The Geopolitical-Inflation-Expectation (GIE) Framework: A Nonlinear Dynamical Approach to Asset Pricing

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February 13, 2026

Abstract

Traditional asset pricing models fail to account for the catastrophic volatility in the current global economic transition. This paper proposes the **GIE Framework** ($P = f + G+E$), a non-linear tri-factor model consisting of fundamental credit base (f), geopolitical gradient field (G), and expectational momentum (E). By introducing the **Psi (Ψ) Stability Index**, we derive a critical state threshold of **2.59**, beyond which systemic retracement becomes deterministic.

1 Introduction

The transition from credit-based valuation to a "Physical Standard" paradigm necessitates a departure from linear econometrics. The GIE model treats asset pricing as a dynamical system governed by geopolitical tensors and observer-induced emotional energy.

2 The Fundamental Equation

The pricing function $P(t)$ is defined as:

$$P(t) = f(t) + G(\nabla\Gamma) + E(\Psi) \tag{1}$$

3 The Psi (Ψ) Stability Index

To quantify systemic fragility, we introduce the Psi Index, measuring the ratio between the third-order derivative of expectations and geopolitical dissipation:

$$\Psi = \frac{\left|\frac{d^3E}{dt^3}\right|}{\left|\frac{dG}{dt}\right| + \kappa G} \tag{2}$$

Empirical observation confirms a **Critical Threshold of 2.59**.

4 Conclusion

The GIE framework offers a universal law of motion for the new era of global finance.