Collected papers of

Lord Soumadeep Ghosh

Volume 11

14 complex statistical solutions to population

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe 14 complex statistical solutions to population. The paper ends with "The End"

Introduction

Contrary to popular belief, 14 complex statistical solutions to population exist. In this paper, I describe 14 complex statistical solutions to population.

14 complex statistical solutions to population

1.
$$p_1 = -\frac{346}{5} + \frac{323i}{5}, p_2 = -\frac{188}{5} - \frac{221i}{10}, p_3 = \frac{163}{5} + \frac{331i}{10}, p_4 = \frac{147}{10} - \frac{266i}{5}, p_5 = -\frac{131}{2} + \frac{503i}{10}, p_6 = \frac{54}{5} - \frac{649i}{10}, p_7 = \frac{307}{5} + \frac{112i}{5},$$

$$p_8 = \frac{189}{5} - \frac{541i}{10}, p_9 = \frac{99}{5} + \frac{29i}{10}, p_{10} = \frac{171}{5} - \frac{183i}{5}, p_{11} = \frac{204}{5} - \frac{77i}{10}, p_{12} = \frac{67}{2} - \frac{473i}{10}, p_{13} = -\frac{93}{5} + 30i, p_{14} = \frac{273}{10} + \frac{477i}{10},$$

$$\mu = \frac{61}{7} - \frac{349i}{140}, \sigma = \frac{\sqrt{\frac{13147273}{910}}}{2}$$

2.
$$p_1 = -\frac{653}{10} + \frac{207i}{5}, p_2 = \frac{511}{10} + 2i, p_3 = \frac{77}{5} - \frac{7i}{2}, p_4 = -\frac{149}{10} + \frac{61i}{2}, p_5 = -\frac{27}{10} - \frac{233i}{5}, p_6 = \frac{38}{5} - \frac{111i}{2}, p_7 = -\frac{182}{5} - \frac{369i}{10},$$

$$p_8 = -\frac{56}{5} - \frac{471i}{10}, p_9 = -\frac{79}{5} - \frac{283i}{5}, p_{10} = \frac{491}{10} + \frac{121i}{5}, p_{11} = -\frac{361}{10} + \frac{697i}{10}, p_{12} = \frac{81}{2} - \frac{649i}{10}, p_{13} = \frac{99}{10} + \frac{179i}{5}, p_{14} = 69 - \frac{479i}{10},$$

$$\mu = \frac{43}{10} - \frac{111i}{10}, \sigma = \frac{3\sqrt{\frac{125713}{13}}}{5}$$

3.
$$p_1 = -\frac{341}{10} + 53i, p_2 = -\frac{128}{5} + \frac{313i}{5}, p_3 = \frac{649}{10} - \frac{46i}{5}, p_4 = \frac{641}{10} - \frac{157i}{10}, p_5 = \frac{89}{5} - \frac{273i}{5}, p_6 = \frac{284}{5} - \frac{318i}{5}, p_7 = \frac{218}{5} + \frac{621i}{10},$$

$$p_8 = \frac{211}{10} + \frac{259i}{5}, p_9 = -\frac{127}{2} - \frac{527i}{10}, p_{10} = -\frac{449}{10} + \frac{211i}{10}, p_{11} = \frac{327}{5} + \frac{631i}{10}, p_{12} = 44 - \frac{289i}{5}, p_{13} = -\frac{77}{10} - \frac{677i}{10}, p_{14} = -\frac{214}{5} + \frac{199i}{5},$$

$$\mu = \frac{1591}{140} + \frac{23i}{10}, \sigma = \frac{\sqrt{\frac{91889857}{182}}}{10}$$

4.
$$p_1 = -\frac{311}{10} + \frac{95i}{2}, p_2 = \frac{341}{10} - \frac{399i}{10}, p_3 = -\frac{457}{10} - \frac{391i}{10}, p_4 = 20 - \frac{209i}{5}, p_5 = -\frac{45}{2} - 49i, p_6 = \frac{309}{10} - \frac{32i}{5}, p_7 = -\frac{543}{10} - \frac{17i}{2},$$

$$p_8 = \frac{431}{10} + \frac{69i}{5}, p_9 = \frac{687}{10} - \frac{157i}{5}, p_{10} = \frac{94}{5} - \frac{108i}{5}, p_{11} = -\frac{489}{10} - \frac{61i}{10}, p_{12} = -\frac{331}{10} + \frac{97i}{2}, p_{13} = \frac{509}{10} - \frac{87i}{2}, p_{14} = -\frac{222}{5} - \frac{32i}{5},$$

$$\mu = -\frac{27}{28} - \frac{1839i}{140}, \sigma = \frac{\sqrt{\frac{5205657}{455}}}{2}$$

5.

$$p_1=-\frac{76}{5}+\frac{137i}{10},p_2=-\frac{683}{10}+\frac{169i}{10},p_3=63-\frac{377i}{10},p_4=\frac{77}{2}+\frac{243i}{10},p_5=\frac{207}{5}-\frac{561i}{10},p_6=-\frac{121}{10}+\frac{367i}{10},p_7=-\frac{246}{5}-59i,$$

$$p_8=-\frac{49}{2}+\frac{49i}{2},p_9=-\frac{183}{10}-\frac{139i}{5},p_{10}=-\frac{481}{10}+\frac{619i}{10},p_{11}=-\frac{87}{2}+\frac{329i}{5},p_{12}=-33+\frac{379i}{10},p_{13}=-\frac{181}{5}+\frac{277i}{5},p_{14}=\frac{617}{10}-\frac{213i}{10},$$

$$\mu=-\frac{719}{70}+\frac{338i}{35},\sigma=\frac{\sqrt{\frac{8425659}{91}}}{5}$$

6.

$$p_1=-\frac{49}{5}-\frac{11i}{2},p_2=\frac{9}{2}-\frac{257i}{5},p_3=\frac{86}{5}-\frac{237i}{10},p_4=-\frac{128}{5}-\frac{176i}{5},p_5=-\frac{191}{5}+\frac{669i}{10},p_6=\frac{511}{10}+\frac{61i}{10},p_7=-\frac{413}{10}+\frac{467i}{10},$$

$$p_8=-\frac{189}{5}-\frac{317i}{10},p_9=\frac{93}{10}+\frac{58i}{5},p_{10}=-\frac{233}{10}+11i,p_{11}=-\frac{172}{5}+\frac{419i}{10},p_{12}=-21-\frac{128i}{5},p_{13}=\frac{571}{10}+\frac{159i}{10},p_{14}=\frac{196}{5}+\frac{497i}{10},$$

$$\mu=-\frac{53}{14}+\frac{767i}{140},\sigma=\frac{\sqrt{\frac{45168733}{182}}}{10}$$

7.

$$p_1=\frac{81}{10}-21i,p_2=\frac{338}{5}+64i,p_3=-\frac{309}{10}-\frac{196i}{5},p_4=-44+\frac{191i}{10},p_5=-\frac{55}{2}+\frac{51i}{5},p_6=\frac{96}{5}-\frac{577i}{10},p_7=\frac{151}{5}-\frac{254i}{5},$$

$$p_8=-\frac{13}{2}+\frac{317i}{5},p_9=35-\frac{173i}{10},p_{10}=-\frac{223}{5}-\frac{57i}{10},p_{11}=-\frac{254}{5}-\frac{199i}{5},p_{12}=-\frac{39}{2}-\frac{133i}{5},p_{13}=-\frac{53}{5}-\frac{244i}{5},p_{14}=\frac{316}{5}-\frac{269i}{10},$$

$$\mu=-\frac{111}{140}-\frac{253i}{20},\sigma=\frac{\sqrt{\frac{27886813}{91}}}{10}$$

8.

$$p_1=\frac{229}{10}-\frac{13i}{10},p_2=-\frac{322}{5}-\frac{159i}{10},p_3=-67-\frac{63i}{5},p_4=49-\frac{52i}{5},p_5=-\frac{67}{5}+\frac{79i}{2},p_6=-\frac{16}{5}+\frac{399i}{10},p_7=\frac{81}{2}+\frac{89i}{2},$$

$$p_8=13-\frac{269i}{10},p_9=-\frac{327}{5}+\frac{57i}{5},p_{10}=-14-\frac{123i}{10},p_{11}=\frac{81}{5}+\frac{9i}{2},p_{12}=-\frac{449}{10}-\frac{59i}{5},p_{13}=\frac{29}{10}+\frac{29i}{2},p_{14}=\frac{303}{10}-\frac{69i}{5},$$

$$\mu=-\frac{195}{28}+\frac{493i}{140},\sigma=\frac{3\sqrt{\frac{2147077}{91}}}{10}$$

9.

$$p_1=\frac{138}{5}+\frac{248i}{5},p_2=-\frac{409}{10}-\frac{187i}{10},p_3=-\frac{301}{5}+\frac{314i}{5},p_4=\frac{669}{10}+\frac{503i}{10},p_5=-\frac{341}{10}-\frac{553i}{10},p_6=-\frac{59}{2}+\frac{43i}{10},p_7=-\frac{197}{5}-13i,$$

$$p_8=-\frac{647}{10}+\frac{39i}{5},p_9=-\frac{202}{5}+\frac{11i}{5},p_{10}=-\frac{141}{10}-\frac{451i}{10},p_{11}=-\frac{221}{5}-\frac{243i}{10},p_{12}=-\frac{61}{2}-\frac{16i}{5},p_{13}=-\frac{69}{10}-\frac{189i}{5},p_{14}=-\frac{449}{10}-\frac{267i}{10},$$

$$\mu=-\frac{3553}{140}-\frac{471i}{140},\sigma=\frac{\sqrt{\frac{23296179}{91}}}{10}$$

10.

$$p_1=\frac{153}{5}+\frac{561i}{10},p_2=-\frac{39}{10}+31i,p_3=-\frac{3}{5}+\frac{37i}{10},p_4=\frac{131}{10}+\frac{183i}{5},p_5=\frac{697}{10}-\frac{219i}{5},p_6=\frac{523}{10}+\frac{246i}{5},p_7=-\frac{98}{5}+\frac{98i}{5},$$

$$p_8=-\frac{91}{10}+\frac{151i}{5},p_9=-\frac{51}{10}-\frac{172i}{5},p_{10}=\frac{313}{10}-\frac{571i}{10},p_{11}=\frac{144}{5}-\frac{196i}{5},p_{12}=-\frac{677}{10}-\frac{95i}{2},p_{13}=-\frac{593}{10}+\frac{339i}{10},p_{14}=-\frac{13}{2}+\frac{139i}{2},$$

$$\mu=\frac{27}{7}+\frac{77i}{10},\sigma=\frac{\sqrt{\frac{15202451}{182}}}{5}$$

11.

$$p_1 = \frac{169}{5} + \frac{201i}{5}, p_2 = -\frac{96}{5} + \frac{381i}{10}, p_3 = -\frac{227}{10} - \frac{227i}{10}, p_4 = -\frac{21}{5} + \frac{289i}{10}, p_5 = -\frac{334}{5} - \frac{549i}{10}, p_6 = \frac{561}{10} + \frac{127i}{2}, p_7 = \frac{226}{5} + \frac{15i}{2},$$

$$p_8 = \frac{323}{5} + 40i, p_9 = \frac{13}{5} - \frac{191i}{10}, p_{10} = 26 - \frac{114i}{5}, p_{11} = -\frac{15}{2} + \frac{471i}{10}, p_{12} = -\frac{176}{5} - \frac{33i}{2}, p_{13} = \frac{107}{10} + \frac{53i}{5}, p_{14} = \frac{159}{5} + \frac{71i}{2},$$

$$\mu = \frac{288}{35} + \frac{877i}{70}, \sigma = \frac{\sqrt{\frac{5896901}{91}}}{5}$$

12.

$$p_1 = \frac{361}{10} + \frac{38i}{5}, p_2 = -\frac{247}{10} - \frac{67i}{5}, p_3 = -\frac{48}{5} + \frac{3i}{2}, p_4 = -\frac{283}{5} - \frac{208i}{5}, p_5 = \frac{283}{5} + \frac{627i}{10}, p_6 = -\frac{259}{5} - \frac{143i}{5}, p_7 = -\frac{48}{5} - \frac{647i}{10},$$

$$p_8 = -5 + \frac{133i}{5}, p_9 = -\frac{157}{5} - \frac{56i}{5}, p_{10} = -\frac{62}{5} - \frac{61i}{5}, p_{11} = -\frac{491}{10} - \frac{291i}{5}, p_{12} = -\frac{319}{10} - 25i, p_{13} = \frac{178}{5} + \frac{38i}{5}, p_{14} = -\frac{3}{10} - \frac{105i}{2},$$

$$\mu = -\frac{1541}{140} - \frac{1007i}{70}, \sigma = \frac{\sqrt{\frac{8727221}{910}}}{2}$$

13.

$$p_1 = \frac{517}{10} + 6i, p_2 = 40 + \frac{71i}{5}, p_3 = -\frac{149}{5} + 48i, p_4 = \frac{187}{5} + \frac{41i}{2}, p_5 = \frac{237}{10} + \frac{521i}{10}, p_6 = \frac{257}{5} + \frac{99i}{2}, p_7 = -\frac{667}{10} - \frac{253i}{5},$$

$$p_8 = -\frac{311}{5} - \frac{262i}{5}, p_9 = 18 + 50i, p_{10} = -\frac{207}{5} - \frac{298i}{5}, p_{11} = -\frac{101}{5} + \frac{391i}{10}, p_{12} = -\frac{47}{5} + \frac{146i}{5}, p_{13} = \frac{259}{10} + \frac{44i}{5}, p_{14} = \frac{86}{5} - \frac{121i}{10},$$

$$\mu = \frac{89}{35} + \frac{1427i}{140}, \sigma = \frac{\sqrt{\frac{58978029}{182}}}{10}$$

14.

$$p_1 = \frac{273}{5} - \frac{26i}{5}, p_2 = \frac{115}{2} + \frac{241i}{5}, p_3 = 48 - \frac{189i}{10}, p_4 = \frac{31}{2} + \frac{74i}{5}, p_5 = -\frac{339}{10} - \frac{87i}{2}, p_6 = \frac{207}{10} + \frac{637i}{10}, p_7 = -\frac{109}{10} + \frac{216i}{5},$$

$$p_8 = \frac{63}{10} - \frac{469i}{10}, p_9 = -\frac{76}{5} - \frac{89i}{5}, p_{10} = \frac{357}{10} + 22i, p_{11} = -\frac{683}{10} - \frac{479i}{10}, p_{12} = \frac{309}{5} - \frac{226i}{5}, p_{13} = -\frac{49}{5} + 66i, p_{14} = \frac{341}{5} - \frac{157i}{5},$$

$$\mu = \frac{1151}{70} + \frac{11i}{140}, \sigma = \frac{\sqrt{\frac{62918993}{182}}}{10}$$

The End

3 statistical solutions to population

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe 3 statistical solutions to population. The paper ends with "The End"

Introduction

Contrary to popular belief, 3 statistical solutions to population exist. In this paper, I describe 3 statistical solutions to population.

3 statistical solutions to population

1. $$p_1 = 151, p_2 = 181, p_3 = 1, \mu = 111, \sigma = 10\sqrt{93}$$

2. $$p_1 = 137, p_2 = 90, p_3 = 82, \mu = 103, \sigma = \sqrt{883}$$

3. $$p_1 = 177, p_2 = 98, p_3 = 64, \mu = 113, \sigma = \sqrt{3361}$$

The End

2 statistical solutions to population

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe 2 statistical solutions to population. The paper ends with "The End"

Introduction

Contrary to popular belief, 2 statistical solutions to population exist. In this paper, I describe 2 statistical solutions to population.

2 statistical solutions to population

1. $$p_1 = 115, p_2 = 63, \mu = 89, \sigma = 26\sqrt{2}$$

2. $$p_1 = 74, p_2 = 76, \mu = 75, \sigma = \sqrt{2}$$

The End

2 smaller statistical solutions to population

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe 2 smaller statistical solutions to population. The paper ends with "The End"

Introduction

Contrary to popular belief, 2 smaller statistical solutions to population exist. In this paper, I describe 2 smaller statistical solutions to population.

2 smaller statistical solutions to population

1. $$p_1 = 32, p_2 = 2, \mu = 17, \sigma = 15\sqrt{2}$$

2. $$p_1 = 18, p_2 = 12, \mu = 15, \sigma = 3\sqrt{2}$$

The End

The smallest known statistical solution to population

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe the smallest known statistical solution to population. The paper ends with "The End"

Introduction

In this paper, I describe the smallest known statistical solution to population.

The smallest known statistical solution to population

$$p_1 = 1, p_2 = 1, \mu = 1, \sigma = 0$$

The End

The trinomial model of stock pricing

Soumadeep Ghosh

Kolkata, India

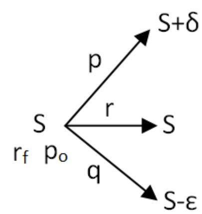
Abstract

In this paper, I describe the trinomial model of stock pricing. The paper ends with "The End"

Introduction

The trinomial model of stock pricing is the holy grail of stock pricing.
In this paper, I describe the trinomial model of stock pricing.

The trinomial model of stock pricing



The stock has price S which can increase by $\delta > 0$ with probability $0 \leq p \leq 1$, or remain S with probability $0 \leq r \leq 1$, or decrease by $\epsilon > 0$ with probability $0 \leq q \leq 1$, where

$$p + q + r = 1$$

and

$$S(1 + r_f + p_o) = p(S + \delta) + rS + q(S - \epsilon)$$

where
r_f is the risk-free rate
and
p_o is the option premium

The End

14 solutions to the trinomial model of stock pricing

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe 14 solutions to the trinomial model of stock pricing. The paper ends with "The End"

Introduction

In a previous paper, I've described the trinomial model of stock pricing. In this paper, I describe 14 solutions to the trinomial model of stock pricing.

14 solutions to the trinomial model of stock pricing

1.
$$S = 237, r_f = \frac{94}{239370001}, p_o = \frac{13}{690753390}, p = \frac{217}{221}, q = \frac{11}{5098}, r = \frac{17961}{1126658},$$
$$\delta = \frac{45700}{459616891}, \epsilon = \frac{111234018210558967789599}{236853105547163082333593605}$$

2.
$$S = 270, r_f = \frac{27}{272700001}, p_o = \frac{6}{372198649}, p = \frac{133049593482798649}{202997143908997298}, q = \frac{13}{98}, r = \frac{150567752533946526}{710490003681490543},$$
$$\delta = \frac{308}{4990313}, \epsilon = \frac{5109666268813568168}{72358520443710002369591}$$

3.
$$S = 390, r_f = \frac{20}{393900001}, p_o = \frac{40}{491159259}, p = 1, q = 0, r = 0,$$
$$\delta = \frac{3325294078600}{64489210870419753}, \epsilon = \frac{30}{336667}$$

4.
$$S = 506, r_f = \frac{13}{511060001}, p_o = \frac{3}{117311500}, p = \frac{17}{39}, q = \frac{74}{569}, r = \frac{9632}{22191},$$
$$\delta = \frac{55}{677043}, \epsilon = \frac{18796749037211941 5221}{25466380676581560064245 00}$$

5.
$$S = 651, r_f = \frac{1}{657510001}, p_o = \frac{6}{55340425}, p = \frac{11507740037401}{13414519040402}, q = \frac{8}{237}, r = \frac{344590471388021}{3179241012575274},$$
$$\delta = \frac{365}{4278026}, \epsilon = \frac{551078447270406693}{1147753224646696129 0400}$$

6.
$$S=671, r_f=\frac{74}{677710001}, p_o=\frac{50}{1267568699}, p=\frac{76206}{76319}, q=\frac{76455847414583775994}{6556137783526238904898 1},$$
$$r=\frac{20616122807571256993}{65561377835262389048981}, \delta=\frac{43221}{432399556}, \epsilon=\frac{105682305594248751614 5}{1691887127721073319580811 6}$$

7.
$$S=774, r_f=\frac{30}{781740001}, p_o=\frac{59}{1112052676}, p=\frac{299}{346}, q=\frac{23}{248}, r=\frac{1849}{42904},$$
$$\delta=\frac{871}{9411099}, \epsilon=\frac{28163347461269206994 80}{28356987229359438718634727}$$

8.
$$S=894, r_f=\frac{49}{902940001}, p_o=\frac{63}{1753787306}, p=\frac{146}{149}, q=\frac{16}{5017}, r=\frac{12667}{747533},$$
$$\delta=\frac{25547}{310321653}, \epsilon=\frac{686447914315117770895 91}{5857659874582724441258821270 56}$$

9.
$$S=952, r_f=\frac{8}{320506667}, p_o=\frac{43}{1261214546}, p=\frac{97}{154}, q=\frac{57}{154}, r=0,$$
$$\delta=\frac{896}{9400999}, \epsilon=\frac{1115528923579527484888}{108304101897851251190208813}$$

10.
$$S=977, r_f=\frac{14}{140967143}, p_o=\frac{26}{33221255567}, p=\frac{4511}{4580}, q=0, r=\frac{69}{4580},$$
$$\delta=\frac{2097553809034556960}{2112548883901343905039 1}, \epsilon=\frac{86}{1010001}$$

11.
$$S=1009, r_f=\frac{43}{1019090001}, p_o=\frac{61}{1774622241}, p=\frac{779}{889}, q=\frac{1134115132789414937}{109371177253392692 67},$$
$$r=\frac{1534288163287635751}{7655982407737488486 9}, \delta=\frac{399}{4267493}, \epsilon=\frac{1526270076900440983849}{338787987326102910242005 87}$$

12.
$$S=1030, r_f=\frac{62}{1040300001}, p_o=\frac{24}{898036751}, p=\frac{1764876062399136751}{1868455265926673502}, q=\frac{41}{1822},$$
$$r=\frac{28028660731044586685}{85108137362959978016 1}, \delta=\frac{4067}{42395270}, \epsilon=\frac{1226552704516917555695 87}{1623880142378604028042278570}$$

13.
$$S=1193, r_f=\frac{82}{1204930001}, p_o=\frac{19}{3202577094}, p=\frac{1613}{1722}, q=\frac{628}{10913}, r=\frac{15443}{2684598},$$
$$\delta=\frac{1727}{17505865}, \epsilon=\frac{626004363603499334052636 23}{8696780134263841417400695349 40}$$

14.
$$S=1258, r_f=\frac{26}{423526667}, p_o=\frac{13}{1859834488}, p=\frac{629}{723}, q=\frac{94}{723}, r=0,$$
$$\delta=\frac{8930}{89878413}, \epsilon=\frac{10691633679356498617771}{33274252711654267225141648 56}$$

The End

14 solutions to the trinomial model of stock pricing with zero risk-free rate and zero option premium

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe 14 solutions to the trinomial model of stock pricing with zero risk-free rate and zero option premium. The paper ends with "The End"

Introduction

In a previous paper, I've described the trinomial model of stock pricing. In this paper, I describe 14 solutions to the trinomial model of stock pricing with zero risk-free rate and zero option premium.

14 solutions to the trinomial model of stock pricing with zero risk-free rate and zero option premium

1.
$$S = 149, r_f = 0, p_o = 0, p = \frac{55}{203}, q = \frac{21}{373}, r = \frac{50941}{75719}, \delta = \frac{61}{486046212}, \epsilon = \frac{1251415}{2072015001756}$$

2.
$$S = 236, r_f = 0, p_o = 0, p = \frac{8}{203}, q = \frac{1}{233}, r = \frac{45232}{47299}, \delta = \frac{2}{84309897}, \epsilon = \frac{3728}{17114909091}$$

3.
$$S = 279, r_f = 0, p_o = 0, p = \frac{1}{2}, q = \frac{38}{203}, r = \frac{127}{406}, \delta = \frac{59}{269776316}, \epsilon = \frac{11977}{20503000016}$$

4.
$$S = 334, r_f = 0, p_o = 0, p = \frac{67}{203}, q = \frac{67}{203}, r = \frac{69}{203}, \delta = \frac{22}{101000001}, \epsilon = \frac{22}{101000001}$$

5.
$$S = 382, r_f = 0, p_o = 0, p = \frac{12}{29}, q = \frac{255}{586}, r = \frac{2567}{16994}, \delta = \frac{85}{101000001}, \epsilon = \frac{2344}{2929000029}$$

6.
$$S = 487, r_f = 0, p_o = 0, p = \frac{1}{2}, q = \frac{85}{203}, r = \frac{33}{406}, \delta = \frac{33}{40201961}, \epsilon = \frac{6699}{6834333370}$$

7.
$$S = 531, r_f = 0, p_o = 0, p = \frac{143}{203}, q = \frac{17}{342}, r = \frac{17069}{69426}, \delta = \frac{47}{1431325993}, \epsilon = \frac{120978}{259974000097}$$

8.
$$S = 547, r_f = 0, p_o = 0, p = \frac{99}{203}, q = \frac{99}{203}, r = \frac{5}{203}, \delta = \frac{98}{101000001}, \epsilon = \frac{98}{101000001}$$

9.
$$S = 566, r_f = 0, p_o = 0, p = \frac{1}{2}, q = \frac{85}{203}, r = \frac{33}{406}, \delta = \frac{10}{120605883}, \epsilon = \frac{203}{2050300011}$$

10.
$$S = 592, r_f = 0, p_o = 0, p = \frac{12}{203}, q = \frac{5}{1709}, r = \frac{325404}{346927}, \delta = \frac{14}{2040697537}, \epsilon = \frac{41016}{295901142865}$$

11.
$$S = 832, r_f = 0, p_o = 0, p = \frac{96}{203}, q = \frac{96}{203}, r = \frac{11}{203}, \delta = \frac{31}{101000001}, \epsilon = \frac{31}{101000001}$$

12.
$$S = 930, r_f = 0, p_o = 0, p = 0, q = 0, r = 1, \delta = \frac{32}{33666667}, \epsilon = \frac{43}{101000001}$$

13.
$$S = 1103, r_f = 0, p_o = 0, p = \frac{88}{203}, q = \frac{36}{233}, r = \frac{19487}{47299}, \delta = \frac{41}{141687466}, \epsilon = \frac{105083}{129431500191}$$

14.
$$S = 1140, r_f = 0, p_o = 0, p = \frac{62}{203}, q = \frac{97}{331}, r = \frac{26980}{67193}, \delta = \frac{13}{21052481}, \epsilon = \frac{266786}{414544403371}$$

The End

14 solutions to the trinomial model of stock pricing with zero risk-free rate, zero option premium and constant stock price

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe 14 solutions to the trinomial model of stock pricing with zero risk-free rate, zero option premium and constant stock price. The paper ends with "The End"

Introduction

In a previous paper, I've described the trinomial model of stock pricing. In this paper, I describe 14 solutions to the trinomial model of stock pricing with zero risk-free rate, zero option premium and constant stock price.

14 solutions to the trinomial model of stock pricing with zero risk-free rate, zero option premium and constant stock price

1. $$S = 9, r_f = 0, p_o = 0, p = 0, q = 0, r = 1, \delta = \frac{3}{33666666667}, \epsilon = \frac{6}{33666666667}$$

2. $$S = 48, r_f = 0, p_o = 0, p = 0, q = 0, r = 1, \delta = \frac{35}{101000000001}, \epsilon = \frac{7}{33666666667}$$

3. $$S = 360, r_f = 0, p_o = 0, p = 0, q = 0, r = 1, \delta = \frac{23}{101000000001}, \epsilon = \frac{68}{101000000001}$$

4. $$S = 390, r_f = 0, p_o = 0, p = 0, q = 0, r = 1, \delta = \frac{20}{101000000001}, \epsilon = \frac{40}{101000000001}$$

5. $$S = 549, r_f = 0, p_o = 0, p = 0, q = 0, r = 1, \delta = \frac{7}{33666666667}, \epsilon = \frac{22}{101000000001}$$

6. $$S = 603, r_f = 0, p_o = 0, p = 0, q = 0, r = 1, \delta = \frac{30}{33666666667}, \epsilon = \frac{59}{101000000001}$$

7. $$S = 782, r_f = 0, p_o = 0, p = 0, q = 0, r = 1, \delta = \frac{41}{101000000001}, \epsilon = \frac{32}{101000000001}$$

8.
$$S = 930, r_f = 0, p_o = 0, p = 0, q = 0, r = 1, \delta = \frac{32}{33666666667}, \epsilon = \frac{43}{101000000001}$$

9.
$$S = 977, r_f = 0, p_o = 0, p = 0, q = 0, r = 1, \delta = \frac{98}{101000000001}, \epsilon = \frac{26}{101000000001}$$

10.
$$S = 1007, r_f = 0, p_o = 0, p = 0, q = 0, r = 1, \delta = \frac{24}{33666666667}, \epsilon = \frac{80}{101000000001}$$

11.
$$S = 1039, r_f = 0, p_o = 0, p = 0, q = 0, r = 1, \delta = \frac{5}{33666666667}, \epsilon = \frac{38}{101000000001}$$

12.
$$S = 1062, r_f = 0, p_o = 0, p = 0, q = 0, r = 1, \delta = \frac{91}{101000000001}, \epsilon = \frac{56}{101000000001}$$

13.
$$S = 1218, r_f = 0, p_o = 0, p = 0, q = 0, r = 1, \delta = \frac{46}{101000000001}, \epsilon = \frac{52}{101000000001}$$

14.
$$S = 1247, r_f = 0, p_o = 0, p = 0, q = 0, r = 1, \delta = \frac{20}{101000000001}, \epsilon = \frac{31}{33666666667}$$

The End

Three results on a bond, a stock and a derivative

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe three results on a bond, a stock and a derivative. The paper ends with "The End"

Introduction

In this paper, I describe three results on a bond, a stock and a derivative.

The first result

$$B = S + D \wedge S = B + D \wedge 2D = B + S$$

$$\implies$$

$$B = 0 \wedge S = 0 \wedge D = 0$$

The second result

$$B = S + D \wedge S = B + D \wedge 2D = B - S$$

$$\implies$$

$$S = B \wedge D = 0$$

The third result

$$B = S + D \wedge S = B + D \wedge 2D = S - B$$

$$\implies$$

$$S = B \wedge D = 0$$

The End

A result on a bond, a stock and a derivative

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe a result on a bond, a stock and a derivative. The paper ends with "The End"

Introduction

In this paper, I describe a result on a bond, a stock and a derivative.

A result on a bond, a stock and a derivative

$$aB = bS + cd \wedge pS = qB + rd$$

$$\implies$$

$$(S = 0 \wedge d = 0 \wedge B = 0 \wedge qr \neq 0) \vee$$

$$(q \neq 0 \wedge B = \frac{pS - dr}{q} \wedge B \neq 0 \wedge a = \frac{bS + cd}{B}) \vee$$

$$(q = 0 \wedge r \neq 0 \wedge d = \frac{pS}{r} \wedge B \neq 0 \wedge a = \frac{bS + cd}{B}) \vee$$

$$(S = 0 \wedge q = 0 \wedge d = 0 \wedge B = 0 \wedge r \neq 0) \vee$$

$$(S = 0 \wedge r = 0 \wedge d = 0 \wedge B = 0 \wedge q \neq 0) \vee$$

$$(S = 0 \wedge r = 0 \wedge q = 0 \wedge d = 0 \wedge B = 0) \vee$$

$$(S = 0 \wedge r = 0 \wedge q = 0 \wedge B \neq 0 \wedge a = \frac{cd}{B}) \vee$$

$$(q = 0 \wedge r \neq 0 \wedge d = \frac{pS}{r} \wedge B = 0 \wedge S \neq 0 \wedge b = -\frac{cd}{S}) \vee$$

$$(r = 0 \wedge p = 0 \wedge B = 0 \wedge S \neq 0 \wedge b = -\frac{cd}{S} \wedge q \neq 0) \vee$$

$$(r = 0 \wedge q = 0 \wedge p = 0 \wedge B = 0 \wedge S \neq 0 \wedge b = -\frac{cd}{S}) \vee$$

$$(r = 0 \wedge q = 0 \wedge S \neq 0 \wedge p = 0 \wedge B \neq 0 \wedge a = \frac{bS + cd}{B}) \vee$$

$$(S = 0 \wedge r = 0 \wedge q = 0 \wedge d \neq 0 \wedge c = 0 \wedge B = 0) \vee$$

$$(S = 0 \wedge r = 0 \wedge d \neq 0 \wedge c = 0 \wedge B = 0 \wedge q \neq 0) \vee$$

$$(r \neq 0 \wedge d = \frac{pS}{r} \wedge B = 0 \wedge S \neq 0 \wedge b = -\frac{cd}{S} \wedge q \neq 0)$$

The End

A result on a bond, a stock, a derivative and value

Soumadeep Ghosh

Kolkata, India

Abstract

In this paper, I describe a result on a bond, a stock and a derivative. The paper ends with "The End"

Introduction

In this paper, I describe a result on a bond, a stock, a derivative and value.

A result on a bond, a stock, a derivative and value

$$V = aB + bS + cd$$
$$\implies$$
$$(B \neq 0 \wedge a = \frac{V - bS - cd}{B})\vee$$
$$(B = 0 \wedge S \neq 0 \wedge b = \frac{V - cd}{S})\vee$$
$$(S = 0 \wedge d \neq 0 \wedge c = \frac{V}{d} \wedge B = 0)\vee$$
$$(V = 0 \wedge S = 0 \wedge d = 0 \wedge B = 0)$$

The End