International Summit on Science Technology and Humanity
ISETH 2025
ISSN: 2615-1588 (online)

Global Economic Policy Uncertainty and Sectoral Stock Resilience in Indonesia

Yosi Oftasari[1], Nur Andriyani[2]

[1,2] Faculty of Economics and Business, Universitas Muhammadiyah Surakarta, Surakarta, Indonesia

Email: b300220199@student.ums.ac.id

Abstract

This study investigates the impact of Global Economic Policy Uncertainty (GEPU) on sectoral stock indices in Indonesia, specifically the financial, energy, and consumer cyclical sectors within the framework of the Arbitrage Pricing Theory (APT). Using monthly data from January 2021 to June 2025 and applying the Autoregressive Distributed Lag (ARDL) model, the research examines both the short- and long-run relationships between GEPU, key macroeconomic variables, and sectoral stock performance. The findings reveal that GEPU exerts a negative and significant influence on the financial and energy sectors, indicating capital withdrawal and higher risk premiums during periods of global uncertainty. In contrast, the consumer cyclical sector shows a positive response, suggesting short-term resilience as domestic consumption rebounded in the post-pandemic recovery phase. These results highlight that each sector responds differently to external shocks through distinct transmission channels: financial intermediation, commodity pricing, and consumer sentiment. The evidence provides valuable insights for both investors and policymakers to identify resilient sectors and to design strategic responses that enhance market stability and support sustainable economic growth (SDG 8) in periods of heightened global uncertainty.

Keywords: Global Economic Policy Uncertainty (GEPU), Sectoral Stock Indices, Financial Sector, Consumer Sector, Energy Sector, Consumer Cyclical Sector, Sustainable Growth.

Introduction Section

The financial market plays a vital role in the modern economy, not only as a channel for capital allocation through instruments such as stocks, bonds, and derivatives, but also as a reflection of investors' expectations toward the direction of future economic growth. Within the framework of the global agenda for sustainable development, particularly Sustainable Development Goal 8, which emphasizes inclusive and sustainable economic growth as well as the creation of decent and productive employment, financial market stability becomes a crucial prerequisite to ensure that financing for the real sector proceeds without extreme fluctuations. Such stability instills confidence in the financial system, encouraging investors, depositors, and savers to provide funds that are subsequently channeled into productive activities supporting sustainable development (Ozili & Iorember, 2024).

The financial market performs a dual function in sustainable finance. first, as a provider of funding for investments linked to the SDGs, and second, as a socially responsible institution, meaning that investment decisions are not solely based on financial returns but also on their impact on the environment, society, and corporate governance. These aspects are reflected in the integration of Environmental, Social, and Governance (ESG) factors into the investment decision-making process (Jurkowska-Zeidler & Janovec, 2024). Thus, the efficiency and activity of the financial market not only support economic growth but also strengthen the foundation for achieving sustainable development goals.

As one of the main components of the financial system, the capital market functions as a leading indicator of the economic cycle, as stock price movements and liquidity levels respond more rapidly to changes in expectations and global dynamics compared to real macroeconomic data such as Gross Domestic Product (GDP) or industrial production. The OECD report on Composite Leading Indicators (CLI) includes stock indices as an important variable in predicting turning points in the business cycle. Therefore, stock market stability can serve as an indicator showing whether the financing ecosystem is prepared to support sustainable economic growth (Astolfi et al., 2016).

The interconnectedness between domestic financial markets and global capital flows makes policy uncertainty in major economies a critical external factor for the stability of Indonesia's capital market. The increasing uncertainty in the global economy can be measured through the Global Economic Policy Uncertainty (GEPU) Index. This index captures uncertainty in fiscal, monetary, and regulatory policies across countries, which subsequently affects global risk perceptions. Data from the Federal Reserve Bank of St. Louis (FRED) indicate that the GEPU PPP-adjusted GDP has experienced a

significant surge during the post-pandemic period up to mid-2025. Such a surge may cause investors to become more cautious, raise risk premiums, and potentially disrupt financing channels to developing economies.

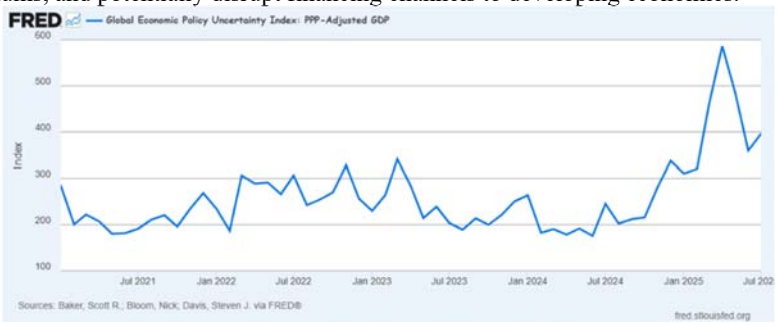


Figure 1 GEPU PPP-Adjusted GDP, January 2021 – June 2025

According to data from the Federal Reserve Bank of St. Louis (FRED), the Global Economic Policy Uncertainty (GEPU) PPP-adjusted GDP series exhibits sharp fluctuations throughout the 2021–2025 period. After declining in early 2021 following the relaxation of post-COVID-19 policies, the index rose again due to persistent uncertainty surrounding the direction of U.S. trade policy toward China, which maintained import tariffs imposed during the Donald Trump administration. These tensions disrupted global supply chains—particularly in the technology and manufacturing sectors—and increased volatility in international commodity prices.

Another significant surge occurred between 2022 and 2023, triggered by the Russia–Ukraine war, which led to sharp increases in global energy and food prices. This was followed by aggressive monetary tightening by the Federal Reserve, the European Central Bank, and the Bank of England in an effort to curb post-pandemic inflation. The pressure continued through late 2024, as a combination of geopolitical tensions and uncertainty over fiscal and monetary policy directions in advanced economies further amplified volatility in global financial markets. The GEPU reached its peak in April 2025, marked by the escalation of conflict in the Middle East, uncertainty surrounding the results of the 2024 U.S. presidential election, and the reinstatement of Trump-era tariffs.

The transmission of global uncertainty to the domestic capital markets of developing countries occurs through several mechanisms. When GEPU increases, global investors tend to withdraw their funds from emerging equity markets and move them into safe-haven instruments such as U.S. Treasury bonds or gold. Uncertainty also heightens the volatility of domestic exchange rates and interest rates, as markets perceive higher external risks that affect return expectations and the cost of capital in local markets. External shocks can trigger a reversal of previously inflowing capital into outflows, which increase stock market volatility and reduce liquidity.

The impact of global policy uncertainty on stock markets is not homogeneous across sectors. Sectoral analysis is necessary, as each sector reacts differently to changes in global policy conditions. Aggregate-based approaches, such as the overall stock index (IHSG), often obscure structural differences among sectors that are essential for stability and development financing policies. The financial sector exhibits the highest sensitivity to changes in global policy uncertainty. When policy uncertainty increases, banks and financial institutions tend to tighten credit distribution, restrain expansion, and raise risk premiums (Bordo et al., 2016). The energy sector reacts primarily through the commodity cost channel, rising commodity prices in this sector increase revenue but also generate input cost risks and potential subsidy policy adjustments (Afonso et al., 2024). The cyclical sector is affected through the consumer sentiment channel, as demand for this industry depends on consumer expectations and global manufacturing activity (Bannigidadmath, 2020; Gaspar & Jiaming, 2023). These three sectors represent the main transmission pathways of global risk through financial, commodity, and real demand channels.

The theoretical foundation of this study is the Arbitrage Pricing Theory (APT) developed by Ross (1976), which posits that the expected return of an asset is a linear function of several systematic risk factors that cannot be eliminated through diversification. Empirical tests by Chen et al., (1986) demonstrated that variations in stock returns can be explained by shocks in inflation, industrial production, the term structure of interest rates, and default risk premiums. GEPU, bond yields, inflation, and the real production index (IPR) are interpreted as systematic risk factors that are "priced" by the market at the sectoral level. Within APT, the sensitivities (factor loadings) of each asset are not uniform. The concept of momentum and delayed price discovery explains the behavior of the financial sector, which often experiences delayed reflection of macroeconomic information in stock prices, leading to short-term overreactions or underreactions. The commodity cost channel emphasizes the transmission of global energy prices to production costs and sectoral revenues in the energy industry. Meanwhile, the consumer sentiment theory explains the correlation between consumer confidence indices and the performance of cyclical and basic material sector stocks.

By considering the relationship between global policy uncertainty and the performance of sectoral stock markets, this study is expected to provide a deeper understanding of how external shocks are transmitted into domestic market dynamics. The analysis focusing on three stock market sectors, namely financial, energy, and cyclical, offers a clearer perspective on the extent to which each sector can maintain stability (resilience) amid global volatility.

This study aims to answer how global economic policy uncertainty (GEPU) influences the performance of Indonesia's sectoral stock indices while taking into account relevant domestic macroeconomic factors. It also seeks to determine whether this relationship is short term or long term, since financial market dynamics are affected not only by temporary changes but also by more permanent structural economic conditions. Therefore, the purpose of this research is to analyze and compare the effects of GEPU on the financial, energy, and cyclical sectors, and to examine how domestic macroeconomic variables may strengthen or weaken its impact using the Autoregressive Distributed Lag (ARDL) approach.

The results of this analysis are expected to identify sectors with relatively higher resilience when global pressures increase, providing an empirical foundation for the formulation of more adaptive economic policies. The government can use these findings to strengthen the fundamentals of sectors that act as economic stabilizers and to create an investment climate that remains attractive to foreign capital when uncertainty in advanced economies rises. For investors, the findings of this study can serve as a reference for making more strategic cross-sectoral portfolio allocations by considering global risk factors and domestic macroeconomic characteristics. Thus, maintaining the resilience of these key sectors is not only relevant for the short-term stability of the capital market but also for the long-term sustainability of national development financing. A deeper understanding of the transmission patterns of global risk is expected to strengthen Indonesia's position as a resilient and competitive market amid an increasingly uncertain global economic landscape.

Research Methodology

This research adopts a quantitative approach using time series data to analyze the impact of global economic policy uncertainty on the performance of sectoral stock indices in Indonesia. The model applied is the Autoregressive Distributed Lag (ARDL) model as developed by Pesaran, Shin dan Smith (2001) through the Bound Testing cointegration approach. This method enables simultaneous analysis of both short-term and long-term relationships when the variables have mixed orders of integration, namely I(0) and I(1).

The data used in this study are secondary data with a monthly frequency covering the period from January 2021 to June 2025. The data consist of (1) sectoral stock indices from the Indonesia Stock Exchange, (2) the Global Economic Policy Uncertainty (GEPU) Index from the Economic Policy Uncertainty database, (3) the BI Rate, inflation, the JISDOR exchange rate, and the 10-year government bond yield obtained from Bank Indonesia, (4) inflation and the Industrial Production Index (IPR) from Statistics Indonesia (BPS), and (5) the benchmark coal price and crude oil price from the Ministry of Energy and Mineral Resources (ESDM). All nominal variables are transformed into natural logarithmic form (ln) to stabilize variance and enable elasticity interpretation. The model specification is presented as follows:

1. Financial sector stock index

$$\ln(FIN_t) = \beta_0 + \sum_{i=1}^{p} \beta_{1i} \ln(FIN_{t-1}) - \sum_{i=0}^{q1} \beta_{2i}\, ln(GEPU_{t-1}) + \sum_{i=0}^{q2} \beta_{3i}\, Yeild_{t-1} - \sum_{i=0}^{q3} \beta_4\, Infl_{t-1} + e_t \quad (1)$$

2. Energy sector stock index

$$ln(ENE_t) = \beta_0 + \sum_{i=1}^{p} \beta_{1i}\, ln(ENE_{t-1}) - \sum_{i=0}^{q1} \beta_{2i}\, ln(GEPU_{t-1}) + \sum_{i=1}^{q2} \beta_{3i}\, ln(HBA_{t-1}) + \sum_{i=0}^{q3} \beta_{4i}\, ln(HMM_{t-1}) - \sum_{i=0}^{q4} \beta_{5i}\, Infl_{t-1} + e_t \quad (2)$$

3. Consumer Cyclical sector stock index

$$ln(CYC_t) = \beta_0 + \sum_{i=1}^{p} \beta_{1i}\, ln(CYC_{t-1}) - \sum_{i=0}^{q1} \beta_{2i}\, ln(GEPU_{t-1}) + \sum_{i=1}^{q2} \beta_{3i}\, ln(IPR_{t-1}) - \sum_{i=0}^{q3} \beta_{4i}\, Kurs_{t-1} - \sum_{i=0}^{q4} \beta_{5i}\, Birate_{t-1} + e_t \quad (3)$$

With the following definitions:

Sectoral Stock Indices (FIN, ENE, CYC) = Stock indices for the financial, energy, and basic materials sectors (Index)
GEPU = Global Economic Policy Uncertainty PPP-Adjusted GDP (Index)
BI Rate = Interest rate (Percent)
Yield= 10-year government bond yield (Percent)
Infl = Inflation (Percent)
IPR = Real Sales Index (Index)
HMM = Brent crude oil price (USD per barrel)
HBA = Benchmark coal price (USD per ton)
Kurs = JISDOR exchange rate (Rp/USD)

The analysis was conducted sequentially through the following steps: (1) stationarity testing using the Augmented Dickey-Fuller (ADF) test, (2) determination of the optimal lag length based on the Akaike Information Criterion (AIC), (3) cointegration testing using the Bound Test approach, (4) estimation of short-term and long-term parameters using the ARDL/ECM model, (5) classical assumption testing and model stability testing using the Jarque-Bera Normality Test, the Breusch-Godfrey Serial Correlation LM Test for autocorrelation, the Heteroskedasticity Test, and (6) model stability testing using the CUSUM and CUSUMQ tests.

Empirical Findings

Stationarity Test

The stationarity test was conducted using the Augmented Dickey-Fuller (ADF) method to ensure that each variable is free from unit roots so that the model estimation results are not spurious. According to Fakhrurrazi & Juliansyah(2021), this test is crucial in studies employing dynamic models, as non-stationary data may produce misleading relationships that distort both the direction and the strength of associations among variables. Therefore, the stationarity test was carried out as an initial step before estimating the dynamic model such as ARDL.

Table 1 Unit Root Test

No.	Variabel	Prob. Level	Prob. First Difference	Keterangan
1.	Log Cyc	0,4324	0,000	Stasioner I(1)
2.	Log Fin	0,0810	-	Stasioner I(0)
3.	Log Ene	0,0979	-	Stasioner I(0)
4.	Log HBA	0,5194	0,000	Stasioner I(1)
5.	Log IPR	0,1719	0,000	Stasioner I(1)
6.	Log Kurs	0,6891	0,000	Stasioner I(1)
7.	Infl	0,6646	0,000	Stasioner I(1)
8.	Log HMM	0,0907	-	Stasioner I(0)
9.	Yeild	0,0413	-	Stasioner I(0)
10.	Log GEPU	0.1178	0.0108	Stasioner I(1)
11.	Birate	0.4675	0.0058	Stasioner I(0)

Source: Processed data, 2025

Based on Table 1 (Unit Root Test), it can be concluded that the data used in this study have met the requirements for applying the ARDL model, which can only be used when variables are integrated at mixed orders of I(0) and I(1), without the presence of any I(2) variables. All research variables have satisfied the basic assumption of stationarity and are thus suitable for both short-term and long-term analysis using the ARDL model.

Bound Test for Cointegration

The cointegration test was conducted to determine whether there is a long-term relationship between the dependent and independent variables in the ARDL model. The method used is the Bound Test developed by Pesaran, Shin dan Smith (2001), with the null hypothesis (H_0) stating that there is no long-term relationship and the alternative hypothesis (H_1) indicating the existence of cointegration. The decision is made by comparing the F-statistic value with the lower bound (I(0)) and the upper bound (I(1)). If the F-statistic is greater than the upper bound (I(1)), cointegration exists; if it is smaller than the lower bound (I(0)), there is no cointegration; and if it lies between the two bounds, the result is inconclusive and no definitive decision can be made.

According to Montenegro(2019) the Bounds Test can be applied to variables integrated at I(0) and I(1), provided that none of the variables are stationary at I(2). To ensure valid cointegration results, preliminary tests such as stationarity and optimal lag selection are required prior to the cointegration analysis. These steps ensure that the ARDL model satisfies basic assumptions and avoids bias. The results of this test show that the LogCyc model has an F-statistic value of 2.887442, which falls between the lower bound (2.823) and the upper bound (3.872) at the 5 percent significance level, indicating an inconclusive result with no clear evidence of cointegration. The LogEne model records an F-statistic value of 2.462970, which is lower than the lower bound (2.982), suggesting no long-term relationship between the dependent and independent variables. The LogFin model, however, has an F-statistic of 4.513764, which is higher than the upper bound (3.942), indicating the presence of a long-term relationship among the variables.

To reinforce the findings, the LogCyc model was also tested at the 1 percent significance level. The F-statistic value of 2.887442, which is lower than the lower bound (3.29), confirms that no long-term relationship exists at a stricter significance level. Therefore, a long-term relationship is found only in the financial sector model (LogFin), while the cyclical (LogCyc) and energy (LogEne) sector models show no significant long-term relationships. This outcome explains the differences in each sector's sensitivity to global economic changes, with the financial sector being more responsive to macroeconomic fluctuations compared to the real sectors.

Optimum Lag Test

The selection of the optimum lag was based on the Akaike Information Criterion (AIC), by considering the smallest AIC value among all variables to be estimated. The optimal lag is determined from the model specification that produces the minimum AIC value (Musthafa & Ratna, 2023). Berdasarkan hasil pengujian, model lag optimum yang diperoleh yaitu ARDL (5,2,2,0,0) untuk sektor siklikal, ARDL (1,2,2,3,0) untuk sektor energi dan ARDL (3,0,2,0) untuk sektor Keuangan.

Classical Assumption Tests

1. Normality Test

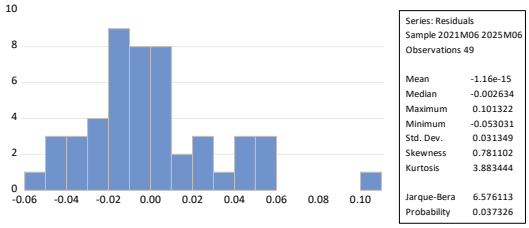
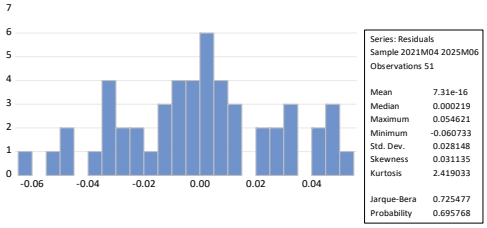


Figure 2 Normality Test Consumer Cyclical Sector



1. *Figure 3 Normality Test Financial sector*

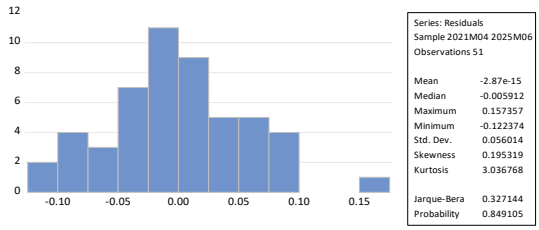


Figure 4 Normality Test Energy Sector

The normality of residuals was tested using the Jarque-Bera test. The results show that for the cyclical sector, the data are normally distributed with a probability value of 0.037 > α = 0.01; for the financial sector, the data are normally distributed with a probability value of 0.695 > α = 0.1; and for the energy sector, the data are normally distributed with a probability value of 0.849 > α = 0.1.

2. Autocorrelation Test

Table 2 Autocorrelation Test Consumer Cyclical

F-statistic	0.668256	Prob. F(6,29)	0.6758
Obs*R-squared	5.951835	Prob. Chi-Square(6)	0.4286

Table 3 Autocorrelation Test Energy Sector

F-statistic	0.997471	Prob. F(6,33)	0.4434
Obs*R-squared	7.829357	Prob. Chi-Square(6)	0.2509

Table 4 Autocorrelation Test Financial Sector

F-statistic	0.816548	Prob. F(6,36)	0.5643
Obs*R-squared	6.109242	Prob. Chi-Square(6)	0.4111

The autocorrelation test was conducted using the Breusch-Godfrey Serial Correlation LM Test. The results indicate that the cyclical sector has a probability value of 0.4286, the energy sector 0.2509, and the financial sector 0.4111. Since all probability values are greater than 0.1, all three models are free from autocorrelation problems.

3. Heteroskedasticity test

Table 5 Heteroskedasiticity Test Consumer Cyclical Sector

F-statistic	0.787265	Prob. F(13,35)	0.6680
Obs*R-squared	11.08641	Prob. Chi-Square(13)	0.6036
Scaled explained SS	8.154861	Prob. Chi-Square(13)	0.8334

Table 6 Heteroskedasiticity Test Energy Sector

F-statistic	0.486670	Prob. F(11,39)	0.9002
Obs*R-squared	6.155603	Prob. Chi-Square(11)	0.8628
Scaled explained SS	3.665819	Prob. Chi-Square(11)	0.9787

Table 7 Heteroskedasiticity Test Financial Sector

F-statistic	1.612106	Prob. F(8,42)	0.1504
Obs*R-squared	11.98137	Prob. Chi-Square(8)	0.1520
Scaled explained SS	5.765368	Prob. Chi-Square(8)	0.6735

The results show that the cyclical sector has a probability value of 0.6036, the energy sector 0.8628, and the financial sector 0.1520. Since all probability values are greater than 1 percent, all three models are declared free from heteroskedasticity.

ARDL Model Stability Test

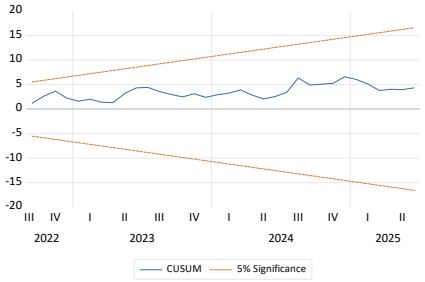


Figure 5 Cusum Test Consumer Cyclical sector

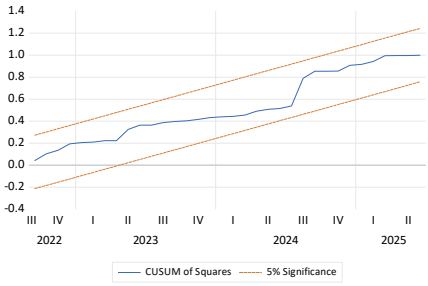


Figure 6 CusumQ Test Consumer Cyclical Sector

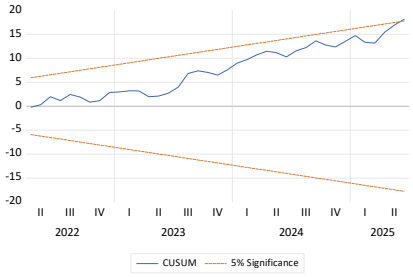


Figure 7 Cusum Test Energy Sector

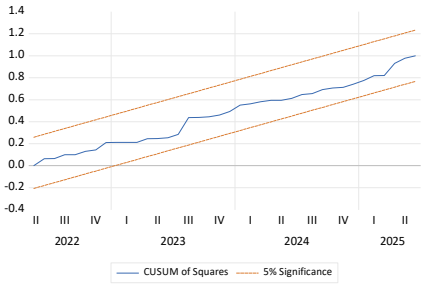


Figure 8 CusumQ Test Energy Sector

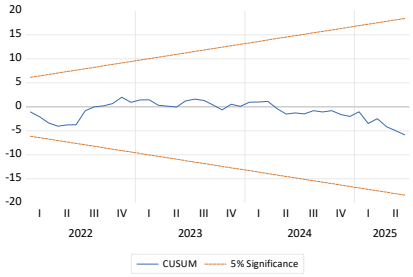


Figure 9 Cusum Test Financial Sector

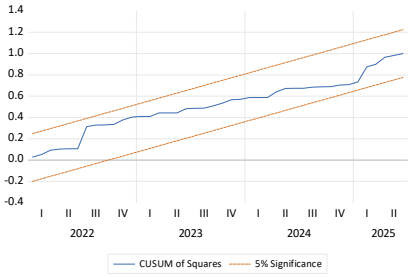


Figure 10 CusumQ Financial Sector

The stability of the ARDL model was tested using the CUSUM and CUSUM of Squares methods to examine the consistency of the model parameters throughout the observation period. A model is considered stable when the CUSUM and CUSUM of Squares plots remain within the 5 percent significance boundaries. Based on the figures presented above, all sectors show that the blue plot line lies within the 5 percent significance limits. Therefore, the regression coefficients of all three models are stable and did not experience any structural changes during the research period.

Discussion

Short-Run Estimation Results

1. Consumer Cyclical Stock Index

Based on the Bound Test results, no cointegration was found for the consumer cyclical stock index; therefore, the discussion focuses only on short-run dynamics. The R^2 value is 0.8417, indicating that 84.17 percent of the variation in the consumer cyclical stock index is explained by GEPU, exchange rate, IPR, inflation, and the BI rate, while the remaining variation is influenced by factors outside the model.

Table 8 Short run consumer cyclical stock index

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGCYC(-1))	-0.051209	0.137252	-0.373100	0.7113
D(LOGCYC(-2))	0.044822	0.133844	0.334886	0.7397
D(LOGCYC(-3))	-0.095162	0.136496	-0.697182	0.4903
D(LOGCYC(-4))	-0.350971	0.137377	-2.554807	0.0151
D(LOGGEPU)	0.054911	0.037087	1.480570	0.1477
D(LOGGEPU(-1))	0.129182	0.037740	3.422969	0.0016
D(LOGIPR)	-0.275614	0.122172	-2.255952	0.0304
D(LOGIPR(-1))	-0.235013	0.116018	-2.025654	0.0505

In the short run, the variable D(LogGEPU(-1)) shows a positive and significant effect with a probability value of 0.016, which is below the 1 percent significance level. This implies that a 1 percent increase in GEPU in the previous month raises the consumer cyclical stock index by approximately 0.1292 percent in the current month. This finding suggests that an increase in global economic policy uncertainty in the previous month is followed by an increase in the consumer cyclical stock index in the current month. The rise in GEPU encourages foreign investors to diversify their portfolios toward emerging markets as part of a search for higher returns amid global volatility, since certain stocks in emerging markets can generate positive returns when global risk levels are high (Phuc Nguyen et al., 2025). The study by Dang et al. (2024) found that the consumer cyclical stock index in emerging economies acts as a major net risk transmitter, both in the short and long term, meaning that shocks originating from this sector can rapidly spill over to other sectors and increase market volatility. However, the results in Indonesia show a different pattern, which can be attributed to the high contribution of household consumption to Indonesia's GDP. Consequently, the consumer cyclical stock index functions as a stabilizing buffer that helps maintain stock market stability. When GEPU increases, reflecting global uncertainty, investors tend to rotate their portfolios to find markets that are more resilient.

The variables D(LogIPR) and D(LogIPR(-1)) have negative coefficients with probability values of 0.030 and 0.0506, significant at the 5 percent and 10 percent levels, respectively. This indicates that a 1 percent increase in the Real Sales Index (IPR) in the current month reduces the consumer cyclical stock index by approximately 0.2756 percent in the same month, and a 1 percent increase in the previous month's IPR decreases the index by 0.2350 percent in the current month. This result suggests that an increase in industrial production activity drives greater demand for operational financing, creating a crowding-out effect in the capital market. When real-sector economic activity rises, part of the liquidity circulating in the stock market may be redirected to the real sector, reducing liquidity in the equity market (Arkol & Azimli, 2024). This condition can be explained by the concept of liquidity reallocation, in which funding sources are prioritized to support real-sector production activities, leading to a reduction in the flow of funds to the capital market. The persistent negative effect in the one-month lag reflects a lagged adjustment, indicating that the market requires time to assess the sustainability of production growth. Changes in industrial output may depress stock performance over a longer period, especially when firms face financing constraints. (Gui et al., 2024).

The variable D(LogCyc(-4)) has a negative coefficient and a probability value of 0.0151, which is significant at the 5 percent level. This indicates that a 1 percent increase in the consumer cyclical stock index four months earlier is corrected downward by approximately 0.3510 percent in the current month. This finding reinforces the core proposition of the Arbitrage Pricing Theory (APT) that global risk (GEPU) and real-sector risk (IPR) serve as dominant risk factors for the consumer cyclical stock index.

2. Energy Stock Index

Based on the Bound Test results showing no cointegration in the energy stock index model, the discussion for this sector focuses solely on short-run dynamics. The R^2 value of 0.979 indicates that 97.9 percent of the variation in the energy stock index is explained by GEPU, crude oil price (HMM), benchmark coal price (HBA), and the Baltic index, while the remaining variation is influenced by factors outside the model. This finding aligns with the principle of the APT, which states that asset returns are not solely determined by internal firm

characteristics but are also influenced by sensitivity to systematic risk factors such as global commodity prices and global uncertainty.

Table 9 1. Short run energy stock index

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGGEPU)	0.092770	0.057866	1.603193	0.1172
D(LOGGEPU(-1))	0.135929	0.061240	2.219623	0.0325
D(LOGHMM)	0.362066	0.141077	2.566437	0.0143
D(LOGHMM(-1))	-0.364478	0.163761	-2.225666	0.0320
D(LOGHBA)	0.056132	0.093247	0.601970	0.5508
D(LOGHBA(-1))	0.119817	0.094947	1.261933	0.2147
D(LOGHBA(-2))	-0.238276	0.081089	-2.938466	0.0056

The variable D(LogGEPU(-1)) has a positive and significant effect with a probability value of 0.0325, significant at the 5 percent level. This implies that a 1 percent increase in GEPU leads to an increase of about 0.14 percent in the energy stock index in the following month. When global uncertainty rises, investors tend to rotate their portfolios toward energy-based assets, which are perceived as having hedging value against geopolitical and energy inflation risks (Nguyen et al., 2025). Investors view the energy sector as essential because energy demand is inelastic, consumption cannot be easily postponed and derivative energy commodities function as safe-haven assets, meaning assets that remain stable or even increase in value when markets are volatile. This is consistent with Afonso et al.(2024) who found that global uncertainty shocks can drive up energy prices through both demand and supply-side channels. When uncertainty increases, firms and consumers tend to stockpile energy resources, while investments in infrastructure such as oil and gas decline. This situation reduces energy supply and pushes up commodity prices. In Indonesia, rising global pressures are often met with stronger national energy policies, which generate positive short-term sentiment. Within the framework of APT, GEPU acts as a systematic risk factor that shifts return expectations. When global risk rises, markets anticipate higher risk premiums and potential increases in energy commodity prices. Rational investors seek to exploit these mispricing opportunities, leading to higher stock prices in the energy sector. (Ross, 1976).

The variables D(LogHMM) and D(LogHMM(-1)) have positive and negative effects, respectively, with probability values of 0.0143 and 0.0320, both significant at the 5 percent level. This means that a 1 percent increase in crude oil prices raises the energy stock index by approximately 0.36 percent in the same month. This result is consistent with the findings of Sipayung et al. (2023) who reported that almost all companies in the energy sector use oil as their primary input for operational activities. The increase in crude oil prices, partly triggered by geopolitical conflicts such as the Russia–Ukraine war, boosts the profits of energy companies and attracts investors to invest in energy sector stocks, thereby driving up stock prices. An increase in crude oil prices enhances the revenues and profit margins of companies listed in the energy stock index, sending a positive signal to investors and prompting a rise in stock prices (Adhani & Nurazi, 2025). In the context of the energy stock index, the Arbitrage Pricing Theory (APT) posits that oil prices represent a systematic shock that can affect stock performance. This principle is based on the idea that rational investors exploit arbitrage opportunities when market mispricing occurs. When crude oil prices increase, investors anticipate higher profitability among energy firms, creating greater demand for energy stocks and causing the index to rise even before the underlying fundamentals materialize. Therefore, the APT framework explains that energy prices function as a channel for information transmission to the capital market, where changes in energy prices are interpreted as changes in the valuation of financial assets. Meanwhile, D(LogHMM(-1)) exhibits a negative effect, representing a corrective market behavior driven by overreaction. A 1 percent increase in crude oil prices in the previous period leads to a 0.36 percent decrease in the energy stock index in the current period. This occurs through the mechanism of overreaction and adjustment. When oil prices rise, investors tend to overreact by excessively purchasing energy stocks in anticipation of improved firm performance. This reaction pushes stock prices sharply upward in the short term. However, in subsequent periods, the market corrects through profit-taking, as investors sell their holdings after realizing gains, resulting in a decline in the energy stock index. Such behavior is commonly observed in high-risk commodity markets characterized by large volatility and rapid revaluation, where investors attempt to lock in profits before volatility reverses direction (Moore & Velikov, 2022).

The variable D(LogHBA(-2)) has a negative coefficient with a probability value of 0.0056, which is significant at the 1 percent level. A 1 percent increase in the benchmark coal price (HBA) decreases the energy stock index by approximately 0.24 percent after two periods. Coal serves as the primary input for Indonesia's state-owned electricity company, PLN, and an increase in HBA raises energy generation costs, particularly in the electricity segment. Coal-fired power plants supply more than 60 percent of the country's electricity; therefore, an HBA shock tends to raise cost risk in the utilities and power generation components within the

energy stock index (International Energy Agency, 2020). Coal supply contracts are typically long-term, causing price and volume adjustments to occur gradually. As a result, the pass-through effect is delayed, and margin risks become visible only after several periods. In PLN's case, the government has promoted the extension of long-term contracts to maintain supply stability (Nangoy & Christina, 2022). The government also implements price and supply interventions through the Domestic Market Obligation (DMO) and the electricity price cap policy, which requires 25 percent of coal production to be sold domestically and caps coal prices for power generation at USD 70 per ton. This policy partially limits upstream revenue gains. Consequently, when HBA rises, the market anticipates higher cost pressures and potential regulatory uncertainty, prompting a correction in energy stock returns after a time lag (Bridle et al., 2019). In addition, in 2022, when coal supply was threatened, the government imposed an export ban to secure domestic supply for PLN, preventing producers from capitalizing on higher HBA prices as expected by the market (Christina, 2022). The significant effect observed at the second lag also indicates that the market does not respond instantly. Instead, a stock price correction occurs after investors reassess margin risks and increasing policy uncertainty, rather than simply expecting higher export revenues. Within the APT framework, coal functions as a systemic cost-risk factor, where a rise in HBA increases both production costs and policy risks, thereby elevating overall risk in the energy sector and leading to a correction in the energy stock index.

3. Financial Stock Index

Based on the ARDL model estimation that meets all diagnostic criteria, the relationship between macroeconomic variables and the financial stock index is analyzed through two dimensions: the long-run relationship and the short-run relationship. The long-run relationship reflects the equilibrium condition among the examined variables, while the short-run relationship captures the adjustment process when deviations from equilibrium occur. In this context, the Error Correction Model (ECM) is employed to measure how quickly the market returns to equilibrium after experiencing shocks in the independent variables. The coefficient of the Error Correction Term (ECT) is -0.439978, indicating that 43.99 percent of deviations from long-run equilibrium are corrected within one month. The R^2 value of 0.7629 implies that 76.29 percent of the variation in the financial stock index is explained by GEPU, inflation, and yield, while the remainder is explained by variables outside the model.

Table 10 Short run financial stock index

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.081729	0.725374	4.248472	0.0001
LOGFINN(-1)*	-0.439978	0.102080	-4.310125	0.0001
LOGGEPU**	-0.035490	0.018174	-1.952846	0.0575
INFL(-1)	0.000900	0.003354	0.268369	0.7897
YEILD**	0.046176	0.016740	2.758502	0.0086
D(LOGFINN(-1))	0.249267	0.133691	1.864504	0.0692
D(LOGFINN(-2))	0.205743	0.128419	1.602126	0.1166
D(INFL)	0.006338	0.010534	0.601683	0.5506
D(INFL(-1))	0.019215	0.010084	1.905525	0.0636

The variable D(LogFin(-1)) has a positive coefficient with a probability value of 0.0692, which is significant at the 10 percent level. This means that a 1 percent increase in the financial stock index in the previous month raises the current month's index by approximately 0.24393 percent. Investors tend to continue portfolio strategies based on previous trends rather than immediately reassessing their positions according to new information. In Indonesia's financial market, this momentum behavior emerges as a result of underreaction to new fundamental information and a delayed price discovery process. When banking performance reports or interest rate changes are announced, not all market participants react immediately. Some engage in herd behavior, while others wait for confirmation, causing the financial stock index to rise gradually rather than instantaneously. Momentum effects are commonly observed on a monthly to quarterly basis in various equity markets, including those in emerging economies (Jegadeesh & Titman, 1993). From the perspective of APT, this momentum can be interpreted as a consequence of investors' delayed adjustment to systemic risk shocks. After new risk factors emerge, rational investors exploit arbitrage opportunities by repositioning their portfolios. However, because information is not yet fully absorbed by the market, the reaction occurs with a lag over several periods.

The variable D(Infl(-1)) has a positive and significant effect with a probability value of 0.0636, significant at the 10 percent level. This indicates that a 1 percent increase in inflation in the previous month raises the financial stock index by 0.0192 percent in the current period. According to the interest rate channel theory, rising inflation triggers expectations of higher policy interest rates, which tend to expand the banking sector's

net interest margin (NIM), as interest income grows faster than funding costs. This process ultimately increases banks' profitability and drives their stock prices higher (Jegadeesh & Titman, 1993).

Long-Run Estimation Results

Financial Stock Index

Table 11 Long run financial stock index

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGGEPU	-0.080663	0.042506	-1.897672	0.0646
INFL	0.002046	0.007464	0.274048	0.7854
YEILD	0.104951	0.037035	2.833834	0.0070
C	7.004279	0.286005	24.49010	0.0000

EC = LOGFINN - (-0.0807*LOGGEPU + 0.0020*INFL + 0.1050*YEILD + 7.0043)

The variable Yield has a positive and significant effect with a probability value of 0.0070 at the 1 percent significance level. This indicates that a 1 percent increase in yield raises the financial stock index by approximately 0.1 percent. This result reflects the characteristics of Indonesia's bank-based financial system, where higher yields represent rising market interest rates that tend to increase banks' Net Interest Margin (NIM). This occurs when income from productive assets such as loans grows faster than funding costs, especially when the funding structure is still dominated by low-cost deposits and when banks have more flexibility in adjusting lending rates compared to liabilities. The increase in NIM strengthens expectations of sustainable profitability, which ultimately enhances the valuation of banking stocks in the eyes of long-term investors. This finding is consistent with the Arbitrage Pricing Theory (APT), which identifies yield as one of the systematic risk factors priced by the market. Changes in investor expectations regarding the interest rate path and yield spread trigger a repricing process in the financial stock index until a new equilibrium is reached without arbitrage opportunities.

The variable GEPU has a negative and significant effect with a probability value of 0.0646 at the 10 percent significance level. This means that a 1 percent increase in GEPU reduces the financial stock index by approximately 0.0807 percent in the long run. Through the global risk premium and capital flow channels, when policy uncertainty rises, international investors tend to adopt risk-off behavior, which increases equity risk in emerging markets and depresses valuations in sectors sensitive to financing and liquidity conditions, such as banking. This result is consistent with the APT framework, where GEPU acts as a systematic risk factor priced by the market. Changes in expectations regarding policy risk drive a repricing process until arbitrage opportunities disappear.

The variable Inflation is found to be insignificant in the long-run model. This is because inflation in Indonesia remains stable within the target range maintained by Bank Indonesia, making it insufficiently strong to alter the long-run equilibrium of the financial stock index. Since the adoption of the Inflation Targeting Framework (ITF), Indonesia's inflation expectations have been relatively well-anchored, so moderate inflation shocks tend to be absorbed without disrupting overall market stability.

Conclusion

The findings of this study demonstrate that Global Economic Policy Uncertainty (GEPU) has heterogeneous effects across different stock market sectors in Indonesia. The consumer cyclical stock index exhibits a positive response to rising GEPU, indicating the sector's ability to adapt to global fluctuations through adjustments in domestic demand and consumption strategies. In contrast, the financial stock index shows a negative response to heightened global uncertainty due to its sensitivity to market volatility, capital flows, and interest rate policies. Meanwhile, the energy stock index displays a strong positive relationship with increases in energy commodity prices such as coal and crude oil, reinforcing its position as a key contributor to the stability of Indonesia's capital market.

These findings reaffirm the relevance of the Arbitrage Pricing Theory (APT) in explaining that global risk and domestic fundamental factors are crucial determinants of asset price movements in emerging markets. From a practical perspective, the results emphasize the importance of maintaining national macroeconomic stability through monetary and fiscal policies that remain adaptive to external uncertainties. This study also contributes empirically to the literature on the Indonesian capital market by adopting a sectoral approach that is rarely applied, underscoring the importance of cross-sectoral risk management to support sustainable economic growth.

Furthermore, this research opens avenues for future studies to integrate additional variables such as the Volatility Index (VIX), foreign capital flows, and consumer confidence indices to broaden the understanding of global uncertainty transmission to domestic markets. In addition, combining this framework with approaches from behavioral finance or Islamic economics may enrich the analysis by incorporating ethical, psychological, and non-economic risk perceptions that influence investor behavior. Thus, the results of this study not only strengthen the theoretical understanding of the

relationship between GEPU and Indonesia's financial markets but also provide an empirical foundation for policymakers and market participants in designing effective risk mitigation strategies amid an ever-evolving global economic landscape

References

Adhani, F., & Nurazi, R. (2025). Effects of Energy Price Fluctuations on Stock Return of Energy Companies in Indonesia: The Effect of Macroeconomic Variables and Subsidy Policy. *JASa (Jurnal Akuntansi, Audit Dan Sistem Informasi Akuntansi)*, *9*(2), 436–447. https://doi.org/10.36555/jasa.v9i2.2904

Afonso, A., Alves, J., Jalles, J., & Monteiro, S. (2024). Energy Price Dynamics in the Face of Uncertainty Shocks and the Role of Exchange Rate Regimes: A Global Cross-Country Analysis. *CESifo Working Papers*. www.RePEc.org

Arkol, O., & Azimli, A. (2024). Pricing the common stocks in emerging markets: The role of economic policy uncertainty. *Moderen FInance*, *2*, 1. https://doi.org/10.3390/mf.v2i1.93

Astolfi, R., Gamba, M., Guidetti, E., & Pionnier, P.-A. (2016). *The use of short-term indicators and survey data for predicting turning points in economic activity: Vol. 2016/08* (OECD Statistics Working Papers). https://doi.org/10.1787/5jlz4gs2pkhf-en

Bannigidadmath, D. (2020). CONSUMER SENTIMENT AND INDONESIA'S STOCK RETURNS. *Bulletin of Monetary Economics and Banking*, *23*, 1–4. https://doi.org/10.21098/bemp.23vi0i.1194

Bordo, M. D., Duca, J. V, & Koch, C. (2016). Economic Policy Uncertainty and the Credit Channel. *NATIONAL BUREAU OF ECONOMIC RESEARCH*. http://www.nber.org/papers/w22021.ack

Bridle, R., Suharsono, A., & Mostafa, M. (2019). *Indonesia's Coal Price Cap: A barrier to renewable energy deployment*.

Chen, N.-F., Roll, R., & Ross, S. A. (1986). Economic Forces and the Stock Market. *The Journal of Business*, *59(3)*, 383–403. https://www.jstor.org/stable/2352710

Christina, B. (2022, January 1). Indonesia bans coal exports in January on domestic power worries. *Reuters*. https://www.reuters.com/markets/commodities/indonesia-bans-coal-exports-january-domestic-supply-worries-media-2022-01-01/?utm_source=chatgpt.com

Dang, T. H. N., Balli, F., Balli, H. O., Gabauer, D., & Nguyen, T. T. H. (2024). Sectoral uncertainty spillovers in emerging markets: A quantile time–frequency connectedness approach. *International Review of Economics & Finance*, *93*, 121–139. https://doi.org/https://doi.org/10.1016/j.iref.2024.04.017

Fakhrurrazi, & Juliansyah, H. (2021). Analisis Hubungan Ekspor, Pembayaran Hutang Luar Negeri Dan Nilai Tukar Terhadap Cadangan Devisa Indonesia. *Jurnal Ekonomika Indonesia*, *Volume 10 No 1*, 10. http://ojs.unimal.ac.id/index.php/ekonomika

Gaspar, R. M., & Jiaming, X. (2023). Consumer Confidence and Stock Markets' Returns. *Research in Economics and Mathematics*. https://rem.rc.iseg.ulisboa.pt/https://twitter.com/ResearchRemhttps://www.linkedin.com/company/researchrem/https://www.facebook.com/researchrem/

Gui, J., Naktnasukanjn, N., Yu, X., & Ramasamy, S. S. (2024). Research on the Impact of Economic Policy Uncertainty and Investor Sentiment on the Growth Enterprise Market Return in China—An Empirical Study Based on TVP-SV-VAR Model. *International Journal of Financial Studies*, *12*(4). https://doi.org/10.3390/ijfs12040108

International Energy Agency, I. (2020). *Enhancing Indonesia's Power System Pathways to meet the renewables targets in 2025 and beyond*. www.iea.org/t&c/

Jegadeesh, N., & Titman, S. (1993). Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency. *Source: The Journal of Finance*, *48*(1), 65–91. http://www.jstor.orgURL:http://www.jstor.org/stable/2328882

Jurkowska-Zeidler, A., & Janovec, M. (2024). Financial Market Stability: A Key Driver of Sustainable Finance. *Gdańskie Studia Prawnicze*, *1(62)/2024*, 9–20. https://doi.org/10.26881/gsp.2024.1.01

Montenegro, A. (2019). *The ARDL Bounds Cointegration Test: Tips for Application and Pretesting*. SSRN. https://doi.org/10.2139/ssrn.3425994

Moore, J., & Velikov, M. (2022). Oil price exposure and the cross section of stock returns. *SSRN*. https://doi.org/https://dx.doi.org/10.2139/ssrn.3164353

Musthafa, A. M., & Ratna. (2023). Pengaruh Utang Luar Negeri, Inflasi, Suku Bunga dan Cadangan Devisa Terhadap Pertumbuhan Ekonomi di Indonesia. *Jurnal Ekonomi Regional Unimal*. https://ojs.unimal.ac.id/ekonomi_regional

Nangoy, F., & Christina, B. (2022, January 7). Explainer: How Indonesia, the world's top thermal coal exporter, hit a supply crunch. *Reuters*. https://www.reuters.com/markets/commodities/how-indonesia-worlds-top-thermal-coal-exporter-hit-supply-crunch-2022-01-07/?utm_source=chatgpt.com

Nguyen, C. P., Schinckus, C., Quang Nguyen, B., Trung Lai, T., & Nguyen, N. A. (2025). Economic policy uncertainty and firm-level stock returns: Further evidence from China. *Journal of International Studies*, *18*(1), 216–231. https://doi.org/10.14254/2071

Ozili, P. K., & Iorember, P. T. (2024). Financial stability and sustainable development. *International Journal of Finance and Economics*, *29*(3), 2620–2646. https://doi.org/10.1002/ijfe.2803

Pesaran, M. H., Shin, Y., & & Smith, R. J. (2001). Bounds Testing Approaches to the Analysis of Level Relationships . *Journal of Applied Econometrics*, *16(3)*, 289–326. http://www.jstor.org/stable/2678547

Ross, S. A. (1976). The Arbitrage Theory of Capital Asset Pricing. *Journal of Economic Theory*, *13*, 341–360. https://doi.org/doi.org/10.1016/0022-0531(76)90046-6.

Sipayung, F. H., Puspitawati, E., Rembulan Nurdianto, N., & Ismail Khozin, M. (2023). Analisis Faktor-Faktor yang Mempengaruhi Indeks Saham Sektor Energi di Indonesia. *Jurnal Ekonomi, Lingkungan, Energi, Dan Bisnis, 2023*(1), 62–81. https://elegis.universitaspertamina.ac.id/index.php/ELEGIS/article/view/6