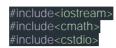
4.1 Forward price



| loublepert(doublep,doubler,doublet

 $T = 0.7 \Rightarrow$ fair value Forward price = 104.73

std::cout<<pert(95.5,(.051-.011),.65);

T = 0.65 = fair value Forward price = \$98.02

4.2 forward arbitrage

$$F = e^{r(\tau - t_0)} S_0 = loo \cdot e^{.005(1.0)} = \#l_0 5.13$$

 $lo 5 \cdot o < lo S \cdot 13$, $S_0 = lo 5 \cdot o = F_-$

1. Forward price = 105.0

F = F : 105.0 < 105.13

Arbitrage strategy:

First We sell stock today and get money,

Then deposit the Money in bank will earn us interest rate \$0.13

Finally buy back stock at time T for \$105.0, profit = B(T) - F = \$105.13 - \$105.0 = \$0.13

2. Forward price = 106.0 = F+

We buy stock today for \$105.0, so we have borrow from \$105.0 from bank, we owe \$105.13 at the end because of interest rate.

At time T we sell stock and get \$106.0 Finally We pay back bank 105.13 Profit = F+-B(T) = 106-105.13=\$0.87

4.3.1 random walk 1 F0=105.5

I	Si	Fi	Money received	Money paid
1	99.5	103.3		2.2
2	101.3	104.1	.8	
3	101.3	102.1		2.00
4	100.2	101.3		.8
5	99.3	99.3		2.00

$$(-.8)+((2+2.2+.8+2))=6.2$$

99.3 + 6.2 = \$105.5 paid

$$((-1)*(.8+2.4+.5))+.9=-2.8$$

4.3.3 summary:

No.

4.3.5 random walk 3

$$Day3 = -.4 + .7 = .3$$

Net profit =
$$.8 - 1.2 - 0.4 + .3 = -50.5$$

4.3.6 random walk 4

$$Day3 = -0.4 + .7 = 0.3$$

Net profit =
$$.8 - 1.2 - 0.4 + .3 = -50.5$$

4.3.7 summary:

Yes.

