Vrije Universiteit Amsterdam
Faculteit der Economische Wetenschappen en Bedrijfskunde
Versie B

Tentamen:	Financiering *2.5*
Opleiding:	Bachelorsopleiding Economie periode *5*
Vakcode:	60241010
Docent:	mw. dr. J. Koëter-Kant
Datum:	4 juli 2007
Tijd:	08:45 uur
Tijdsduur:	2 uur
Onderdelen:	24 multiple choice opgaven 3 open vragen
Waardering:	Iedere multiple choice vraag telt even zwaar mee. U start op 100 punten. Voor elk fout antwoord, worden *5* punten afgetrokken. Voor de open vragen kunt u in totaal 25 punten behalen. Uw cijfer wordt bepaald door het resterende aantal punten van de multiple choice opgaven op te tellen bij de punten die behaald zijn bij de open vragen en dan door 12.5 te delen mits dit resultaat hoger is dan 1, anders 1.
Uitslag:	De uitslag van het tentamen wordt uiterlijk woensdag 18juni 2007 bekend gemaakt, inclusief het eventueel toegekende hele of halve bonuspunt.
Rekenmachine:	Grafische rekenmachine is toegestaan, maak het geheugen leeg.
Formules:	Tabel met cumulatieve normale verdeling is toegevoegd
Inzage:	Voor eventuele vragen met betrekking tot het tentamen en het toegekende cijfer is er inzage op een nog nader te bepalen tijdstip (zie announcement op Blackboard).
Opmerking:	Verdeel uw tijd overeenkomstig het aantal te behalen punten.

BELANGRIJK --- BELANGRIJK --- BELANGRIJK
Bij de rekenopgaven dient u het antwoord te kiezen dat het dichtst (in absolute zin) ligt bij het juiste antwoord, bijvoorbeeld als uw antwoord 6.53 is, en de mogelijkheden zijn (a) *5* (b) 6 (c) 7 (d) 8; dan is het juiste antwoord: (c) 7. De precieze antwoorden staan veelal niet tussen de keuzemogelijkheden!

Veel succes toegewenst!

Naam: _____

Studenten nr.:

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) Which of the following statements regarding currency options is false?
A) Firms often prefer forward contracts to currency options if the transaction they are hedging might not take place.
B) Currency forward contracts allow firms to bek in a future exchange rate; currency options allow firms to insure themselves against the exchange rate moving beyond a certain level.
C) Many managers want the firm to benefit if the exchange rate moves in their favour, rather than being stuck paying an above-market rate.
D) Currency options are another method that firms commonly use to manage exchange rate risk. Currency options, like the stock options, give the holder the right—but not the obligation—to exchange currency at a given exchange rate.

2) Which of the following statements is false?
A) It is never optimal to exercise a call option on a dividend paying stock early—you are always better off just selling the option.
B) If present value of the dividend payment is large enough, the time value of a European call option can be negative, implying that its price could be less than its intrinsic value.
C) The price of any call option on a non-dividend-paying stock always exceeds its intrinsic value.
D) An American call on a non-dividend paying stock has the same price as its European counterpart.

3) Which of the following statements is false?
A) When a firm authorizes managers to trade contracts to hedge, it opens the door to the possibility of speculation.
B) The firm may speculate by entering into contracts that do not offset its actual risks.
C) Cash flows of future contracts are exchanged on a monthly basis, rather than waiting until the end of the contract, through a procedure called marking to market.
D) Firms generally do not possess better information than outside investors regarding the risk of future commodity price changes, nor can they influence that risk through their actions.

4) Which of the following statements is false?
A) The techniques of the binomial option pricing model are specific to European call and put options.
B) We define the state in which the stock price goes up as the up state and the state in which the stock price goes down as the down state.
C) When using the Binomial Option Pricing Model, by the Law of One Price, the price of the option today must equal the current market value of the replicating portfolio.
D) We can summarize the payoffs for the Binomial Option Pricing Model in a binomial tree—a timeline with two branches at every date that represent the possible events that could happen at those times.

5) If the value of d2 is -0.5, then the value of $N(d_2)$ is:
A) -0.1915
B) 0.3085
C) 0.8085
D) 0,6915

6) In reality market imperfections exist that can raise the cost of insurance above the actuarially fair price and offset some of these benefits. These insurance market imperfections include all of the following except:

A) Adverse selection
B) Taxation of insurance payments
C) Administrative and overhead costs
D) Moral Hazard

7) Consider the following equation:

"Black en schools"

Luther Industries does not pay dividend and is currently trading at $25 per share. The current risk-free rate of interest is 5%. The price of a call option on Luther Industries with a strike price of $30 that expires in *75* days when N(di) = .639 and N(d2) = .454. is

A) $2,35
B) $5,00
C) $3,02
D) $2,49

8) Which of the following statements is false?

A) You invest today only when the NPV of investing today exceeds the value of the option of waiting, which from option pricing theory we know to be always positive.
B) When you have the option of deciding when to invest, it is usually optima! to invest only when the NPV is positive but close to zero.
C) One way to see why you sometimes choose not to invest in a positive-NPV project is to think about the decision of when to invest as a choice between two mutually exclusive projects: (1) invest today or (2) wait.
D) When you do not have the option to wait, it is optimal to invest in any positive-NPV project.

Use the information for the question(s) below.

Kinston Industries has come up with a new mountain bike prototype and is ready to go ahead with pilot production and *lest* marketing. The pilot production and test marketing phase will last for one year and cost $500,000. Your management 1c~m believes that there is a 50% chance that the test marketing will be successful and that there will be sufficient demand for the new mountain bike. If the test-marketing phase is successful, then Kinston Industries will invest $3 million in year one to build a plant that will generate expected annual after tax cash flows of $400,000 in perpetuity beginning in year two If the test marketing is not successful, Kinston can still go ahead and buiki the new plant, but the expected annual :1 Ier td\ cash flows would be only $200,000 in perpetuity beginning in year two. Kinston has the option to stop the project et any time and sell the prototype mountain bike to an overseas competitor for 5300,000. Kinstons cost of capital is 10%

9) Assuming that Kinston does not have the ability to sell the prototype in year one for $300,000, the NPV of the Kinston Industries Mountain Bike Project is closest to:

A) -545,000
B) 590,000
C) $590,000
D) 5455,000

10) Which of the following statements is false?
A) The most common method firms use to reduce the risk that results from changes in exchange rates is to hedge the transaction using currency forward contracts.
B) Fluctuating exchanges rates cause a problem known as the importer—exporter dilemma for firms doing business in international markets.
C) Exchange rate risk naturally arises whenever transacting parties use different currencies Both of the parties will be at risk if exchange rates fluctuate.
D) Because the supply and demand for currencies varies with global economic conditions, exchange rates are volatile.

11) Which of the following statements is false?
A) The value of an otherwise identical eau option is higher if the strike price the holder must pay to buy the stock is higher.
B) For a given strike price, the value of a cali option is higher if the current price of the stock is higher, as there is a greater likelihood the option will end up in-the-money.
C) Put-call panty gives the price of a European call option in terms of the price of a European put, the underlying stock, and a zero-coupon bond.
D) Because a put is the right to seli the stock, puts with a lower strike price are less valuacie.

12) The risk that arises because the counter party in a forward contract will not meet its obligation is called
A) speculation risk.
B) liquidity risk.
C) credit risk.
D) commodity price risk.

13) Which of the following statements is false?
A) Because no assumption on the risk preferences of investors is necessary to calculate the option price using either the Binomial Model or the Black-Scholes formula, the models must work for any set of preferences, including risk-neutral investors.
B) By using the probabilities in the risk-neutral world we can price any derivative security—that is, any security whose payoff depends solely on the prices of other marketed assets.
C) To ensure that all assets in the risk-neutral world have an expected return equal to the risk-free rate, relative to the true probabilities, the risk-neutral probabilities underweight the bad states and overweight the good states.
D) Because no assumption on the risk preferences of investors is necessary to calculate the option price using either the Binomial Model or the Black-Scholes formula, the models must work for any set of preferences, including risk-neutral investors.

14) Which of the following statements is false?
A) Options also allow investors to speculate, or place a bet on the direction in which they believe the market is likely to move.
B) Call options with strike prices above the current stock price **are** in-the money, as are put options with strike prices below the current stock price.
C) Options where the strike price and the stock price are very far apart are referred to as deep in-the-money or deep out of-the-money.
D) European options allow their holders to exercise the option only on the expiration date—holders cannot exercise before the expiration date.

15) Which of the following statements is false?
A) Of the five required inputs in the Black- Scholes formula, four are directly observable.
B) The Black-Scholes formula is derived assuming that the call is a European option.
C) The Black- Scholes Option Pricing Model can be derived from the Binomial Option Pricing Model by making the length of each period, and the movement of the stock price per period, shrink to zero and letting the number of periods grow infinitely large.
D) *N(d)* is the cumulative normal distribution—that is, the probability that a normally distributed variable is greater than *d.*

16) Like most foreign exchange rates, the dollar/euro rate is a floating rate, which means it changes constantly depending on the quantity supplied and demanded for each currency in the market. The supply and demand for each currency is driven directly by all of the following factors except:
A) The actions of central banks in each country
B) Investors trading securities
C) Relative inflation
D) Firms trading goods

17) Which of the following statements is false?
A) The value of an option generally decreases with the volatility of the stock.
B) The intrinsic value is the amount by which the option is currently in-the money or 0 if the option is out-of-the-money.
C) An American option with a later exercise date cannot be worth less than an otherwise identical American option with an earlier exercise date.
D) Because an American option cannot be worth less than its intrinsic value, it cannot have a negative time value

18) Which of the following statements is false?
A) The swap contract—like forward and futures contracts—is typically structured as a 'zero-cost security.
B) When interest rates rise, the swap's value will rise for the party receiving the fixed rate; conversely, it will fail for the party paying the fixed rate.
C) In a standard interest rate swap, one party agrees to pay coupons based on a fixed interest rate in exchange for receiving coupons based on the prevailing market interest rate during each coupon period.
D) An interest rate swap is a contact entered into with a bank, much like a forward contract, in which the firm and the bank agree to exchange the coupons from two different types of loans.

Use the information for the question(s) below.

The current price of KD Industries stock is $20. In the next year the stock price will either go up by 20% or go down by 20%. IKE) pays no dividends. The one year risk-free rate is 5% and will remain constant.

19) Using the binomial pricing model, the calculated price of a one-year put option on KD stock with a strike price of $20 is closest to:
A) $1.45
B) $2.40
C) $2.15
D) $2.00

20) Which of the following statements is false?
A) Out-of-the-money calls are riskier than in-the-money calls, and because most growth options are likely to be out-of-the-money, the growth component of firm value is likely to be riskier than the ongoing assets of the firm.
B) An alternative to using the Black-Scholes formula is to compute the value of growth options using risk neutral probabilities.
C) While the Black-Scholes formula values American options, most growth options cannot be exercised at any time.
D) Future growth options are not only important to firm value, but can also be important in the value of an individual project.

Use the figure *for the question(s) below.*

21) This graph depicts the payoffs of a
A) a long position in a put option at expiration.
B) a long position in a call option at expiration.
C) short position in a call option at expiration.
D) a short position in a put option at expiration.

Use the *information for the question(s) below.*

You own a small manufacturing plant that currently generates revenues of $2 million per year. Next year, based upon a decision on a long-term government contract, your revenues will either increase by 20% or decrease by 25%, with equal probability's and stay **at** that level as long as you operate the plant. Other costs run $1.6 million dollars per year. You can sell the plant at any time to a large conglomerate for **$5** million and your cost **of capital is 10%.**

22) Assume that you are not able to sell the plant, but you are able to shut down the plant at no cost at any time. Given the embedded option to abandon production the value of your plant will be closest to:

A) $5.0 million
B) $6.5 million
C) $4.0 million
D) $8,0 million

23) An European call option with an exercise price of $50 has a maturity (expiration) of six months, stock price of $54 and the instantafleous variance of the stock returns 0.64. The risk-free rate is 9.2%. Calculate the value of d2 (approximately).

A) +0.5656
B) +0.0656
C) -0.0656
D) -0.5656

24) *Use the information for the question(s) below.*

The current price of Kinston Corporation stock is $10. In each of the next ~o years, this stock price can wither go up by **$300** or go down by $200. Kinston stock pays no dividends. The one year risk-free interest **rate** is 5% and will remain constant. Using risk neutral probabilities calculate the price of a ~o-year call option with a strike price of **$9.**

A) 4.29
B) 2.49
C) 4.09
D) 0.68

Continueer op de volgende pagina met de open vragen

Open Vragen

(Gebruik de opengelaten ruimte onder de open vragen voor het beantwoorden van deze vragen, je mag in het Nederlands antwoorden). Kladpapier mag gebruikt worden, maar lever dit niet in! Ga door tot je "einde tentamen " ziet.

1 In het Black-Scholes model komen vijf variabelen voor

a) Beschrijf deze vijf variabelen.
(2.5 punten)

b) Bcschrijf voor ieder van de variabelen (5) wat er gebeurd met de put prijs, gegeven dat één enkele variable omhoog gaat in waarden en de andere vier variabelen constant blijven.
(7.5 punten)

2. Veronderstel dat de aandelen prijs van TechArt N.V. € 120 is. De prijs gaat volgend jaar omhoog met 10% dan wel naar beneden met 20%. De risico vrije rente bedraagt 6% per jaar. Een Europese call optie op dit aandeel heeft een uitoefenprijs van € 130.

a) Wat is de prijs van de call optie die afloopt in 1 jaar?
(2,5 punten)

b) Creëer een portfolio van aandeel(en) en (uit)lenen die hetzelfde uitbetaald als de call optie. Laat de 'payoffs' van de portfolio zien in beide situaties, zowel als het aandeel stijgt dan wel daalt.
(5 punten)

c) Met behulp van de put-call pariteit bereken nu de prijs van de Europese put.
(2.5 punten)

Beantwoord vraag 3 met behulp van onderstaande koersgegevens

Wisselkoersen op 1 maart 2004
Spotprijs (spot price) pesos *9.13901$*
Termijnprijs (forward price) 1 maand pesos 9.1 *8651$*
Termijnprijs (forward price) 3 maand pesos 9.30701$
Termijnprijs (forward price) 1 year pesos 9.9240/$

3. Mevrouw Fowler is een Amerikaanse investeerster en koopt op 1 maart 2004, 1000 aandelen in een Mexicaans bedrijf. Zij betaald 500 pesos per aandeel. Het aandeel keert geen dividend uit. Een jaar later verkoopt mevrouw Fowler de aandelen voor *550* pesos per stuk. De wisselkoers op het moment van verkoop is pesos *9.501$.*

a. Hoeveel dollar ($) investeert mevrouw Fowler op 1 maart?
(2 punt)

b. Mevrouw Fowler is van plan om over 1 jaar de aandelen weer te verkopen en de pesos terug wisselen naar dollars. Gegeven dat zij gelooft in de Expections Theory of Exchange Rates (the Unbiasedness Hypothesis), hoc schat zij het minimale rendement in dat ze moet krijgen op haar investering om over 1 jaar geen verlies te leiden? Licht uw antwoord toe.
(3 punten)

Einde tentamen