SOA Exam FM

Flashcards

2016 Exams

BPP
PROFESSIONAL
EDUCATION

SOA Exam FM

Flashcards

2016 Exams

Important formulas

Key lists

Crucial concepts

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HOW TO USE THESE FLASHCARDS

These flashcards are designed to help you memorize important formulas efficiently in your preparation for the Course FM exam. It is extremely important for a mathematically intensive, multiple choice exam that you thoroughly understand important formulas and how to apply them under stressful exam conditions. Once you have this mastered, you will have a competitive advantage over most of the other students taking the exam that will provide a level of confidence that should result in a passing score.

The left hand-sides of important formulas are presented on even-numbered pages, while the complete formulas are presented on odd-numbered pages. This format is designed to quickly improve your memorization of the important formulas. We suggest using a blank sheet of paper to conceal the complete formulas on the odd pages as you look at the incomplete formulas on the even pages. As you work your way through the incomplete formulas on the even pages, you can gradually reveal the complete formulas by shifting the blank sheet of paper down the even-numbered pages.

For a multiple choice exam, memorization of lists is not as important as being able to recognize items within a list when they are presented. Course FM is not an essay exam, so you will not be asked to recite a memorized list, but you will be asked about whether or not an item in a list is appropriate in the context of the question.

We have designed these flashcards so that they can be carried conveniently and read frequently in the final run-up to the exam. Check each section when you feel confident with the material covered.

Each person has a different approach to learning. While we have tried to be reasonably complete with the flashcards, some students may prefer to derive some of the formulas while others may prefer to memorize them all. These flashcards cannot possibly cover everything that will ever appear on the Course FM exam since they would become too unwieldy and ultimately less useful for the student. So we hope that you will personalize these flashcards by adding your own formulas, comments, and notes to help you pass the exam.

Good luck with your studying.

Quadratic equation

$$ax^2 + bx + c = 0$$

$$x =$$

Geometric series

$$a\left[1 + r + r^2 + \cdots + r^{n-1}\right] =$$

Linear interpolation

$$\begin{bmatrix} a & d \\ x & e \\ b & f \end{bmatrix}$$ solve for x

Timing of cash flows

- End of year x =
- Beginning of year x =

Percentage change

$$\%\Delta =$$

Quadratic equation

$$ax^2 + bx + c = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Geometric series

$$a\left[1 + r + r^2 + \cdots + r^{n-1}\right] = a\left[\frac{1 - r^n}{1 - r}\right]$$

Linear interpolation

$$\begin{bmatrix} a & d \\ x & e \\ b & f \end{bmatrix} \quad \frac{a-b}{x-b} = \frac{d-f}{e-f} \quad \text{solve for } x$$

Timing of cash flows

- End of year x = time x years
- Beginning of year x = time (x – 1) years

Percentage change

$$\%\Delta = \frac{\text{new} - \text{old}}{\text{old}}$$

The term structure of interest rates

Spot rates

s_t =

P =

Forward rates

f_t =

P =

Relationships between forward rates and spot rates

$(1+s_t)^t$ =

s_t =

f_{t-1} =

Arbitrage

Arbitrage is when _____.

The term structure of interest rates

Spot rates

s_t = the annual effective spot rate applicable to a cash flow occurring at time t

$$P = \sum_{t>0} \frac{CF_t}{(1+s_t)^t}$$

Forward rates

f_t = the annual effective forward rate applicable from time t to time $(t+1)$

$$P = \sum_{t>0} \frac{CF_t}{(1+f_0)(1+f_1)\cdots(1+f_{t-1})}$$

Relationships between forward rates and spot rates

$$(1+s_t)^t = (1+f_0)(1+f_1)\cdots(1+f_{t-1})$$

$$s_t = \sqrt[t]{(1+f_0)(1+f_1)\cdots(1+f_{t-1})} - 1$$

$$f_{t-1} = \frac{(1+s_t)^t}{(1+s_{t-1})^{t-1}} - 1$$

Arbitrage

Arbitrage is when an investor can lock in a risk-free profit with no net outlay of funds.

Collared stock

A collared stock position is created by

_____

Purchased straddle

A purchased straddle position is created by

_____

Written straddle

A written straddle position is created by

_____

Purchased strangle

A purchased strangle position is created by

_____

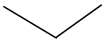
Written strangle

A written strangle position is created by

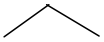
_____

Collared stock 

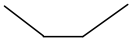
A collared stock position is created by owning the stock, buying a lower strike put and selling a higher strike call.

Purchased (long) straddle 

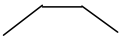
A purchased straddle position is created by buying a call option and a buying put option with the same strike price and time to expiration.

Written (short) straddle 

A written straddle position is created by selling a call option and selling a put option with the same strike price and time to expiration.

Purchased (long) strangle 

A purchased strangle position is created by buying a call option and buying a put option with a lower strike price than that of the call but with the same time to expiration.

Written (short) strangle 

A written strangle position is created by selling a call option and selling a put option with a lower strike price than that of the call but with the same time to expiration.