Antwoorden tentamen Finance dd 16 december 2015 (onder voorbehoud)

MEERKEUZEVRAGEN (72 punten)
Aantal punten meerkeuzevragen = (aantal juist beantwoorde vragen – 4) × 6

1./11. Antwoord: d
I = CF_0 + borrowed amount – C_0 = 50,00 + 75,00 – 25 = 100.
NCW = -I present value revenue = -100 + 155 = 55

2./12. Antwoord: b
OG = $C_0 + C_1/(1+r)$ = 39 + 255/1,02 = 289
OG = $CF_0 + CF_1/(1+r)$ + NCW = 150 + $CF_1/(1+r)$ + 65
OG = 150 + $CF_1/(1+r)$ + 65 = 289 $\Rightarrow$ CF_1 = (289 – 215)×(1,02) = 75,48

3./13. Antwoord: a
Enterprise value = market value of equity + interest bearing debt – cash
= (924 mln × €17) + €7 mld – €1,7 mld = €21,1 mld

4./14. Antwoord: c

In real terms			
Corporate tax	25%		
r real	10,00%		
inflation	2,00%		
r nom	12,20%		
Year		**1**	**2**
Real CF. before tax	(6.000,00)	6.000,00	8.000,00
Depreciation		2.941,18	2.883,51
Profit before tax		3.058,82	5.116,49
Tax		764,71	1.279,12
Real CF aftertax	(6.000,00)	5.235,29	6.720,88
Discount-factor	1,00	0,91	0,83
PV	(6.000,00)	4.759,36	5.554,44
NPV	**4.313,80**		

5./15. Antwoord: a
NPV = -50 + 5/(1,1) + 7/($1,1^2$) + (8/(0,1-0,02))/($1,1^2$) = 43

6./16. Antwoord d
1+EAR = (1+APR/k)k = $(1+5{,}200\%/52)^{52}$= 5,3348%

7./1. Antwoord: c
Zie BDM, p. 241-244

8./2. Antwoord: c

Security	A	B	C
E(Ri)	8%	12%	10%
Number of shares outstanding	40.000	20.000	20.000
Current price per share	€ 20	€ 20	€ 40
Marketcap	€ 800.000	€ 400.000	€ 800.000
Value of M	€ 2.000.000		
(Market Cap i) / M	40,00%	20,00%	40,00%
[(Market Cap i) / M] × E(Ri)	3,20%	2,40%	4,00%
E(Rm)	9,60%		
Rf	2%		

Wealth	€ 300.000,00
Short position in F	€ 200.000,00
In vestment in M	€ 500.000,00

Xm	1,67
Xf	-0,67
E(Rx) = Xm × 9,60% + Xf × 2,00% =	14,67%

9./3. Antwoord: d

$P_A = 871{,}44 = 1.000/(1+r_4)^4$
$r_4 = 3{,}50\%$

${}_3f_4 = (1+r_4)^4/(1+r_2)^2(1+{}_2f_3) - 1 = 4{,}81\%$

10./4. Antwoord: d

The yield of A is 2,5%. The yield of B is close to 5% since the yield of B is determined by r_1 and r_2 where r_2 is more important than r_1. The yield of C is close to 7,5% since the yield of C is determined by r_1, r_2 and r_3, where r_3 is the most important rate.

$P_A = 1000/1{,}0250 = 975{,}61$
$P_B = 100/1{,}0250 + 1100/1{,}050^2 = 1095{,}29$
$P_C = 50/1{,}0250 + 50/1{,}050^2 + 1050/1{,}075^3 = 939{,}34$

11./5. Antwoord: b

$EPS_1 = EPS_2 / (1+g) = 12{,}10 / 1{,}1 = 11{,}00$
$DIV_1 = 0{,}10 \times 11{,}00 = 1{,}10$

$P_0 = 110 = DIV_1 / (r-g) = 1{,}10 / (r-0{,}10)$
$r = 11\%$

12./6. Antwoord: c

$P_0 = DIV_1 / (r-g)$
$P_{0,A} = 2,00 / (0,03) = 66,67$
$P_{0,B} = 1,50 / (0,01) = 150,0$
$P_{0,A} + P_{0,B} = 216,67$

13./7. Antwoord: b

$E(R_P) = 0,10\ x_A + 0,20\ (1-x_A) = 0,20 - 0,10x_A$
$\sigma^2(R_P) = 0,04\ x_A^2 + (1 - 2\ x_A + x_A^2)\ 0,16 = 0,20\ x_A^2 - 0,32\ x_A + 0,16$
$E(U) = 0,20 - 0,10\ x_A - 2(0,20\ x_A^2 - 0,32\ x_A + 0,16) = -0,40\ x_A^2 + 0,54\ x_A - 0,12$
Maximum: $\delta E(U) / \delta x_A = 0$
$-0,80\ x_A + 0,54 = 0$, so $x_A = 0,675$

14./8. Antwoord: d

a. True. A straight line through P_6 and F intersects the curve below B. Portfolio X at this intersection: short A & long B. P_6 = long X and short F.
b. True. P_1 = long A, long B, short F. P_3 = short A, short B, long F.
c. True. Sharpe Ratio (P_2) = slope FM. All portfolios not on FM have a higher Sharpe Ratio.
d. False. Both portfolios combine a long position in portfolio L with a position in F.

15./9. Antwoord: d

$b_P = 50\%\ b_1 + 50\%\ b_2 = 0,50 \times 1,0 + 0,50 \times (-1,0) = 0,0.$
a, b and c are false, since P is long in security 1. This security has unique risk, is not MV efficient and is not perfectly correlated with MI.

16./10. Antwoord: b

The stock price of the target is mostly lower than the offer, among other things because of uncertainty about whether the takeover will truly happen.

OPEN VRAGEN (18 punten)

17./17. Antwoord:
(3 punten)

Zie p. 114 van het tekst en opgavenboek.

18./18. Antwoord:

a. (4 punten)

NPV_A = GAIN – COST
GAIN = 500.000
COST = 2.600.000 – 2.400.000 = 200.000
NPV_A = 500.000 – 200.000 = 300.000
of
NPV_A = wealth after – wealth before = (12.000.000+2.400.000+500.000-2.600.000)
12.000.000 = 12.300.000 – 12.000.000 = 300.000

b. (3 punten)

NPV_B = GAIN – NPV_A = 500.000 – 300.000 = 200.000
of
NPV_B = wealth after – wealth before = 2.600.000 – 2.400.000 = 200.000

19. (8 punten)

a. $R_E = Rf + \beta \cdot MRP = 1\% + 1{,}5 \times 6\% = 10\%$ (**2p**)
b. $R_D = Rf + \beta \cdot MRP = 1\% + 0{,}0 \times 6\% = 1{,}0\%$ (**2p**)
c. $R_{\text{assets PATRICK'S FOOD PALACE}} = 0{,}6 \times 10\% + 0{,}4 \times 1{,}0\% = 6{,}4\%$ **(2p)**

$R_{\text{assets PATRICK'S FOOD PALACE}} = 6{,}4\% = 0{,}25 \times R_{XCash} + 0{,}75 \times R_{projects}$
$R_{\text{assets PATRICK'S FOOD PALACE}} = 6{,}4\% = 0{,}25 \times 1\% + 0{,}75 \times R_{projects} \Rightarrow$
$R_{projecten} = (6{,}4\% - 0{,}25 \times 1\%) / 0{,}75 = 8{,}2\%$ **(2p)**

Of

$\beta_{\text{assets PATRICK'S FOOD PALACE}} = 0{,}6 \times \beta_{EV} + 0{,}5 \times \beta_{\text{vreemd vermogen}}$
$= 0{,}6 \times 1{,}5 + 0{,}4 \times 0 = 0{,}9$
$\beta_{\text{assets PATRICK'S FOOD PALACE}} = 0{,}9 = 0{,}25 \times \beta_{Xcash} + 0{,}75 \times \cdot \beta_{projecten}$
$\beta_{\text{assets PATRICK'S FOOD PALACE}} = 0{,}9 = 0{,}2 \times 0 + 0{,}75 \times \beta_{projecten} \Rightarrow \beta_{projecten} = 0{,}9 / 0{,}75 = 1{,}2$ **(2p)**
$R_{projecten} = 1\% + 1{,}2 \times 6\% = 8{,}2\%$ **(2p)**

Of

$\beta_{\text{assets PATRICK'S FOOD PALACE}} = (D\text{-}Xcash)/(V\text{-}Xcash) \times \beta_D + E/(V\text{-}Xcash) \times \beta_E$
$= (0{,}4\text{-}0{,}25)/(1\text{-}0{,}25) \times 0{,}0 + (0{,}6/(1\text{-}0{,}25)) \times 1{,}5$
$= (0{,}15/0{,}75) \cdot 0{,}0 + (0{,}6/(0{,}75)) \cdot 1{,}5 = 1{,}2$ **(2p)**

$R_{projects} = 1\% + 1{,}2 \times 6\% = 8{,}2\%$ **(2p)**

Of

$R_{assets\ PATRICK'S\ FOOD\ PALACE}$ = (D-Xcash)/(V-Xcash) × R_D + E/(V-Xcash) × R_E

= (0,4-0,25)/(1-0,25) × 1% + (0,6/(1-0,25) × 9% = 8,2%

(4p)