they understand that stock market movements do not necessarily predict future economic performance. If stock prices rise due to speculation rather than actual improvements in economic conditions, rational businesses should not alter their confidence levels based on these fluctuations.

GR has a negative and statistically significant coefficient in all models, with a significance level of 5% or better. This indicates that as the geopolitical risks (GR) increases, business confidence (BCI) tends to decline, aligning with Hypothesis 2 of the authors.

Particularly, with the stock market returns in the model, every 1% increase in geopolitical risk leads to about a 53,2% reduction in business confidence; whereas, in the model without stock market returns, every 1% increase in geopolitical risk leads to about a 31,9,2% reduction

in business confidence. Therefore, these results address Hypothesis 3b mentioned above that geopolitical risk reduces business confidence more significantly with the appearance of stock market returns. This is due to the fact that stock markets react swiftly to geopolitical tensions, with investors adjusting their portfolios in response to perceived risks. This immediate reaction can lead to increased volatility, which businesses interpret as heightened uncertainty, thereby dampening their confidence.

Results of regression of control variables

Regarding the control variables, they all have significant statistics on business prospects.

The coefficient for BCI_LAG is consistently positive and statistically significant at the 1% level across all models. This highlights the strong autocorrelation in BCI, meaning past values of BCI are a strong predictor of current values.

The coefficient for IPI is positive and statistically significant in models 1 and 3, but not in model 2. This suggests that industrial production has a positive effect on BCI, but this relationship is not robust across all specifications. In terms of IPI, this indicator represents the economic output in the mining, manufacturing, electricity, gas, steam, and air-conditioning sectors (OECD), as well as the level of sustainability and employment (Herman, 2016; Eurostat, 201), pointing to a development or downturn of the economy. Bergstrom 1995; Croux et al. 2005; Claveria et al. 2007; Marcel, Beata, Andrea, and Anna, 2018 stated that the rate of production and sales in the manufacturing industry almost immediately reflects the increase or decline of GDP. Therefore, IPI can affect firms' feelings about current economic conditions. When IPI increases, it means that an additional output for the economy in the manufacturing and construction sector occurs. This affects firms' perceptions of positive economic growth, which increases business confidence.

Real GDP growth has a strong and positive effect on BCI, with coefficients statistically significant at the 1% level in all models. This indicates that higher GDP growth rates are strongly associated with an increase in the BCI.

The coefficient for unemployment is positive and statistically significant in model 1 but insignificant in models 2 and 3. This suggests a potential relationship between unemployment and BCI, but the effect is not consistent. According to the findings of Gonzalo and Taamouti (2017), by applying the Fisher and Phillips curve equations, an increase in the anticipated unemployment rate comes with monetary policy conducted by the Federal Reverser (FED). Hence when the rate of unemployed people, FED controls interest rates at a lower level, which in turn increases the stock prices. This can positively affect corporate policies to take advantage of high stock prices due to financing constraints (Campello and Graham, 2011). On the investors' scale, the unemployment rate can be used to reflect their actions toward economic conditions.

The coefficients for real inflation are negative in models 1 and 3, with statistical significance in model 3 (at the 5% level). This implies that higher inflation could negatively impact the BCI, but the effect is less robust. The contribution of N. Gregory Mankiw (2016) can explain the positive relationship between inflation and business confidence. When the inflation rate is high, the sellers' products seem to be more expensive and in turn, they receive

more money; thus, this can increase their confidence in business.

Regulatory quality (RQ) has positive coefficients across all models, but these are not statistically significant except in model 3. This suggests that the impact of regulatory quality on BCI may be limited or context-dependent.

Results of regression of dummy variables

SC has a consistently negative and statistically significant coefficient at the 1% level across all models. This indicates that the subprime crisis strongly and negatively affects the BCI.

4.2. Discussion

The result shows that GR had a negative influence on business confidence. This is consistent with the previous research that geopolitical tensions causes businesses postponing the investment and economic activities, also known as "delay effect" (Caldara and Iacoviello , 2022; Yilmazkuday, 2024; Khurshid et al, 2024).

Contrary to expectations, stock market returns (LNSMR) had little impact on business confidence. While many studies focus on the impact of business confidence on stock markets (Atukeren, 2012; Pinho and Madaleno, 2017;Van Zandweghe, 2019), this study explores the reverse relationship, which is more complex. The result could be explained by the information processing in OECD is efficient, the business sentiment would be less impacted by stock market trends. This aligns with Van Zandweghe's results that stock returns impact on business confidence diminished in highly developed countries (2019).

Among the control variables, industrial production (IPI), GDP growth (rGDP), and the lagged value of business confidence (BCI_LAG) showed a positive and significant relationship with business confidence. This highlights the importance of stable macroeconomic conditions in the creation of a positive business environment. Conversely, higher inflation rates (rINF) and the subprime crisis (SC) negatively affect business confidence, showing that uncertainty in the economic environment affects business sentiment negatively.

However the research has limitations since some data related to control variables were not fully available. This is due to the time and the various developments and regulations of each country. Therefore, further research has space to find the specific channels through which GPR and stock market fluctuations affect business confidence or the role of other factors, such as investor sentiment, economic policy uncertainty, and financial stress, to make concrete forms for the relationship. Also, the exploration of differences between different OECD countries needs more consideration as they may have different sensitivities to geopolitical risks.

5. Conclusion

The importance of business confidence in business investment growth, economic fluctuations in general, and anticipating business cycle turning points has been quantitatively proved by Los & Ocheretin, 2019, Khan and Upadhaya (2017), Luong and Vixathep (2016), and others. While many previous studies identified many macroeconomic variables as determinants of investor confidence, limited study has focused on the combined impact of stock

market returns and geopolitical risk on business confidence, despite the fact that financial internationalization, war, terrorism, and any tension between nations are major concerns for all participants in this day and age.

Based on our results, the geopolitical risk has a negative effect on the business confidence and should be moderately decreased. The authors cannot find a significant relationship between stock market returns and business confidence as wanted, however, there is still a major finding that with stock market returns as a factor of consideration, geopolitical risks will have a higher impact on business confidence. Therefore, based on our findings, to heighten business confidence, the rate of geopolitical risk should be decreased with the moderation of stock market returns.

Recommendations

Based on our findings, to heighten business confidence, the rate of geopolitical risk should be decreased. However, geopolitical risk is the consequential events among nations (Caldara and Matteo, 2022). They are made by governments, international organizations, or other political players; and businesses may not have direct influence over these decisions. Moreover, political events can be unpredictable and volatile, making it difficult for businesses to plan and prepare for their potential impact. From this, to manage political risk and in turn increasing business feelings about positive growth, we have some recommendations as follows:

Firstly, businesses may establish crisis management plans which deal with emergencies or unexpected events. These plans assist businesses in preparing to adapt their strategies and operations in response to changing conditions. Therefore, while businesses cannot control political events, they can take steps to mitigate its impacts and build resilience to political risk.

Secondly, as stated above, information is a valuable and beneficial resource in internal business environments (Cukierman, 1980); and it plays a critical role in decision-making, planning and performance management. Furthermore, maintaining an effective information system could reduce the uncertainty, negatively affecting business confidence. Businesses need to ensure that their information systems are secure, reliable, and user-friendly.

In terms of control variables, it should come to the policy of governments and policy makers to manage its fluctuations. Governments have a significant role to play in shaping the environment and can use policies to influence economic growth, employment and inflation, etc. the primary goal of this policy is to promote and ensure sustainable economic development. By that way, policy actors can help to mitigate risks and reduce uncertainty. From that, firms' feelings and exceptions about positive growth can be heightened.

In terms of control variables, it is up to governments and policymakers to regulate the swings. Governments have an important role in defining the environment, and they may utilize policies to impact economic growth, employment, and inflation, among other things. The major purpose of this policy is to promote and assure sustainable economic development.

Limitations

Due to lack of time and data, the research only conducts a regression analysis between each variable. In the future, for further understanding, research can be conducted using more

advanced analysis to see the interconnectedness between geopolitical risks, stock market returns and business confidence. Moreover, research can be conducted using data from more countries instead of only OECD countries for a perspective of developing countries.

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