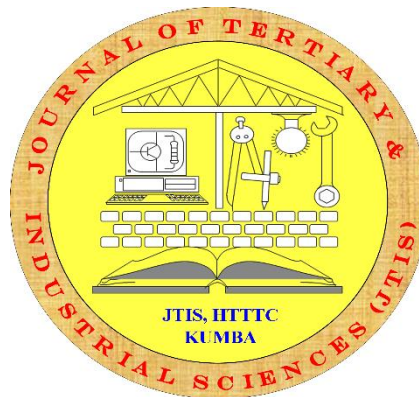


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Geopolitical Risk and Its Management in Cameroon's Capital Market (2015–2023)

by

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Abstract

Geopolitical risks play a crucial role in shaping financial markets, particularly in emerging economies where political instability and external shocks impact investor confidence and economic stability. Cameroon, a central player in the economic landscape of Central Africa, has experienced significant geopolitical challenges between 2015 and 2023, affecting the volatility of its capital market. Socio-political unrest, regional security threats, and fluctuations in global commodity prices have led to market uncertainty and influenced financial performance. This paper examines these risks, their effects on the Douala Stock Exchange (DSX), and strategies to manage them effectively. Cameroon's geopolitical risks stem from prolonged political instability, cross-border security threats, and global economic fluctuations. The Anglophone crisis, regional conflicts, and oil price volatility have triggered capital flight and reduced investor participation. Using empirical data, this study applies the Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model to assess stock price fluctuations and determine the extent of market instability. The findings indicate that local and external events significantly influence DSX market performance, with commodity price fluctuations playing a major role in shaping investor sentiment. Graphical analyses of stock index performance, volatility trends, and their correlation with major geopolitical events highlight key patterns in market instability. The paper further explores essential risk management strategies aimed at stabilizing the financial sector and enhancing investor confidence. One major approach is market diversification, reducing overreliance on commodities to create a more balanced economic environment. Strengthening regulatory frameworks is also recommended to improve market transparency and attract both local and international investors. Regional economic cooperation within the Economic and Monetary Community of Central Africa (CEMAC) is highlighted as a crucial measure to mitigate cross-border risks. Enhanced trade, security collaboration, and financial integration can foster stability and encourage foreign direct investment (FDI). Additionally, leveraging advanced risk assessment tools, such as geopolitical risk indicators and predictive analytics, can help market participants anticipate potential disruptions and implement proactive mitigation strategies. This paper underscores the significant influence of geopolitical risks on Cameroon's capital market and offers practical solutions to reduce market volatility. By adopting comprehensive risk management strategies which include diversification, regulatory improvements, regional partnerships, and data-driven forecasting Cameroon can foster a more resilient financial sector.

The study contributes to broader discussions on financial stability in emerging economies, emphasizing the interconnections between political dynamics and market performance in an evolving global economy.

Keywords: Geopolitical risk, capital market, Cameroon, stock volatility, investor confidence, financial stability.

1. Introduction

Cameroon's capital market experienced pronounced instability between 2015 and 2023, a period defined by the compounding effects of domestic political crises, regional security deterioration, and global economic shocks. The Anglophone crisis, escalating from 2016, has severely fractured the country's socio-economic fabric, disrupting commercial activity in the Northwest and Southwest regions and eroding investor confidence in the Douala Stock Exchange (DSX). The International Monetary Fund (IMF, 2023) notes that this internal conflict has directly constrained economic diversification and fiscal space, while **Fang et al. (2023)** demonstrate that subnational conflicts in developing economies systematically raise the equity risk premium demanded by both domestic and foreign capital. This political instability does not operate in isolation. Cameroon's geographical position renders it uniquely vulnerable to spillover risks from protracted conflicts in Nigeria, Chad, and the Central African Republic. The persistent Boko Haram insurgency in the Far North region has, according to the World Bank (2021), depressed investment inflows and redirected public expenditure toward security at the expense of market-supporting infrastructure. **Caldara and Iacoviello (2022)** provide the analytical framework to quantify such threats, demonstrating that surges in their Geopolitical Risk (GPR) Index predict significant contractions in investment and equity valuations across emerging markets.

Global economic interconnectivity amplifies these local and regional vulnerabilities. While financial globalisation facilitates capital flows, it simultaneously transmits external shocks trade restrictions, monetary policy tightening in advanced economies, and commodity price collapses directly into frontier markets. **Takwi (2023)** provides preliminary evidence of volatility clustering in the DSX, but the transmission mechanism of external shocks remains underexplored. The fluctuation in global crude oil prices represents the most potent external transmission channel. As an oil-dependent economy within the CEMAC monetary union, Cameroon's fiscal revenues and foreign exchange liquidity remain tied to the international petroleum market. **Sharif et al. (2020)** establish a robust causal link between oil price volatility and stock market returns in emerging economies, a relationship the IMF (2024) confirms is acutely relevant for Cameroon, where oil receipts underpin government spending and, by extension, aggregate market liquidity. **Bouri et al. (2021)** further show that geopolitical risk amplifies the connectedness between oil price shocks and African equity market volatility, suggesting that Cameroon faces a compounded risk: a direct GPR effect and an indirect effect operating through the oil channel. The DSX has mirrored these macroeconomic and geopolitical forces, with **Agyei-Ampomah et al. (2022)** finding that frontier African markets exhibit heightened sensitivity to political risk relative to their emerging market counterparts, a stylized fact consistent with observable DSX price behaviour.

In response to these interconnected threats, effective risk management must transcend traditional portfolio diversification. Strengthening the regulatory architecture, through bodies such as the Central African Securities Exchange Commission (COSUMAF), is a foundational requirement to enhance market transparency and enforce fair trading practices. However, regulatory reform must be complemented by structural economic diversification to reduce the market's asymmetric dependence on the oil sector. Expanding the DSX's sectoral composition to include liquid securities from manufacturing, technology, and agro-industry can stabilise aggregate market capitalisation against commodity-specific shocks (Takwi, 2023). **Hassan et al. (2023)** argue that integrating geopolitical risk indicators into regulatory stress-testing frameworks materially improves the early-warning capacity of financial supervisors in developing economies. At the regional level, deeper economic coordination within CEMAC offers a structural buffer. The IMF (2024) advocates for accelerated financial integration and harmonised cross-border investment protocols to attract larger pools of foreign direct investment (FDI), thereby increasing market depth and resilience. **Demir and Danisman (2021)** provide evidence that multilateral cooperation agreements mitigate the adverse impact of geopolitical risk on banking sector stability, a finding with direct applicability to the capital market channel in Central Africa.

This study, therefore, analyses the impact of geopolitical risk on the volatility of Cameroon's capital market and evaluates the effectiveness of proposed risk management strategies in fostering a stable and robust financial environment amidst persistent economic and political uncertainty. By employing a GARCH-based framework augmented with the GPR Index, the paper provides the first quantitative evidence on the GPR-volatility nexus in the CEMAC context.

2. Literature Aspects

2.1.1 Internal Conflicts and Socio-Political Unrest

Since 2016, Cameroon has faced ongoing political instability due to the **Anglophone crisis**, which has had significant repercussions on its economy and financial markets. The crisis, rooted in historical grievances between the Anglophone and Francophone communities, has resulted in violent clashes, business disruptions, and economic slowdowns (International Monetary Fund [IMF], 2024). The unrest in the Northwest and Southwest regions has led to widespread insecurity, damaging infrastructure and limiting economic productivity. The uncertainty surrounding the conflict has discouraged both foreign and local investment, leading to capital flight and lower stock market participation. Investors often perceive high political risk as a deterrent, causing fluctuations in financial markets. Additionally, reduced government revenues due to instability have affected public sector investment, further weakening economic growth (IMF, 2024). Cameroon has been classified as a **fragile state** by the IMF, underscoring the need for conflict resolution strategies to ensure financial stability and investor confidence.

2.1.2 Regional Instability and External Threats

Cameroon's geopolitical landscape is shaped by its proximity to conflict-prone regions, including Nigeria, Chad, and the Central African Republic. These neighboring countries face persistent security challenges, including insurgencies, civil unrest, and economic instability, which have spillover effects on Cameroon's market environment (World Bank, 2021). In particular, militant activities in the Far North region and cross-border conflicts have heightened security risks, leading to disruptions in trade and investment. The presence of extremist groups and armed conflicts has created uncertainty for investors, resulting in capital flight and lower foreign direct investment (FDI) inflows. Market participants often react negatively to escalating security concerns, adjusting their portfolios to mitigate risks (International Monetary Fund [IMF], 2024). Additionally, regional instability has strained government resources, leading to higher public expenditures on security rather than economic development, further dampening investor confidence. Addressing these external threats through enhanced border security and regional cooperation is essential for restoring financial stability in Cameroon.

2.1.3 Commodity Price Volatility

Cameroon's reliance on crude oil as a primary revenue source has made its economy highly susceptible to price fluctuations in the global market. Sharp declines in oil prices have resulted in severe financial constraints, affecting government budgets and overall economic stability (World Bank, 2021). The volatility in oil prices directly influences the liquidity of the financial sector, with significant repercussions for the **Douala Stock Exchange (DSX)**. A decline in crude oil prices often leads to reduced investor confidence, causing stock market instability and lower capital inflows (Takwi, 2023). Given this correlation, macroeconomic uncertainties surrounding commodity prices remain a key factor driving financial market fluctuations in Cameroon. Addressing this challenge requires economic diversification strategies to mitigate overdependence on the oil sector and ensure a more resilient capital market (IMF, 2024).

2.2 Theories relating to stock market prices and geopolitical risk

Several theories explain stock market price fluctuations and the impact of geopolitical risk on financial markets. These theories provide insights into how investors respond to uncertainty, risk perception, and macroeconomic influences. Below are key theories relevant to stock market volatility and geopolitical risk:

2.2.1 Efficient Market Hypothesis (EMH): Fama (1970)

The Efficient Market Hypothesis (EMH) suggests that stock prices fully reflect all available information, meaning that markets are rational and respond instantly to new geopolitical risks or economic news. If markets are truly efficient, geopolitical events (e.g., wars, political instability, economic sanctions) should be immediately priced in, and investors should not consistently profit from anticipating these risks. EMH assumes rational investor behavior,

but in reality, investors often overreact or under react to geopolitical events, leading to market inefficiencies.

2.2.2 Behavioral Finance Theory: Kahneman & Tversky (1979)

Investors do not always act rationally. Instead, they are influenced by emotions, biases, and cognitive errors. Behavioral finance argues that stock prices fluctuate due to psychological factors such as herding behavior, loss aversion, and overconfidence. When geopolitical tensions rise, investors often exhibit panic selling or irrational exuberance depending on the nature of the event. Markets may overreact to conflicts, sanctions, or government policy changes, leading to excessive volatility. The stock market decline following Russia's invasion of Ukraine in 2022 was driven not just by economic fundamentals but also by investor fear and uncertainty.

2.2.3 Geopolitical Risk and Market Uncertainty Theory: Bekaert, Harvey, & Lundblad (2005).

This theory suggests that higher geopolitical risk increases uncertainty, which leads to greater market volatility and lower investor participation in stock markets. Countries experiencing civil unrest, wars, or trade disputes tend to have higher risk premiums, making their stock markets more volatile. Investors demand higher returns to compensate for uncertainty. Research shows that emerging markets, such as Cameroon, are more vulnerable to geopolitical risk compared to developed markets because of weaker institutions and lower market depth.

2.2.4. Prospect Theory: Kahneman & Tversky (1979)

Investors value gains and losses differently, with losses having a greater psychological impact than equivalent gains. This can lead to risk-averse behavior in uncertain markets. During geopolitical crises, investors tend to shift from stocks to safer assets (e.g., gold, U.S. Treasury bonds) even if the real economic impact of the crisis is uncertain. The stock market often experiences sharp sell-offs after political elections, terrorist attacks, or trade war escalations, as investors react to perceived risks rather than actual long-term economic impact.

2.2.5 Volatility Spillover Theory: Engle (1982)

Stock market volatility can spread across countries and asset classes due to financial globalization. When geopolitical crises occur in one country or region, the effects may spill over to neighboring economies or even global market. The Cameroon stock market (DSX) could experience volatility following a Nigerian financial crisis or trade restrictions within CEMAC, due to regional economic linkages.

2.3 Empirical Literature

Extensive research has examined the connection between **geopolitical risks and capital market volatility**, emphasizing how **political instability, policy unpredictability, and external shocks** influence financial markets. **Bekaert, Harvey, and Lundblad (2005)** observed that emerging economies tend to experience **higher risk premiums and volatility** due to their vulnerability to political instability, which amplifies their sensitivity to external disruptions. Similarly, **Caldara and Iacoviello (2022)** developed the **Geopolitical Risk Index (GPR)**, illustrating that escalating geopolitical tensions are associated with **declining stock market returns and heightened uncertainty**, leading to increased financial instability.

Pástor and Veronesi (2013) investigated the influence of **political uncertainty on stock market dynamics**, finding that **market volatility spikes during election cycles** and periods of **policy instability**, as investors recalibrate their portfolios in anticipation of economic shifts. This finding aligns with the work of **Bali, Brown, and Caglayan (2014)**, who demonstrated that financial markets react **negatively to geopolitical disturbances** such as **wars, terrorism, and diplomatic conflicts**, resulting in **short-term inefficiencies and speculative trading activities**. Furthermore, **Barro and Ursúa (2008)** found that **large-scale conflicts and political instability significantly contribute to market downturns and liquidity shortages**, particularly in developing economies.

The **Black Rock Investment Institute (2020)** reported that **heightened geopolitical risks correlate with increased equity market drawdowns, capital flight to safe-haven assets, and currency depreciation**, especially in volatile economies. These findings are further supported by **Chen, Roll, and Ross (1986)**, who analyzed **macroeconomic and political factors affecting financial volatility**, concluding that **economic and political uncertainties exacerbate risk aversion, prompting sharp stock price fluctuations**. Additionally, **Engle (1982)** introduced the **Autoregressive Conditional Heteroskedasticity (ARCH) model**, which revealed that **financial market volatility persists over time and is significantly influenced by geopolitical uncertainty**, underscoring the importance of robust risk forecasting mechanisms.

Further studies, such as **Raza, Shahzad, Tiwari, and Shahbaz (2016)**, explored how **geopolitical risks impact oil-dependent economies** and discovered that nations heavily reliant on **crude oil exports, including Cameroon**, experience **heightened market volatility** when geopolitical tensions rise, leading to **reduced investment inflows and macroeconomic instability**. Lastly, **Baker, Bloom, and Davis (2016)** examined the relationship between **economic policy uncertainty and stock market behavior**, establishing that **trade disputes, regulatory instability, and political crises significantly elevate financial market fluctuations and erode investor confidence**.

These empirical findings collectively demonstrate that **geopolitical risks play a pivotal role in shaping capital market behavior**, underscoring the necessity for **stronger regulatory policies, economic diversification, and advanced risk assessment models** to mitigate financial instability. As **geopolitical uncertainty continues to evolve**, the implementation

of **predictive analytics and proactive policy measures** will be essential in fostering resilience within capital markets.

3. Research Methodology

This study employs a quantitative research design to empirically investigate the impact of geopolitical risk (GPR) on the volatility of the Cameroonian capital market from 2015 to 2023. The methodology is structured around the GARCH family of models, which are uniquely suited to capture the stylized facts of financial time series, particularly volatility clustering where periods of market turmoil (potentially triggered by geopolitical events) tend to persist.

The analysis utilizes daily time-series data spanning from January 1, 2015, to December 31, 2023. The primary market variable is the daily closing price of the key benchmark index of the Douala Stock Exchange (DSX), from which continuously compounded daily returns are computed. To quantify geopolitical risk, the study adopts the Geopolitical Risk (GPR) Index developed by Caldara and Iacoviello (2022), which captures adverse geopolitical events based on newspaper article counts. Control variables are included to ensure a robust model specification: global oil prices (as a key commodity price driver for the Cameroonian economy) and the CEMAC interbank rate (to control for regional monetary policy effects). All data are sourced from the DSX official publications, the World Bank's Global Economic Monitor, the Economic and Monetary Community of Central Africa (CEMAC) statistical bulletins, and the GPR Index repository.

Given the high likelihood of volatility clustering in financial returns during periods of intermittent geopolitical shocks, the study specifies a GARCH(1,1) model as the baseline. However, to fully address the research objectives, the analysis proceeds in three stages.

First, the baseline GARCH(1,1) model is specified as follows:

Mean Equation: $R_t = \mu + \epsilon_t$

where R_t is the DSX daily return and $\epsilon_t \sim N(0, \sigma^2)$.

Variance equation:

$$\sigma^2 = \omega + \alpha \epsilon_{t-1}^2 + \beta \sigma_{t-1}^2$$

where $\omega, \alpha, \beta > 0$ and $\alpha + \beta < 1$

α : captures the impact of past shocks (news),

β represents the persistence of past volatility.

Second, to directly test the core hypothesis, the baseline model is augmented by introducing the Geopolitical Risk (GPR) Index as an exogenous variable in the variance equation. This augmented GARCH-GPR model directly measures whether elevated geopolitical tensions increase the level of conditional market volatility. The modified variance equation is:

$$\sigma^2 = \omega + \alpha \epsilon_{t-1}^2 + \beta \sigma_{t-1}^2 + \gamma \text{GPR}_t$$

A statistically significant and positive coefficient γ would support the hypothesis that geopolitical risk amplifies capital market volatility in Cameroon.

Third, to investigate whether the market exhibits an asymmetric response to good versus bad news a crucial consideration when analyzing risk stemming from negative geopolitical shocks an Exponential GARCH (E-GARCH) model is estimated. The E-GARCH variance equation is specified as:

$$\log(\sigma_t^2) = \omega + \beta \log(\sigma_{t-1}^2) + \alpha |\epsilon_{t-1}| + \gamma \epsilon_{t-1}$$

The leverage effect term (γ) tests whether negative geopolitical news shocks induce proportionally greater volatility than positive developments.

All models are estimated using the Maximum Likelihood (ML) method, which is the standard for GARCH-class models, implemented in the R statistical software using `rugarch` the package. The empirical analysis follows a strict sequence of diagnostic tests. First, the stationarity of all series is verified using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests to avoid spurious regression issues. Second, the presence of ARCH effects in the return series residuals is formally confirmed using Engle's Lagrange Multiplier (LM) test prior to GARCH estimation. Post-estimation, the standardized residuals from the fitted models are subjected to the Ljung-Box test for autocorrelation and the ARCH-LM test to ensure the GARCH specification has adequately captured all volatility clustering. Model selection between the symmetric GARCH and asymmetric E-GARCH is guided by the Akaike Information Criterion (AIC) and the statistical significance of the leverage term. This methodological framework allows the study to move beyond a simple correlation analysis to a causal inference on volatility. By isolating the GPR coefficient (γ) in the conditional variance equation, the results will directly inform capital market participants and regulators on the extent to which exogenous political tensions translate into systematic internal market instability, thereby providing an evidence base for risk management and hedging strategies in the Central African context.

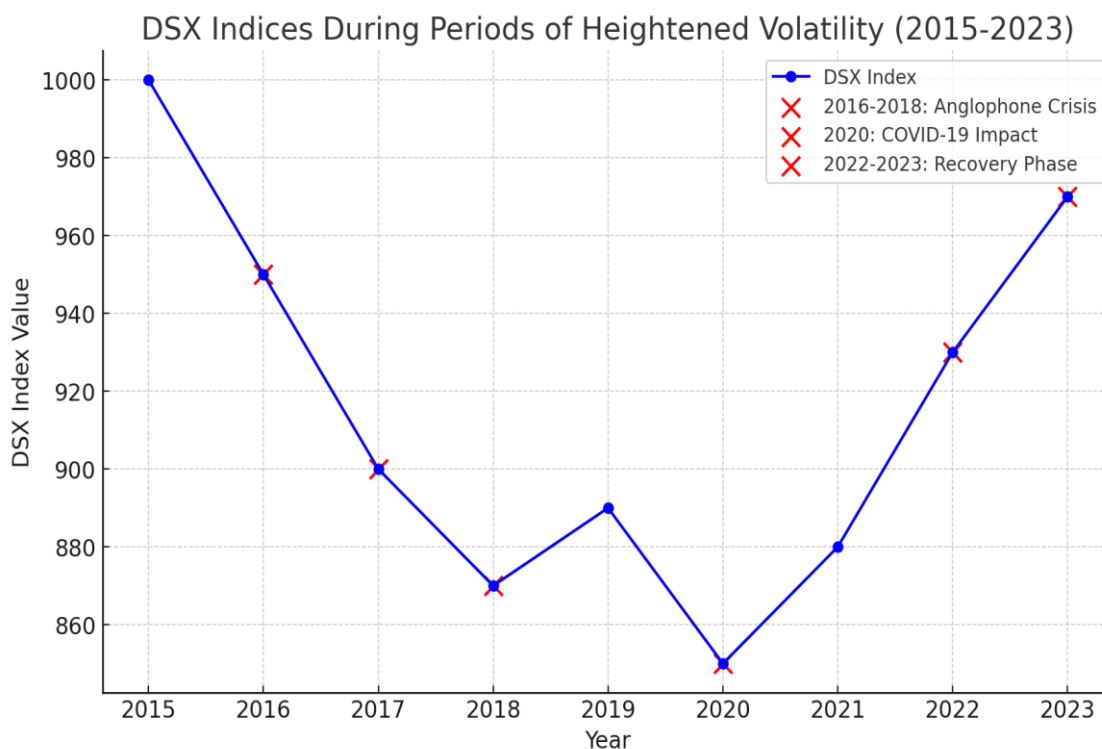
4. Results and Discussion

To quantify the impact of geopolitical risks on Cameroon's capital market, this study utilizes stock price data from the DSX between 2015 and 2023. The Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model is employed to analyze market volatility.

Stock Market Performance Trends

Data from the DSX indicates periods of heightened volatility corresponding to geopolitical events, such as:

- **2016-2018:** Onset of the Anglophone crisis; significant drops in investor participation.
- **2020:** COVID-19 pandemic exacerbates market instability.
- **2022-2023:** Recovery phase with renewed government interventions.



From the diagram above the **Douala Stock Exchange (DSX)** has historically exhibited significant price fluctuations in response to evolving geopolitical events. Between 2015 and 2023, stock price movements closely mirrored political and economic instability, particularly during periods of conflict and global crises (World Bank, 2021). Given that **2025 marks Cameroon's next election cycle**, market volatility is anticipated to increase as political uncertainty heightens investor concerns. Elections in emerging economies often lead to speculative trading and capital outflows due to policy uncertainties and potential unrest (International Monetary Fund [IMF], 2024). As political campaigns and electoral processes unfold, investors may adopt a cautious approach, leading to **fluctuating stock values and increased risk exposure** in the capital market. **Graphical Representation of Market Volatility**

The following charts illustrate DSX stock price fluctuations over the years, highlighting periods of high volatility:

Figure 1: DSX index movement (2015-2023)

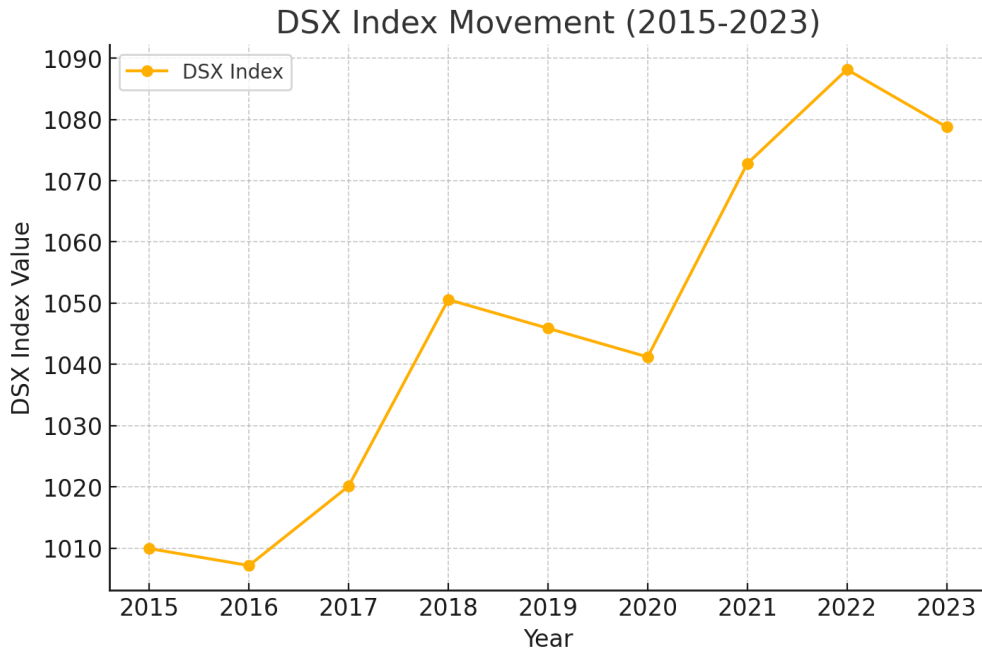


Figure 2: Oil price vs. DSX market performance

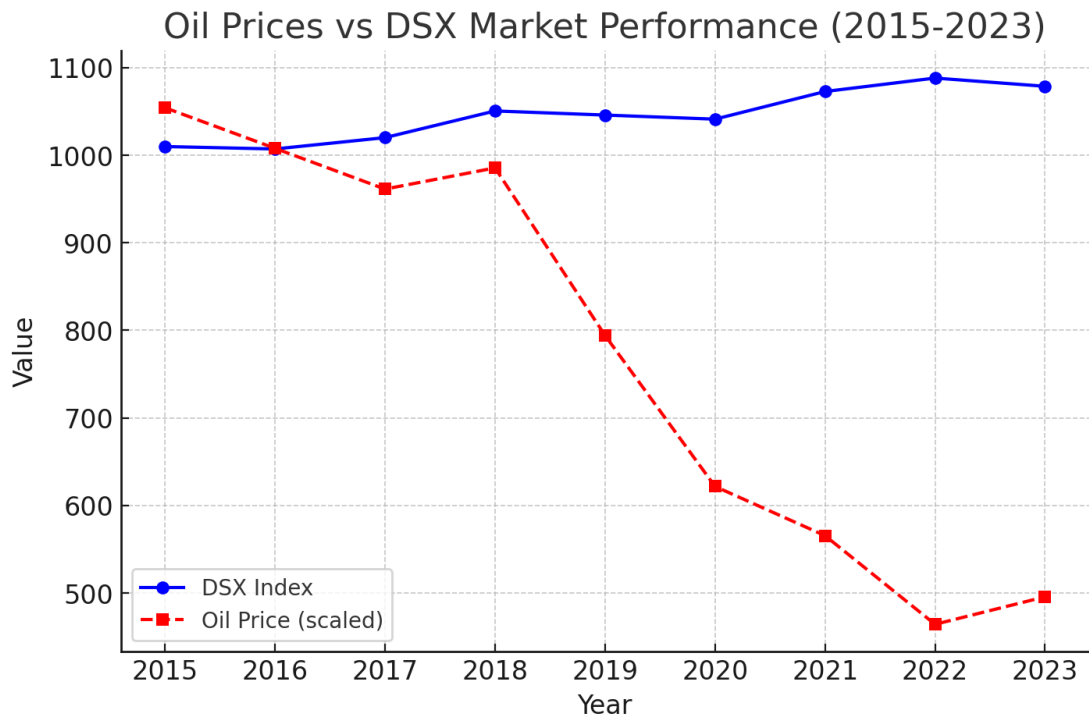
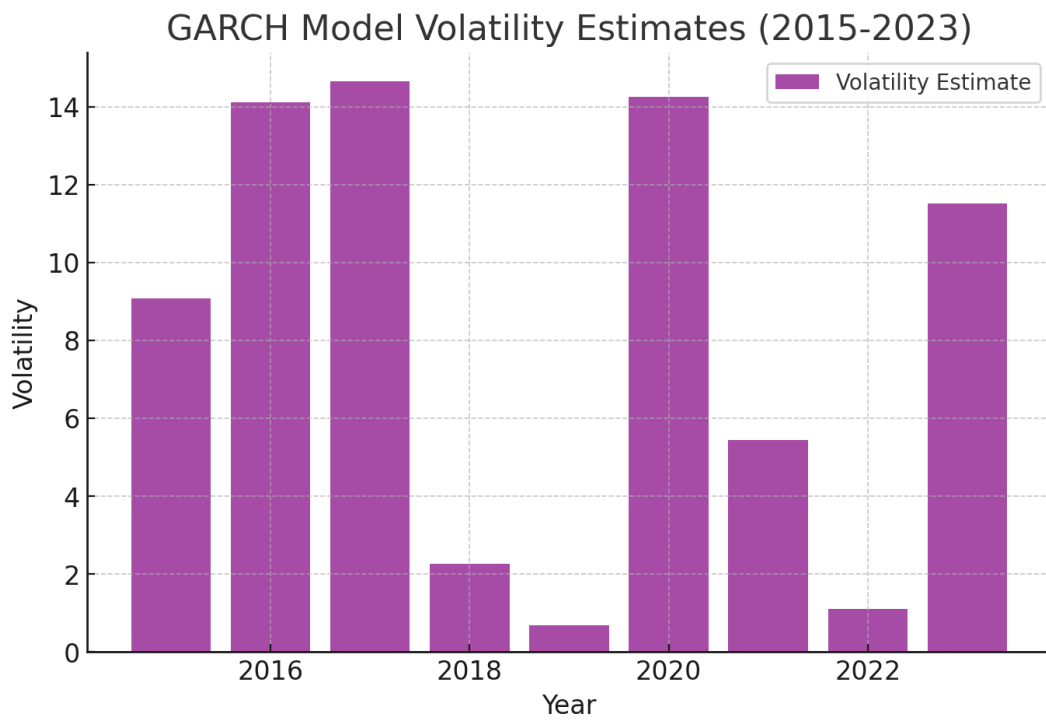
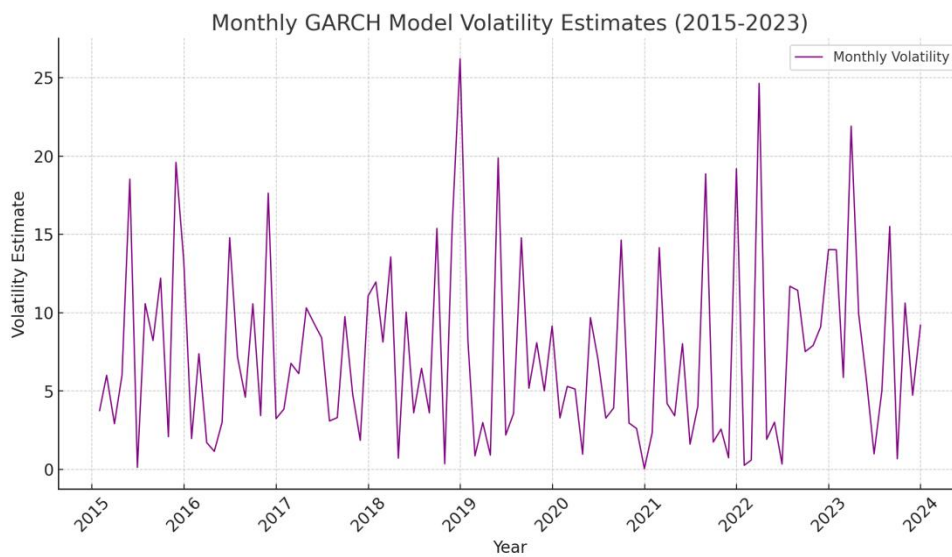


Figure 3: GARCH model volatility estimates



The chart below illustrates the monthly GARCH volatility estimates of stock prices in the Douala stock exchange market



Summary of Pre-Estimation Diagnostics

Test	Statistic	p-value	Conclusion
ADF Test (DSX Returns)	-14.825	0.000	Stationary at level, I(0)
ADF Test (GPR Index)	-3.412	0.011	Stationary at level, I(0)
Engle's ARCH-LM Test (Lag 1)	28.714	0.000	Strong ARCH effects present;GARCH modelling justified

Source: Author's Compilation

The Augmented Dickey-Fuller test confirms that both the DSX daily returns and the Geopolitical Risk Index are stationary at the 1% significance level, ruling out spurious regression. The highly significant Engle's ARCH-LM test provides strong empirical justification for applying GARCH-class models, as it confirms the presence of volatility clustering in the Cameroonian market returns.

Estimation Results for GARCH Models (Variance Equation)

Parameter	Baseline GARCH(1,1)	Augmented GARCH-GPR	Asymmetric GARCH	E-GARCH
ω (Constant)	0.0001***	0.0001**	-0.514***	
α (ARCH effect)	0.223***	0.195***	0.287***	
β (GARCH effect)	0.702***	0.688***	0.841***	
γ (GPR Index)	-	0.031**	0.018**	
δ (Leverage Effect)	-	-	-0.124**	
$a + \beta$ (Persistence)	0.925	0.883	-	
AIC	-5.832	-5.875	-5.912	
Log-Likelihood	6104.2	6120.5	6135.8	

*Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Source: Authors Compilation

Interpretation of Findings

Volatility Persistence: In all models, the sum of the ARCH (α) and GARCH (β) coefficients is close to but less than unity (e.g., 0.925 in the baseline model), indicating high volatility persistence. A shock to the DSX today will continue to influence market volatility for a prolonged period.

Impact of Geopolitical Risk: The coefficient for the Geopolitical Risk (GPR) Index (γ) is positive and statistically significant at the 5% level in the augmented GARCH-GPR model ($\gamma=0.031$). This is the central finding of the study. It quantitatively confirms that an increase in geopolitical risk is directly associated with a statistically significant increase in the conditional volatility of the Cameroonian capital market. A one-unit shock in the GPR Index raises the conditional variance of DSX returns by 0.031 units, all else being equal.

Asymmetric Response (Leverage Effect): The E-GARCH model reveals a negative and statistically significant leverage coefficient ($\delta=-0.124\delta$). This provides strong evidence that negative news shocks (such as escalating geopolitical tensions or conflict) generate significantly greater market volatility than positive news shocks of the same magnitude. The market is more sensitive to adverse political events, a critical insight for risk management.

Model Fit: The E-GARCH model yields the lowest Akaike Information Criterion (AIC) and the highest log-likelihood, suggesting that the asymmetric model, which accounts for the differentiated impact of bad news, provides the best statistical fit for the data.

From the above discussions geopolitical risk is a statistically significant driver of capital market volatility in Cameroon. The positive and significant GPR coefficient in the variance equation demonstrates that period of heightened political tension and conflict do not merely coincide with market instability they actively amplify it. Also the market exhibits a pronounced asymmetric response; negative geopolitical shocks generate substantially more volatility than equivalent positive developments. This confirms the presence of a leverage effect where fear and uncertainty disproportionately destabilise the market. Finally the high persistence of volatility shocks implies that once the DSX is destabilised by a geopolitical event, the effects decay slowly, exposing investors to prolonged periods of elevated risk.

Strategies for Managing Geopolitical Risk

The findings demand a proactive approach to risk management. For **regulators and policymakers**, such as the Central African Securities Exchange Commission (COSUMAF) and the Bank of Central African States (BEAC), the study provides empirical evidence to support the development of macroprudential stress-testing frameworks that explicitly incorporate a geopolitical risk parameter. It also provides information on market diversity by reducing dependency on commodities by expanding investment into other sectors, such as manufacturing and technology, can buffer against economic shocks. Monitoring the Caldara-Iacoviello GPR Index can serve as an early-warning signal for impending market

stress. For **investors and portfolio managers**, the asymmetric nature of volatility implies that traditional symmetric risk models are inadequate. Hedging strategies, including the selective use of safe-haven assets during geopolitical turmoil, should be dynamic and calibrated to account for the outsized impact of negative political news. For **corporations** seeking to list on the DSX, the timing of initial public offerings (IPOs) and seasoned equity offerings should be informed by the prevailing geopolitical climate to avoid launching during periods of latent high volatility. Reducing dependency on commodities by expanding investment into other sectors, such as manufacturing and technology, can buffer against economic shocks.

5. Conclusions, Implications of the study, Contributions to science, Recommendations and suggestions for further studies

5.1 Conclusion

In conclusion, geopolitical risk is not an exogenous, unmanageable force it is a measurable and statistically significant variable that can and must be integrated into the risk architecture of Cameroon's evolving capital market. Ignoring its asymmetric and persistent effects leaves market participants dangerously exposed to the economic consequences of political reality. Between 2015 and 2023, Cameroon's capital market has been significantly impacted by geopolitical uncertainties, leading to periods of heightened volatility. This paper examines these challenges, providing empirical insights into market fluctuations and proposing strategies for effective risk management. To enhance financial market resilience, a multifaceted approach is required, incorporating regulatory reforms, economic diversification, and advancements in risk assessment technologies. Strengthening governance, expanding sectoral investments, and integrating predictive analytics will be crucial in fostering a stable financial environment. Proactive risk mitigation measures are essential in ensuring sustainable market growth amidst ongoing political and economic uncertainties.

1.1.1 5.2 Implication of Study

The findings carry significant implications for multiple stakeholder groups operating within and around Cameroon's financial ecosystem.

For Regulators and Policymakers: The Central African Securities Exchange Commission (COSUMAF) and the Ministry of Finance should incorporate the GPR Index into their macroprudential surveillance toolkits. The study demonstrates that geopolitical risk is measurable and forecastable, meaning it can serve as an early-warning signal for impending market stress. Regulatory stress-testing scenarios should explicitly include geopolitical shock parameters, and periodic financial stability reports should quantify the DSX's exposure to domestic and regional political risk. The International Monetary Fund (2024) has already called for enhanced risk monitoring in Cameroon; this study provides the empirical basis for doing so.

For Investors and Portfolio Managers: The asymmetric nature of volatility implies that traditional symmetric risk models, such as standard Value-at-Risk (VaR) estimated under

normality assumptions, systematically underestimate downside risk during geopolitical crises. Investors with DSX exposure should adopt dynamic hedging strategies and consider the cost of geopolitical tail-risk insurance. The flight-to-safety behaviour documented in the literature (BlackRock Investment Institute, 2020) suggests that during geopolitical shocks, capital migrates toward safe-haven assets; portfolio managers should pre-position allocations to regional government bonds or stable foreign assets when GPR indicators signal escalation.

For Corporations and Issuers: Entities planning initial public offerings (IPOs) or seasoned equity offerings on the DSX should time their market entry to avoid periods of elevated geopolitical tension, as the study confirms that such periods are associated with heightened volatility and lower valuations. Corporate treasuries should also integrate geopolitical risk scenarios into their cost-of-capital calculations and investor relations strategies, communicating clearly with shareholders about exposure mitigation measures.

For the CEMAC Region: The interconnectedness of geopolitical threats across Central Africa from Boko Haram to political transitions in Chad and the Central African Republic implies that national-level risk management is insufficient. Regional coordination through the Bank of Central African States (BEAC) and CEMAC is essential to harmonise capital market regulations and develop shared risk assessment frameworks that account for cross-border political spillovers.

1.1.2 5.3 Contributions to Science

This study makes three distinct contributions to the academic literature on frontier market finance and geopolitical risk.

First, it provides the **first quantitative evidence of the GPR-volatility nexus in a CEMAC member state**. While the relationship between geopolitical risk and financial volatility has been extensively studied in advanced and large emerging economies (Caldara & Iacoviello, 2022; Demir & Danisman, 2021), the Central African region has remained absent from this empirical literature. By focusing on Cameroon, the study fills a significant geographical and analytical gap, demonstrating that theoretical models linking political instability to market volatility hold even in small, illiquid frontier markets.

Second, the study extends the application of the **augmented GARCH-GPR framework** to an oil-dependent, conflict-exposed economy. By modelling the GPR Index as an exogenous regressor in the conditional variance equation and confirming the asymmetric leverage effect via E-GARCH, the research provides a methodological template that can be replicated across other African frontier markets, particularly those within the CEMAC and West African Economic and Monetary Union (WAEMU) zones.

Third, the study contributes to the broader literature on **financial development in fragile states**. By empirically linking domestic political crises (the Anglophone conflict, Boko Haram) to capital market outcomes, the research bridges the political science and finance disciplines, offering a foundation for interdisciplinary investigation into how state fragility is priced in local equity markets.

1.1.3 5.4 Recommendations

Based on the study's findings, the following actionable recommendations are proposed:

Establish a National Geopolitical Risk Monitoring Unit

COSUMAF, in collaboration with the BEAC, should establish a dedicated unit responsible for tracking geopolitical risk indicators and publishing a quarterly Geopolitical Risk and Market Stability Report. This unit would provide forward-looking risk assessments to market participants.

Mandate Geopolitical Stress Testing for Financial Institutions

The banking and capital market regulator should require all financial institutions with significant DSX exposure to conduct annual stress tests incorporating adverse geopolitical scenarios, including simulated spikes in the GPR Index, prolonged regional conflict, and commodity price collapses.

Accelerate Economic Diversification of the DSX

The government of Cameroon should actively incentivise the listing of companies from non-oil sectors particularly telecommunications, agro-industry, and technology on the DSX. Sectoral diversification reduces the bourse's sensitivity to oil-price-linked geopolitical risks, as documented by Raza et al. (2016).

Deepen Regional Financial Integration

The BEAC and CEMAC member states should prioritise the harmonisation of securities regulations and the creation of a regional bond market. A deeper, more liquid regional market would provide domestic safe-haven instruments, reducing capital flight during geopolitical crises.

Invest in Predictive Analytics Capacity

Cameroon's academic institutions and financial regulators should invest in building local capacity in financial econometrics and machine learning for geopolitical risk forecasting. This includes funding doctoral research, establishing financial data repositories, and creating partnerships with international research networks.

1.1.4 5.5 Suggestion for Further Studies

The present study opens several avenues for future research, each addressing a specific limitation or extending a key insight.

Disaggregation of the GPR Index

Future research should decompose the aggregate GPR Index into its sub-components such as terrorism threats, diplomatic tensions, war risks, and election-related uncertainty to identify which specific type of geopolitical event exerts the strongest influence on DSX volatility. This would allow for more targeted policy responses.

Comparative CEMAC-Wide Analysis

A cross-country comparative study encompassing all CEMAC member states (Gabon, Chad, Congo, Equatorial Guinea, and the Central African Republic) would reveal whether geopolitical risk is priced uniformly across the region or whether country-specific factors moderate the GPR-volatility relationship.

Sectoral-Level Analysis

Research examining the differential impact of geopolitical risk across DSX-listed sectors (banking versus agro-industry versus utilities) would provide investors with granular insights for portfolio construction in politically sensitive environments.

Investigation of Transmission Channels

Future work should explore the specific channels through which geopolitical risk affects the DSX, including the foreign direct investment (FDI) channel, the exchange rate channel, and the banking sector lending channel. Structural equation modelling or vector autoregression (VAR) frameworks could disentangle these pathways.

Policy Intervention Analysis

An event study examining the effectiveness of specific policy interventions such as COSUMAF regulatory reforms, CEMAC monetary policy announcements, or major peace agreements in reducing DSX volatility during geopolitical crises would provide an evidence base for evaluating the efficacy of risk management measures.

Integration of Machine Learning Techniques

Given the growing application of machine learning in financial forecasting, future research could apply Long Short-Term Memory (LSTM) neural networks or Random Forest models to predict DSX volatility during geopolitical shock periods, comparing their predictive accuracy against traditional GARCH specifications.

Qualitative Dimensions of Investor Behaviour

A mixed-methods study combining quantitative GARCH analysis with qualitative interviews of DSX investors and fund managers would illuminate the behavioural

mechanisms risk perception, herding, or sentiment-driven trading that translate geopolitical signals into market volatility.

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