**Homework 5**

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**Exercise 1**

1. Actually, there is no CCM condition, so that I can’t use constant .

However, if CCM holds,

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Thus, ,

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1. Stock 1, 2, 5, and 6 can be included.

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Thus, .

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1. ,

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Thus, Combination ,

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**Exercise 2**

1. (a) 0.2 (b) 0.72625 (c) , so that .
2. Stock 1, 2, 3, 4, and 5.

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1. .

.

1. , where .

. QED

**Exercise 3**

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1. .

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1. If short sales are not allowed, then .
2. If short sales are allowed, then .
3. .
4. .

0.055 0.025 0.2 0.0703125 43.452 3.055219

If short sales are not allowed, then it doesn’t affect anything.

If short sales are allowed,

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, so that .

**Exercise 4**

1. Short sales are allowed: It doesn’t choose stock 1.
2. Short sales are not allowed: , so that

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**Exercise 5**

1. .

Industry 3 has only 5 stocks. Thus, there is no .

If it is , then .

1. .

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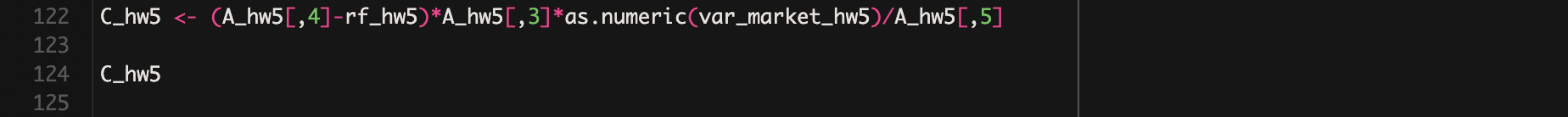
**Exercise 6**

텍스트이(가) 표시된 사진

자동 생성된 설명

텍스트이(가) 표시된 사진

자동 생성된 설명



Then,

텍스트이(가) 표시된 사진

자동 생성된 설명

It can be computed as follows.

1. The table is

Stock

1 0.29 0.03 8 0.5 8 4

2 0.19 0.02 7 0.333 15 5

3 0.08 0.15 0.2 0.25 15.2 3.8

Thus, cut-off rate when short sales are allowed:

If not allowed, then .

,

. QED

**Exercise 7**

Stock

A 0.94 0.006 0.0033 0.00106383 0.2848485 0.2848485

B 0.61 0.011 0.0038 0.009836066 0.9631579 1.248006

C 1.12 0.015 0.0046 0.008928571 2.434783 3.682789

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A 267.7576 267.7576 0.0003457783

B 97.92105 365.6787 0.001354711

C 272.6957 638.3744 0.003084594

1. .

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1. Because also holds in not-allowed situations, so that is same with above.

**Exercise 8**

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Let .

(\*) .

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Thus,

Therefore,

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And,

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Also,

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Finally, we can conclude that ()

QED