Team 4B

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November 19, 2017

Baladashyalan Rajandran

Consider a model for stock price as follows:

$$S_t = 0.8S_{t-1} + 0.2S_{t-2} + C_t,$$

where C_t is i.i.d with mean 0 and variance 1. Which of the following statements is most likely the odd one out?

(A) $\mathbb{E}(S_t|S_{t-2}) = 0.84S_{t-2} + 0.16\,\mathbb{E}(S_{t-3})$

(B) $\mathbb{E}(S_t|S_{t-2}, S_{t-1}) = 0.8S_{t-1} + 0.2S_{t-2} + C_t$

(C) This model stipulates that stock prices for $t = 7$ have a significant impact on today's stock price.

(D) $\mathbb{V}(S_t|S_{t-2}, S_{t-1}, C_t) = 1$

Chew Wei Lin

Consider the model of static replication. Which statement is most accurate?

(A) In practice, ensuring a higher replicated payoff than the payoff of $f(S_T)$ takes precedence over choosing the nearest strike price to replicate the contract of forward.

(B) The payoff of a long forward position is often replicated by a long position in a put and a short position in a call, whereby both have the same strike price.

(C) Discrete replication is not without risks in the real world because it is difficult to obtain fine partitions for the Riemann sum to be close enough to the Riemann integral limit.

(D) The formula of static replication can be used for both European and American options.

Lim Zhi Qi

Which is most likely the odd one out?

(A) In CIRS, the buyer, in effect, is long a floating bond that is denominated in the base currency, and short a fixed rate coupon in the quoting currency.

(B) The cost of replicating the payoff $f(S_T)$ is $e^{-r_0 T}\,\mathbb{E}_0^{\mathbb{Q}}(f(S_T))$.

(C) Consider a portfolio consisting of a long position in an underlying stock and a put, as well as a short position in a call option and a zero-coupon bond with maturity value of K at time T. Both options are struck at K. The net cash flow will be the difference depending on whether the underlying asset price is larger or smaller than the strike price K.

(D) The return from the passage of time is the return of a risk-free bond that does not give out any coupons.

Low Li Jun

Which of the following statement is most accurate?

(A) Given GBP/USD = 1.5591/92, a dealer will sell one pound at \$1.5591 and buy one pound for \$1.5592.

(B) The effective annual rate, calculated under non-continuous compounding is $\left(1+\dfrac{r}{n}\right)^n - 1$.

(C) The value of a firm depends on whether the firm's capital is weighted more heavily on debt or on equity.

(D) A 5-year coupon bearing bond is a portfolio of 10 zero bonds.

Wang Yi Xing

Stock A is expected to have either a price of \$14 or \$32 in the next period. The current price for stock A is \$21 and the per period risk free interest rate is 2.5%. What is the price of a one-period call option on A with the exercise price of \$15 closest to?

(A) \$4.94

(B) \$5.94

(C) \$6.94

(D) \$7.94