The Warfare Economics of the Standard Nuclear oliGARCHy

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Abstract

In this paper, I describe the warfare economics of the Standard Nuclear oliGARCHy.
The paper ends with "The End"

Introduction

The Standard Nuclear oliGARCHy has robust resilience to war.
In this paper, I describe the warfare economics of the Standard Nuclear oliGARCHy.

Preliminaries

Define the two functions

$$f(i) = \arctan\left(\frac{2}{i^2}\right)$$

$$g(j,k) = \arctan\left(\tanh\left(jk\right)\right)$$

The supply in the nine districts are

$$S = \Sigma \times \{s_1, s_2, s_3, s_4, s_5, s_6, s_7, s_8, s_9\}$$

where

$$s_i = \frac{f(i)}{\sum_{i=1}^{9} f(i)} \text{ for } i \in \{1, 2, \ldots, 9\}$$

The demand in the nine districts are

$$D = \Delta \times \{d_1(r), d_2(r), d_3(r), d_4(r), d_5(r), d_6(r), d_7(r), d_8(r), d_9(r)\}$$

where

$$d_j(r) = \frac{g(j,r)}{\sum_{j=1}^{9} g(j,r)} \text{ for } j \in \{1, 2, \ldots, 9\}$$

and r is the risk free-rate.
Before the attack,

$$\Sigma \approxeq \Delta$$

and

$$\left(\sum_{i=1}^{9} s_i\right)(1 + r + p) = \left(\sum_{j=1}^{9} d_j(r)\right)(1 + r + q)$$

where

$$p, q, r \approxeq 0$$

The Warfare Economics of the Standard Nuclear oliGARCHy

When the attack happens, the warfare economics of the Standard Nuclear oliGARCHy is:

1. Estimate the psychological threshold $\tau \in [0, 1]$

2. Estimate the perturbed values of Σ^* and Δ^*

$$\Sigma^* = \Sigma e^{-\alpha I(1-\tau)}$$

$$\Delta^* = \Delta e^{-\beta I \tau}$$

where

I is the attack intensity

α and β are positive sensitivity coefficients

3. Compute and store the values of P, Q, R, S and T using the following formulae:

$$P = \Delta^4\tau^4 + 2\Delta^4\tau^2 + \Delta^4 + 2\Delta^2\Sigma^2\tau^4 + 4\Delta^2\Sigma^2\tau^2 + 2\Delta^2\Sigma^2 + \Sigma^4\tau^4 + 2\Sigma^4\tau^2 + \Sigma^4$$

$$\begin{aligned} Q = {} & 4\Sigma^4 - 4\Delta^3\Sigma\tau^4 - 8\Delta^3\Sigma\tau^2 - 4\Delta^3\Sigma + 4\Delta^2\Sigma^2\tau^4 + 8\Delta^2\Sigma^2\tau^2 \\ & + 4\Delta^2\Sigma^2 - 4\Delta\Sigma^3\tau^4 - 8\Delta\Sigma^3\tau^2 - 4\Delta\Sigma^3 + 4\Sigma^4\tau^4 + 8\Sigma^4\tau^2 \end{aligned}$$

$$\begin{aligned} R = {} & 6\Sigma^4 - 4\Delta^4\tau^6 - 2\Delta^4\tau^4 + 4\Delta^4\tau^2 + 2\Delta^4 - 12\Delta^3\Sigma\tau^4 - 16\Delta^3\Sigma\tau^2 - 4\Delta^3\Sigma - 4\Delta^2\Sigma^2\tau^6 \\ & + 12\Delta^2\Sigma^2\tau^2 + 8\Delta^2\Sigma^2 - 4\Delta\Sigma^3\tau^4 - 16\Delta\Sigma^3\tau^2 - 12\Delta\Sigma^3 + 2\Sigma^4\tau^4 + 8\Sigma^4\tau^2 \end{aligned}$$

$$\begin{aligned} S = {} & 8\Delta^3\Sigma\tau^6 + 20\Delta^3\Sigma\tau^4 + 8\Delta^3\Sigma\tau^2 - 4\Delta^3\Sigma - 8\Delta^2\Sigma^2\tau^6 - 28\Delta^2\Sigma^2\tau^4 \\ & - 8\Delta^2\Sigma^2\tau^2 + 12\Delta^2\Sigma^2 + 12\Delta\Sigma^3\tau^4 - 12\Delta\Sigma^3 - 4\Sigma^4\tau^4 + 4\Sigma^4 \end{aligned}$$

$$\begin{aligned} T = {} & 4\Delta^4\tau^8 - 4\Delta^4\tau^6 - 11\Delta^4\tau^4 - 6\Delta^4\tau^2 + \Delta^4 + 24\Delta^3\Sigma\tau^6 + 28\Delta^3\Sigma\tau^4 \\ & + 16\Delta^3\Sigma\tau^2 - 4\Delta^3\Sigma - 12\Delta^2\Sigma^2\tau^6 - 10\Delta^2\Sigma^2\tau^4 - 16\Delta^2\Sigma^2\tau^2 \\ & + 6\Delta^2\Sigma^2 - 4\Delta\Sigma^3\tau^4 + 8\Delta\Sigma^3\tau^2 - 4\Delta\Sigma^3 + \Sigma^4\tau^4 - 2\Sigma^4\tau^2 + \Sigma^4 \end{aligned}$$

4. Compute and store the roots

$$X = \{x : Px^4 + Qx^3 + Rx^2 + Sx + T = 0 \wedge x \in [0, 1]\}$$

If $X = \phi$, use $X = \{\tau\}$

Select $p^* \in X$ such that $|p - p^*|$ is minimized

5. Compute and store

$$q^* = \sqrt{2\tau^2 - p^{*2}}$$

6. Compute and store

$$r^* = \sqrt{1 - \frac{1 - \tau^2}{1 + \tau^2}}$$

7. Activate war plan(s) and/or protocol(s).

8. Wait until

$$\Sigma^* = \Delta^*$$

and

$$\Sigma^* \times \left(\sum_{i=1}^{9} s_i\right)(1 + r^* + p^*) = \Delta^* \times \left(\sum_{j=1}^{9} d_j(r^*)\right)(1 + r^* + q^*)$$

References

[1] Ghosh S. (2025). The Complete Treatise on the Standard Nuclear oliGARCHy. Kolkata, India. Available online at `https://github.com/TheRealoliGARCH/SNoG`

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