Collected papers of

Lord Soumadeep Ghosh

Volume 25

Two risk structures

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe two risk structures. The paper ends with "The End"

Introduction

Risk structures are essential to both economics and finance.
In this paper, I describe two risk structures.

Ghosh's risk structure

My risk structure is given by

$$(R^2 + r^2 - \kappa^2)Rr\kappa = 0$$

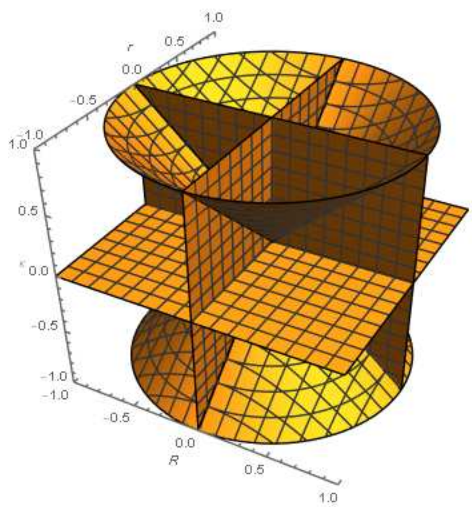
with

$$-1 \leq R \leq 1$$

$$-1 \leq r \leq 1$$

$$-1 \leq \kappa \leq 1$$

where
r is return
R is risk
κ is control



My risk structure enables the existence of up to 16 sub-economies in the economy.

Planar risk structure

The planar risk structure is given by

$$R^3 + r^3 + \kappa^3 - 3Rr\kappa = 0$$

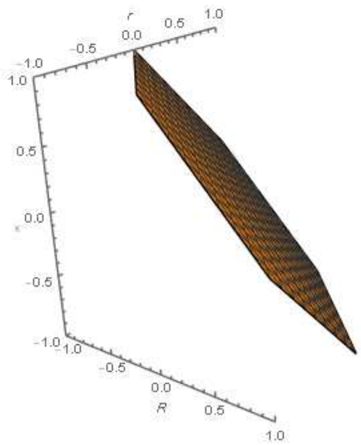
with

$$-1 \le R \le 1$$

$$-1 \le r \le 1$$

$$-1 \le \kappa \le 1$$

where
r is return
R is risk
κ is control



The planar risk structure enables the existence of up to 2 sub-economies in the economy.

The End

The bullet equation

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe the bullet equation. The paper ends with "The End"

Introduction

The bullet equation is essential to any and every military.
In this paper, I describe the bullet equation.

The bullet equation

The bullet equation is given by

$$25x^2 + 25y^2 + \tanh(\phi) = \beta$$

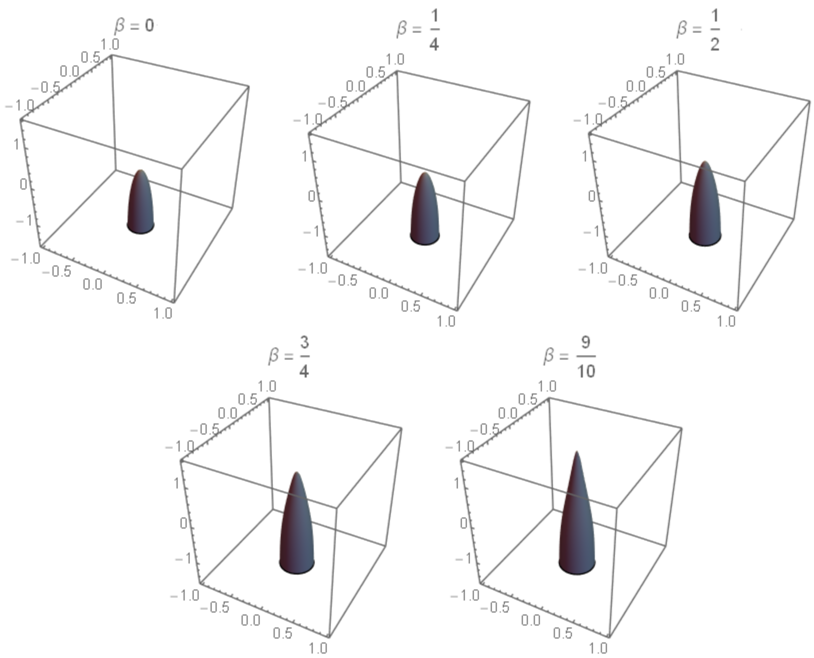
with

$$-1 \leq x \leq 1$$

$$-1 \leq y \leq 1$$

$$-\frac{\pi}{2} \leq \phi \leq \frac{\pi}{2}$$

where
x is the x co-ordinate
y is the y co-ordinate
ϕ is the angular co-ordinate
β is the bullet constant



The End

The population risk premium

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe the population risk premium. The paper ends with "The End"

Introduction

There exists the population risk premium in the world among the various polities. In this paper, I describe the estimation of the population risk premium.

The population risk premium

The population risk premium between a polity with a greater number of individuals $P_>$ and a polity with a lesser number of individuals $P_<$ is given by

$$P_< = \frac{P_>}{1 + r_f + p_p}$$

where
$P_>$ is the population of a polity with a greater number of individuals
$P_<$ is the population of a polity with a lesser number of individuals
r_f is the risk-free rate
p_p is the population risk premium

The End

The standard issue rifle

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe the standard issue rifle.
The paper ends with "The End"

Introduction

While the military has a plethora of mission-specific weapons, the standard issue rifle must be both effective and economical. In this paper, I describe the standard issue rifle.

The standard issue rifle

The standard issue rifle is the **Avtomat Kalashnikova** (also known as the AK-47) which is effective at low to medium range and is economical for large militaries.

The AK-47 is the standard issue rifle in many militaries around the world because of low production costs, ease of use after a short period of training, reasonable precision and accuracy and reliability under harsh conditions, all at an economical price.

The End

The meta risk premium

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe the meta risk premium. The paper ends with "The End"

Introduction

In a previous paper, I've described the population risk premium p_p between a polity with a greater number of individuals $P_>$ and a polity with a lesser number of individuals $P_<$.

The meta risk premium

The **meta risk premium** between a polity with a greater population risk premium $p_{p>}$ and a polity with a lesser population risk premium $p_{p<}$ is given by

$$p_{p<} = \frac{p_{p>}}{1 + r_f + p_m}$$

where
$p_{p>}$ is the greater population risk premium
$p_{p<}$ is the lesser population risk premium
r_f is the risk-free rate
p_m is the meta risk premium

The End

The meta bubble

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe the meta bubble. The paper ends with "The End"

Introduction

In a previous paper, I've described the meta risk premium between a polity with a greater population risk premium $p_{p>}$ and a polity with a lesser population risk premium $p_{p<}$. In this paper, I describe the meta bubble.

The meta bubble

A **meta bubble** exists whenever we have

$$p_{p<} = \frac{p_{p>}}{1 + r_f + p_m}$$

and

$$p_{p<} + a = \frac{p_{p>} + b}{1 + r_f + p_m + p_b}$$

where
$p_{p>}$ is the greater population risk premium
$p_{p<}$ is the lesser population risk premium
r_f is the risk-free rate
p_m is the meta risk premium
a is the additional risk premium in the polity with the greater population risk premium
b is the additional risk premium in the polity with the lesser population risk premium
p_b is the meta bubble risk premium

The End

13 non-trivial integral solutions to the meta bubble

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe 13 non-trivial integral solutions to the meta bubble.
The paper ends with "The End"

Introduction

In a previous paper, I've described the meta bubble.

In this paper, I describe 13 non-trivial integral solutions to the meta bubble.

13 non-trivial integral solutions to the meta bubble

13 non-trivial integral solutions to the meta bubble are:

1. $p_{p<} = 1, p_{p<} = 10, r_f = 6, p_m = 3, a = 0, b = 12, p_b = 12$
2. $p_{p<} = 1, p_{p<} = 16, r_f = 1, p_m = 14, a = 0, b = 40, p_b = 40$
3. $p_{p<} = 1, p_{p<} = 22, r_f = 1, p_m = 20, a = 1, b = 22, p_b = 0$
4. $p_{p<} = 1, p_{p<} = 22, r_f = 1, p_m = 20, a = 1, b = 76, p_b = 27$
5. $p_{p<} = 1, p_{p<} = 22, r_f = 1, p_m = 20, a = 18, b = 396, p_b = 0$
6. $p_{p<} = 1, p_{p<} = 24, r_f = 12, p_m = 11, a = 1, b = 24, p_b = 0$
7. $p_{p<} = 1, p_{p<} = 24, r_f = 12, p_m = 11, a = 1, b = 54, p_b = 15$
8. $p_{p<} = 1, p_{p<} = 24, r_f = 12, p_m = 11, a = 45, b = 1080, p_b = 0$
9. $p_{p<} = 1, p_{p<} = 50, r_f = 24, p_m = 25, a = 0, b = 59, p_b = 59$
10. $p_{p<} = 1, p_{p<} = 55, r_f = 19, p_m = 35, a = 1, b = 55, p_b = 0$
11. $p_{p<} = 1, p_{p<} = 55, r_f = 19, p_m = 35, a = 10, b = 550, p_b = 0$
12. $p_{p<} = 1, p_{p<} = 73, r_f = 27, p_m = 45, a = 1, b = 73, p_b = 0$
13. $p_{p<} = 1, p_{p<} = 73, r_f = 27, p_m = 45, a = 52, b = 3796, p_b = 0$

The End

The robustness check

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe the robustness check. The paper ends with "The End"

Introduction

In this paper, I describe the robustness check which is useful to authors of empirical papers.

The robustness check

The **robustness check** is given by the eliminant of r_f

$$\pi_1 - \pi_2 = \frac{c_2 P_1 - c_1 P_2}{c_1 c_2}$$

to the following two equations:

$$P_1 = c_1(1 + r_f + \pi_1)$$

and

$$P_2 = c_2(1 + r_f + \pi_2)$$

where
c_1 is the cost of the first good/service
c_2 is the cost of the second good/service
P_1 is the price of the first good/service
P_2 is the price of the second good/service
r_f is the risk-free rate
π_1 is the risk premium in selling the first good/service
π_2 is the risk premium in selling the second good/service

The End

Interaction terms

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe interaction terms.
The paper ends with "The End"

Introduction

In this paper, I describe interaction terms which are useful to authors of empirical papers.

Interaction terms

Interaction terms are given by the eliminant of r_f

$$\pi_1 - \pi_2 = \frac{c_2 P_1 - c_1 P_2}{c_1 c_2}$$

to the following two equations:

$$P_1 = c_1(1 + r_f + \pi_1 + \pi_1\pi_2)$$

and

$$P_2 = c_2(1 + r_f + \pi_2 + \pi_2\pi_1)$$

where
c_1 is the cost of the first good/service
c_2 is the cost of the second good/service
P_1 is the price of the first good/service
P_2 is the price of the second good/service
r_f is the risk-free rate
π_1 is the risk premium in selling the first good/service
π_2 is the risk premium in selling the second good/service

The End

The secret to being the best politician

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe the secret to being the best politician.
The paper ends with "The End"

Introduction

In a previous paper, I've described the ultimate secret of political science.
In this paper, I describe the secret to being the best politician.

The secret to being the best politician

The secret to being the best politician is **"The best politician is not the politician with the most followers nor the politician with the least followers. The best politician is that politician who gains power with ease, wields power until corruption sets in and relinquishes power before being completely corrupt, for power corrupts and absolute power corrupts absolutely."**

The End

My heuristic for finding a real root of the Bring–Jerrard quintic equation

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe my heuristic for finding a real root of the Bring-Jerrard quintic equation.
The paper ends with "The End"

Introduction

In a previous paper, I've described my heuristic for finding a real root of the quintic equation.

In this paper, I describe my heuristic for finding a real root of the Bring-Jerrard quintic equation.

The Bring–Jerrard quintic equation

Mathematicians know that any quintic equation may be reduced by means of **Tschirnhaus transformations** to the Bring–Jerrard form

$$x^5 - x + \rho = 0$$

where ρ may be complex.

In this paper, I describe my heuristic for finding a real root of the Bring-Jerrard quintic equation.

My heuristic for finding a real root of the Bring-Jerrard quintic equation

For the Bring-Jerrard quintic equation

$$x^5 - x + \rho = 0$$

whenever

$$3\sqrt{15}\sqrt{135\rho^2 - 160\rho + 48} - 135\rho + 80 \neq 0$$

my heuristic for finding a real root of the Bring-Jerrard quintic equation is to use the initial guess

$$x_0 = \frac{4}{3} + \frac{\sqrt[3]{3\sqrt{15}\sqrt{135\rho^2 - 160\rho + 48} - 135\rho + 80}}{3\ 10^{2/3}} - \frac{2^{2/3}}{3\sqrt[3]{5}\sqrt[3]{3\sqrt{15}\sqrt{135\rho^2 - 160\rho + 48} - 135\rho + 80}}$$

for Newton-Raphson iteration.

The End

My heuristic for finding a real root of the sextic equation when a real root exists

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe my heuristic for finding a real root of the sextic equation when a real root exists.
The paper ends with "The End"

Introduction

In a previous paper, I've described my heuristic for finding a real root of the quintic equation.

In this paper, I describe my heuristic for finding a real root of the sextic equation when a real root exists.

My heuristic for finding a real root of the sextic equation when a real root exists

For the sextic equation

$$x^6 + ax^5 + bx^4 + cx^3 + dx^2 + ex + f = 0$$

whenever

$$10a + 4b + c + 20 \neq 0$$

my heuristic for finding a real root of the sextic equation when a real root exists is to use the initial guess

$$x_0 = 1 - \frac{10a + 6b + 3c + d + 15}{3(10a + 4b + c + 20)}$$

for Newton-Raphson iteration.

The End

My heuristic for finding a real root of the septic equation when a real root exists

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe my heuristic for finding a real root of the septic equation when a real root exists.
The paper ends with "The End"

Introduction

In a previous paper, I've described my heuristic for finding a real root of the sextic equation when a real root exists.

In this paper, I describe my heuristic for finding a real root of the septic equation when a real root exists.

My heuristic for finding a real root of the septic equation when a real root exists

For the septic equation

$$x^7 + ax^6 + bx^5 + cx^4 + dx^3 + ex^2 + fx + g = 0$$

whenever

$$20a + 10b + 4c + d + 35 \neq 0$$

my heuristic for finding a real root of the septic equation when a real root exists is to use the initial guess

$$x_0 = 1 - \frac{15a + 10b + 6c + 3d + e + 21}{3(20a + 10b + 4c + d + 35)}$$

for Newton-Raphson iteration.

The End

My heuristic for finding a real root of the octic equation when a real root exists

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe my heuristic for finding a real root of the octic equation when a real root exists.
The paper ends with "The End"

Introduction

In a previous paper, I've described my heuristic for finding a real root of the septic equation when a real root exists.

In this paper, I describe my heuristic for finding a real root of the octic equation when a real root exists.

My heuristic for finding a real root of the octic equation when a real root exists

For the octic equation

$$x^8 + ax^7 + bx^6 + cx^5 + dx^4 + ex^3 + fx^2 + gx + h == 0$$

whenever

$$35a + 20b + 10c + 4d + e + 56 \neq 0$$

my heuristic for finding a real root of the octic equation when a real root exists is to use the initial guess

$$x_0 = 1 - \frac{21a + 15b + 10c + 6d + 3e + f + 28}{3(35a + 20b + 10c + 4d + e + 56)}$$

for Newton-Raphson iteration.

The End