**Homework 8**

Juwon Lee, 706107402

**Exercise 1**

Flows at Flows at

Action

Write 1 call

Buy shares of stock

This is hedged portfolio, so .

.

And because of time period,

Let , then

.

EX) .

, so that .

1. ,
2. ,

Thus, .

**Exercise 2**

months, , .

(50)

,

, so that .

, , then,

.

At the second node,

, .

.

.

**Exercise 3**

months, , .

(50)

,

, , .

,

, so that .

.

.

.

Put-call Parity:

1. .

Thus, put-call parity holds.

**Exercise 4**

.

Thus, suppose that a person has Expected Utility,

1. If there is in first node, then hold is the strategic dominance.
2. If there is in first node,
3. To exercise now, then utility is .
4. To hold, then the expected utility is .

Then exercise is the strategic dominance.

**Exercise 5**

1. .
2. ,

Where and

.

1. .

**Exercise 6**

Flows at Flows at

Action (given )

Write 1 call

Buy shares of stock

Flows at Flows at

Action (given )

Write 1 call

Buy shares of stock

Because they are hedged portfolio,

Then,

.

Then because of time period,

Then,

Thus,

When we take ,

Then,

Therefore, we can conclude that

When one-step binomial tree makes upward movement, we will take for the second period.

QED