5. Valuation Methods: FCFF, FCFE, EVA, BRA, FRA, APV, FEVA, DDM

Problem 32

Mc Mickey Corporation has total assets $5 million. Equity capital is $1 million and debt capital is $4 million. Cost of equity capital is 8%. Pretax cost of debt is 5%. EBIT of $0,5 million is taxed at a rate of 20%. EBIT is expected to continue at the same level indefinitely. Mc Mickey Corporation's book value per share is $10 and it has 100000 shares outstanding.
(a) Calculate EVA for Mc Mickey Corporation.
(b) Calculate the residual earnings for Mc Mickey Corporation shareholders.
(c) Estimate the intrinsic value of Mc Mickey Corporation common stock using the residual income model.

Solution

(a)			
EBIT (1-T)	0,400	million	
WACC	4,8%		
Assets	5,000		
EVA	0,160		= 0,4 - 4,8%*5
(b)			
EBIT	0,500		
Interests	0,200		
Pretax Income	0,300		
Tax expense	0,060		
Net income	0,240		
Equity charge	0,080		
Residual income	0,160		
(c)			
Equity B	1	million	
Intrinsic value V	3	million	=1 + 0,160/8%
Intrinsic value per share V/n	30	$/share	

Problem 33

Mc Mici Corporation has total net book values of assets: equity $40 and debt $60 million. Equity capital is $10 million shares outstanding.The closing stock price is $12.
WACC is 10%. NOPAT is $15 million.
(a) Calculate EVA for Mc Mici Corporation.
(b) Calculate MVA for Mc Mici Corporation shareholders.

Solution

(a)		
EVA	5	= 15 - 10%%*(40+60)
(b)		
MVA	80	=12*10-40
market value of equity - book value of equity		

Problem 34

A new investment project requires a $32 000 initial outlay at the end of year t=0.
Without growth actually estimated annual cash flows are following: revenues $50 000, fixed costs without depreciation $2 000, depreciation $3 200, investment costs $3 500.
The expected growth rate for cash flows revenues, fixed costs without depreciation, depreciation and investment costs is equal to $2%
Variable expenses account for 75% of revenues.
Initial outlay at the end of year t=0 is financed with a 4 years loan $8 000 .
Traditional method is used to annual repayments. The fixed interest rate is 10%, but the market rate is equal to 8% in the first year, and 6% in the second year.
The borrower pays interests calculated with an agreed fixed rate.
Overdraft with the same interest rate is used to cover cash deficits.
Tax rate is 40%. Dividends account for 25% of net income and are taxed with a 20% rate.
Cash surpluses are invested in short term money market instruments with a rate 7%.
Unlevered beta is 1,1. Risk free rate is 4,0% in the first year and 4,8% in the second and following years. Risk premium is 5,0%.
The cash conversion cycle: inventory 14 days, accounts receivable 12 days, payables 12 days.
Assume levered beta and tax shield is calculated using Marciniak's formula.
Required:
(a) Prepare pro-forma income statement, balance sheet and cash flow statement.
(b) Calculate WACC for each forecasted period.
(c) Show valualtion with 17 discounting methods.

Solution
(a)

FORECASTED INCOME STATEMENT

		1	2	3	4	5	17
Revenues		51 000,0	52 020,0	53 060,4	54 121,6	55 204,0	70 012,1
Growth		2,0%	2,0%	2,0%	2,0%	2,0%	2,0%
- Variable expenses		-38 250,0	-39 015,0	-39 795,3	-40 591,2	-41 403,0	-52 509,1
% of Revenues		75,0%	75,0%	75,0%	75,0%	75,0%	75,0%
Contribution margin		12 750,0	13 005,0	13 265,1	13 530,4	13 801,0	17 503,0
- Fixed expenses		-2 040,0	-2 080,8	-2 122,4	-2 164,9	-2 208,2	-2 800,5
Earnings before interest, taxes, depreciation a		10 710,0	10 924,2	11 142,7	11 365,5	11 592,8	14 702,5
Depreciation		-3 264,0	-3 329,3	-3 395,9	-3 463,8	-3 533,1	-4 480,8
Growth		2,0%	2,0%	2,0%	2,0%	2,0%	2,0%
Earnings before interest and taxes (EBIT)		7 446,0	7 594,9	7 746,8	7 901,8	8 059,8	10 221,8
Growth		2,0%	2,0%	2,0%	2,0%	2,0%	2,0%
+ Interests income					32,1	110,2	3 778,9
- Interests expense		-800,0	-721,3	-447,0	-200,0		
Taxable income		6 646,0	6 873,6	7 299,8	7 733,8	8 170,0	14 000,7
- Income taxes		-2 658,4	-2 749,5	-2 919,9	-3 093,5	-3 268,0	-5 600,3
Net income		3 987,6	4 124,2	4 379,9	4 640,3	4 902,0	8 400,4
- Dividends		-996,9	-1 031,0	-1 095,0	-1 160,1	-1 225,5	-2 100,1
Retained earnings		2 990,7	3 093,1	3 284,9	3 480,2	3 676,5	6 300,3

FORECASTED CASH FLOW

		1	2	3	4	5	17
Operating flow		6 154,1	8 136,8	8 184,0	8 264,6	8 394,8	12 830,1
Net income		3 987,6	4 124,2	4 379,9	4 640,3	4 902,0	8 400,4
Depreciation		3 264,0	3 329,3	3 395,9	3 463,8	3 533,1	4 480,8
- Interests expense		800,0	721,3	447,0	200,0		
Change in net current assets		-1 897,5	-37,9	-38,7	-39,5	-40,3	-51,1
Inventories		-1 545,4	-30,9	-31,5	-32,2	-32,8	-41,6
Accounts receivable		-1 676,7	-33,5	-34,2	-34,9	-35,6	-45,1
Current liabilities		1 324,6	26,5	27,0	27,6	28,1	35,7
Investment flow	-32 000	-3 570,0	-3 641,4	-3 714,2	-3 788,5	-3 864,3	-4 900,8
Growth		2,0%	2,0%	2,0%	2,0%	2,0%	2,0%
Financing flow	32 000,0	-2 584,1	-4 495,4	-4 011,7	-3 360,1	-1 225,5	-2 100,1
Equity	24 000,0	-996,9	-1 031,0	-1 095,0	-1 160,1	-1 225,5	-2 100,1
New issues	24 000,0						
- Dividends		-996,9	-1 031,0	-1 095,0	-1 160,1	-1 225,5	-2 100,1
Debt	8 000,0	-1 587,2	-3 464,3	-2 916,7	-2 200,0		
Disbursement	8 000,0	1 212,8					
Debt service		-2 800,0	-3 464,3	-2 916,7	-2 200,0		
Repayment		-2 000,0	-2 743,1	-2 469,7	-2 000,0		
Interest payable		-800,0	-721,3	-447,0	-200,0		
Cash balance				458,2	1 116,0	3 305,0	5 829,2
Cumulative cash balance				458,2	1 574,2	4 879,2	59 813,4

FORECASTED BALANCE SHEET

		1	2	3	4	5	17
Fixed assets	32 000,0	32 306,0	32 618,1	32 936,5	33 261,2	33 592,4	38 123,7
Current assets		3 222,1	3 286,5	3 810,4	4 993,5	8 366,8	64 236,7
Inventories		1 545,4	1 576,3	1 607,8	1 640,0	1 672,8	2 121,5
Accounts receivable		1 676,7	1 710,2	1 744,5	1 779,3	1 814,9	2 301,8
Cash				458,2	1 574,2	4 879,2	59 813,4
Total assets	32 000,0	35 528,1	35 904,6	36 746,9	38 254,7	41 959,3	102 360,4
Common equity	24 000,0	26 990,7	30 083,8	33 368,8	36 849,0	40 525,5	100 542,0
Common stock and paid-in capital	24 000,0	24 000,0	24 000,0	24 000,0	24 000,0	24 000,0	24 000,0
Retained earnings		2 990,7	6 083,8	9 368,8	12 849,0	16 525,5	76 542,0
Long-term debt	8 000,0	7 212,8	4 469,7	2 000,0			
Current liabilities		1 324,6	1 351,1	1 378,1	1 405,7	1 433,8	1 818,4
Total liabilities and equity	32 000,0	35 528,1	35 904,6	36 746,9	38 254,7	41 959,3	102 360,4

DEBT

		1	2	3	4	5	17
Long-term loans							
Disbursement	8 000,0						
Repayment		-2 000,0	-2 000,0	-2 000,0	-2 000,0		
Debt balance	8 000,0	6 000,0	4 000,0	2 000,0			
Exchange rate adjustments							
Interest during contruction							
Interest payable		-800,0	-600,0	-400,0	-200,0		
Overdraft							
Disbursement		1 212,8					
Repayment			-743,1	-469,7			
Debt balance		1 212,8	469,7				
Exchange rate adjustments							
Interest during contruction							
Interest payable			-121,3	-47,0			
Total debt							
Disbursement	8 000,0	1 212,8					
Repayment		-2 000,0	-2 743,1	-2 469,7	-2 000,0		
Debt balance	8 000,0	7 212,8	4 469,7	2 000,0			
Exchange rate adjustments							
Interest during contruction							
Interest payable		-800,0	-721,3	-447,0	-200,0		

(b)

INPUT DATA

	1	2	3	4	5	17
Capital structure						
D/E	20,20%	17,14%	9,77%	3,94%		
(D-ES)/E (Myers)	18,64%	16,29%	9,40%	3,79%		
Beta coefficients						
Unlevered beta	1,100000	1,100000	1,100000	1,100000	1,100000	1,100000
Beta for debt	1,200000	0,640000	0,320000	1,040000	1,040000	1,040000
Beta for interest payment	1,200000	1,040000	1,040000	1,040000	1,040000	1,040000
Beta for WACC	0,969357	0,987714	1,031360	1,069703	1,100000	1,100000
Levered beta	1,0844	1,1571	1,1509	1,1024	1,1000	1,1000
Modigliani-Miller	1,1674	1,2170	1,1861	1,1180	1,1000	1,1000
Myers	1,0814	1,1749	1,1733	1,1023	1,1000	1,1000
Miller	1,2440	1,2906	1,2268	1,1339	1,1000	1,1000
Miles-Ezzell	1,0805	1,1767	1,1744	1,1023	1,1000	1,1000
Harris-Pringle	1,0798	1,1790	1,1763	1,1024	1,1000	1,1000
Damodaran	1,2348	1,2136	1,1646	1,1260	1,1000	1,1000
Fernandez - Practioners	1,3270	1,2905	1,2079	1,1434	1,1000	1,1000
Fernanzdez - With Cost of Leverage	1,3347	1,2582	1,1772	1,1424	1,1000	1,1000
Fernandez - No Cost of Leverage	1,0879	1,1473	1,1457	1,1014	1,1000	1,1000
Marciniak	1,0844	1,1571	1,1509	1,1024	1,1000	1,1000
Risk free rate						
Risk free YTM rate	6,70%	7,55%	7,54%	7,54%	7,53%	6,29%
Risk free spot rate	4,00%	4,80%	4,80%	4,80%	4,80%	4,80%
Risk free forward rate	6,70%	8,47%	7,53%	7,51%	7,50%	6,29%
Market risk premium	5,00%	5,00%	5,00%	5,00%	5,00%	5,00%
Unlevered cost of capital	9,50%	10,30%	10,30%	10,30%	10,30%	10,30%
Cost of equity capital	9,42%	10,59%	10,55%	10,31%	10,30%	10,30%
Modigliani-Miller	9,84%	10,89%	10,73%	10,39%	10,30%	10,30%
Myers	9,41%	10,67%	10,67%	10,31%	10,30%	10,30%
Miller	10,22%	11,25%	10,93%	10,47%	10,30%	10,30%
Miles-Ezzell	9,40%	10,68%	10,67%	10,31%	10,30%	10,30%
Harris-Pringle	9,40%	10,70%	10,68%	10,31%	10,30%	10,30%
Damodaran	10,17%	10,87%	10,62%	10,43%	10,30%	10,30%
Fernandez - Practioners	10,63%	11,25%	10,84%	10,52%	10,30%	10,30%
Fernanzdez - With Cost of Leverage	10,67%	11,09%	10,69%	10,51%	10,30%	10,30%
Fernandez - No Cost of Leverage	9,44%	10,54%	10,53%	10,31%	10,30%	10,30%
Marciniak	9,42%	10,59%	10,55%	10,31%	10,30%	10,30%
Promised or coupon interest rate	10,00%	10,00%	10,00%	10,00%	10,00%	10,00%
Interest rate (yield)	10,00%	8,00%	6,40%	10,00%	10,00%	10,00%
Income tax rate	40,00%	40,00%	40,00%	40,00%	40,00%	40,00%
Weighted Average Cost of Capital	8,85%	9,74%	9,96%	10,15%	10,30%	10,30%
Modigliani-Miller	9,19%	9,99%	10,12%	10,22%	10,30%	10,30%
Myers	8,83%	9,81%	10,06%	10,15%	10,30%	10,30%
Miller	9,51%	10,31%	10,30%	10,30%	10,30%	10,30%
Miles-Ezzell	8,83%	9,82%	10,06%	10,15%	10,30%	10,30%
Harris-Pringle	8,83%	9,83%	10,07%	10,15%	10,30%	10,30%
Damodaran	9,47%	9,98%	10,02%	10,26%	10,30%	10,30%
Fernandez - Practioners	9,86%	10,31%	10,22%	10,35%	10,30%	10,30%
Fernanzdez - With Cost of Leverage	9,89%	10,17%	10,08%	10,34%	10,30%	10,30%
Fernandez - No Cost of Leverage	8,86%	9,70%	9,93%	10,14%	10,30%	10,30%
Marciniak	8,85%	9,74%	9,96%	10,15%	10,30%	10,30%
Average cost of capital (before tax)	9,52%	10,21%	10,18%	10,30%	10,30%	10,30%
Adjusted cost of equity capital	8,61%	10,04%	10,30%	10,15%	10,30%	10,30%

(c) Discounting Methods

1. FREE CASH FLOWS TO THE FIRM

		1	2	3	4	5	17
Version 1							
Change in fixed assets	-32 000	-3 570,0	-3 641,4	-3 714,2	-3 788,5	-3 864,3	-4 900,8
Change in net current assets		-1 897,5	-37,9	-38,7	-39,5	-40,3	-51,1
Investment flow	-32 000,0	-5 467,5	-3 679,3	-3 752,9	-3 828,0	-3 904,6	-4 951,9
Earnings before interest, taxes, depreciation ar		10 710,0	10 924,2	11 142,7	11 365,5	11 592,8	14 702,5
Depreciation		-3 264,0	-3 329,3	-3 395,9	-3 463,8	-3 533,1	-4 480,8
Earnings before interest and taxes (EBIT)		7 446,0	7 594,9	7 746,8	7 901,8	8 059,8	10 221,8
- Income taxes (unlevered firm)		-2 978,4	-3 038,0	-3 098,7	-3 160,7	-3 223,9	-4 088,7
Net income (unlevered firm)		4 467,6	4 557,0	4 648,1	4 741,1	4 835,9	6 133,1
+Depreciation		3 264,0	3 329,3	3 395,9	3 463,8	3 533,1	4 480,8
Operating flow		7 731,6	7 886,2	8 044,0	8 204,8	8 368,9	10 613,8
Free cash flows to the firm (FCFF)	-32 000,0	2 264,1	4 206,9	4 291,0	4 376,8	4 464,4	5 661,9
Version 2							
Investment flow	-32 000,0	-5 467,5	-3 679,3	-3 752,9	-3 828,0	-3 904,6	-4 951,9
Net income		3 987,6	4 124,2	4 379,9	4 640,3	4 902,0	8 400,4
+Depreciation		3 264,0	3 329,3	3 395,9	3 463,8	3 533,1	4 480,8
- Interests income after tax					-19,2	-66,1	-2 267,3
+ Interests expense after tax		480,0	432,8	268,2	120,0		
Operating flow		7 731,6	7 886,2	8 044,0	8 204,8	8 368,9	10 613,8
Free cash flows to the firm (FCFF)	-32 000	2 264,1	4 206,9	4 291,0	4 376,8	4 464,4	5 661,9
Version 3							
Free cash flows to equity (FCFE)	-24 000	1 006,8	982,1	1 492,6	2 256,8	4 464,4	5 661,9
Financing flow	-8 000,0	1 257,3	3 224,8	2 798,4	2 120,0		
Free cash flows to the firm (FCFF)	-32 000	2 264,1	4 206,9	4 291,0	4 376,8	4 464,4	5 661,9
FREE CASH FLOWS TO THE FIRM (FC	-32 000,0	2 264,1	4 206,9	4 291,0	4 376,8	4 464,4	75 242,0
Weighted Average Cost of Capital		8,85%	9,74%	9,96%	10,15%	10,30%	10,30%
VALUE OF LEVERED FIRM	49 074,4	51 151,8	51 926,4	52 805,5	53 787,7	54 863,4	
Internal Rate of Return (IRR)	15,2%						

2. FREE CASH FLOW TO EQUITY (FCFE)

		1	2	3	4	5	17
Version 1							
Free cash flows to the firm (FCFF)	-32 000,0	2264,1	4206,9	4291,0	4376,8	4464,4	5661,9
+ Disbursement	8 000,0	1 212,8					
- Repayment		-2 000,0	-2 743,1	-2 469,7	-2 000,0		
- Interests expense after tax		-480,0	-432,8	-268,2	-120,0		
+ Interests difference after tax		9,9	-48,9	-60,5			
Financing flow	8 000,0	-1 257,3	-3 224,8	-2 798,4	-2 120,0		
Free cash flows to equity (FCFE)	-24 000,0	1 006,8	982,1	1 492,6	2 256,8	4 464,4	5 661,9
Version 2							
+ Change in cash flow				458,2	1 116,0	3 305,0	5 829,2
- Interests income after tax					-19,2	-66,1	-2 267,3
+ Interests difference after tax		9,9	-48,9	-60,5			
+ Dividends		996,9	1 031,0	1 095,0	1 160,1	1 225,5	2 100,1
- Equity (book value)	-24 000,0						
Free cash flows to equity (FCFE)	-24 000,0	1 006,8	982,1	1 492,6	2 256,8	4 464,4	5 661,9
FREE CASH FLOWS TO EQUITY (FCFE	-24 000,0	1 006,8	982,1	1 492,6	2 256,8	4 464,4	75 242,0
Cost of equity capital		9,42%	10,59%	10,55%	10,31%	10,30%	10,30%
VALUE OF EQUITY	40 825,7	43 665,4	47 305,4	50 805,5	53 787,7	54 863,4	
Internal Rate of Return (IRR)	15,8%						

3. CAPITAL CASH FLOWS TO THE FIRM CCFF (FCFE + CFD)

		1	2	3	4	5	17
Free cash flows to equity (FCFE)		1 006,8	982,1	1 492,6	2 256,8	4 464,4	5 661,9
Cash flows to debt (CFD)		1 587,2	3 464,3	2 916,7	2 200,0		
Capital cash flows (CCFF)		2 594,1	4 446,4	4 409,3	4 456,8	4 464,4	5 661,9
CAPITAL CASH FLOWS TO THE FIRM, including fin		2 594,1	4 446,4	4 409,3	4 456,8	4 464,4	75 242,0
Average cost of capital (before tax)		9,52%	10,21%	10,18%	10,30%	10,30%	10,30%
VALUE OF LEVERED FIRM	49 074,4	51 151,8	51 926,4	52 805,5	53 787,7	54 863,4	

4. CAPITAL CASH FLOWS TO EQUITY CCFE (FCFF - CFD)

		1	2	3	4	5	17
Free cash flows to the firm (FCFF)		2 264,1	4 206,9	4 291,0	4 376,8	4 464,4	5 661,9
- Cash flows to debt (CFD)		-1 587,2	-3 464,3	-2 916,7	-2 200,0		
Capital cash flows (CCFE)		676,9	742,5	1 374,3	2 176,8	4 464,4	5 661,9
CAPITAL CASH FLOWS TO EQUITY, including final		676,9	742,5	1 374,3	2 176,8	4 464,4	75 242,0
Adjusted cost of equity capital		8,61%	10,04%	10,30%	10,15%	10,30%	10,30%
VALUE OF EQUITY	40 825,7	43 665,4	47 305,4	50 805,5	53 787,7	54 863,4	

5. ECONOMIC VALUE ADDED (EVA F)

		1	2	3	4	5	17
Book value of equity and debt, beginning of period		32 000,0	34 203,5	34 553,5	34 910,6	35 274,8	40 257,4
+ Change in fixed assets - depretiation		306,0	312,1	318,4	324,7	331,2	420,1
+ Change in net current assets		1 897,5	37,9	38,7	39,5	40,3	51,1
Book value of equity and debt, end of period	32 000,0	34 203,5	34 553,5	34 910,6	35 274,8	35 646,3	40 728,5
Version 1							
EBIT (1-T)		4 467,6	4 557,0	4 648,1	4 741,1	4 835,9	6 133,1
Weighted Average Cost of Capital		8,85%	9,74%	9,96%	10,15%	10,30%	10,30%
Required EBIT(1-T) = WACC x Book value of equity and de		2 831,0	3 330,9	3 440,4	3 542,9	3 633,3	4 146,5
Economic value added (EVA F) = EBIT (1-T) - Required		1 636,6	1 226,0	1 207,7	1 198,1	1 202,6	1 986,5
Version 2							
Return on assets: ROA = EBIT x (1-T) / Book value of net a		13,96%	13,32%	13,45%	13,58%	13,71%	15,23%
Weighted Average Cost of Capital		8,85%	9,74%	9,96%	10,15%	10,30%	10,30%
ROA - WACC		5,11%	3,58%	3,50%	3,43%	3,41%	4,93%
EVA F = (ROA-WACC) Book value of equity and debt		1 636,6	1 226,0	1 207,7	1 198,1	1 202,6	1 986,5
EVA CASH FLOWS TO THE FIRM, inclu	32 000,0	1 636,6	1 226,0	1 207,7	1 198,1	1 202,6	30 838,1
Weighted Average Cost of Capital		8,85%	9,74%	9,96%	10,15%	10,30%	10,30%
Increase in firm value (NPV)	17 074,4	16 948,3	17 372,8	17 894,9	18 512,8	19 217,1	
Book value of equity and debt, end of period	32 000,0	34 203,5	34 553,5	34 910,6	35 274,8	35 646,3	
VALUE OF LEVERED FIRM	49 074,4	51 151,8	51 926,4	52 805,5	53 787,7	54 863,4	

6. ECONOMIC VALUE ADDED (EVA E)

		1	2	3	4	5	17
Book value of equity, beginning of period		24 000,0	26 990,7	30 083,8	32 910,6	35 274,8	40 257,4
Book value of equity, end of period	24 000,0	26 990,7	30 083,8	32 910,6	35 274,8	35 646,3	40 728,5
Version 1							
Net income including interest differential after tax		3 997,5	4 075,2	4 319,4	4 621,1	4 835,9	6 133,1
Cost of equity capital		9,42%	10,59%	10,55%	10,31%	10,30%	10,30%
Required net income = Cost of equity capital x Book value o		2 261,3	2 857,0	3 175,1	3 393,7	3 633,3	4 146,5
Economic value added (EVA E) = Net income - required net		1 736,3	1 218,2	1 144,3	1 227,4	1 202,6	1 986,5
Version 2							
Return on book value of equity: ROE = Net income / Book v		16,66%	15,10%	14,36%	14,04%	13,71%	15,23%
Cost of equity capital		9,42%	10,59%	10,55%	10,31%	10,30%	10,30%
ROE - R_E		7,23%	4,51%	3,80%	3,73%	3,41%	4,93%
Economic value added (EVA E) = (ROE - RE)*Book value (		1 736,3	1 218,2	1 144,3	1 227,4	1 202,6	1 986,5
EVA CASH FLOWS TO EQUITY, includi	24 000,0	1 736,3	1 218,2	1 144,3	1 227,4	1 202,6	30 838,1
Cost of equity capital		9,42%	10,59%	10,55%	10,31%	10,30%	10,30%
Increase in equity value (NPV)	16 825,7	16 674,7	17 221,6	17 894,9	18 512,8	19 217,1	
Book value of equity, end of period	24 000,0	26 990,7	30 083,8	32 910,6	35 274,8	35 646,3	
VALUE OF EQUITY	40 825,7	43 665,4	47 305,4	50 805,5	53 787,7	54 863,4	

7. ECONOMIC CASH FLOW (F)

		1	2	3	4	5	17
Book value of equity and debt (t=0)		32 000,0	32 000,0	32 000,0	32 000,0	32 000,0	32 000,0
Version 1							
Free cash flows to the firm (FCFF)		2 264,1	4 206,9	4 291,0	4 376,8	4 464,4	5 661,9
Required FCFF = WACC x Book value of equity and debt (t		2 831,0	3 116,3	3 186,2	3 247,5	3 296,0	3 296,0
Economic Cash Flow (F) = FCFF - Required FCFF		-566,9	1 090,5	1 104,8	1 129,3	1 168,4	2 365,9
Version 2							
Cash Return (F) = FCFF / Book value of equity and debt (t=(		7,08%	13,15%	13,41%	13,68%	13,95%	17,69%
Weighted Average Cost of Capital		8,85%	9,74%	9,96%	10,15%	10,30%	10,30%
Excess Return		-1,77%	3,41%	3,45%	3,53%	3,65%	7,39%
Economic Cash Flow (F) = Excess Return x Book value of e		-566,9	1 090,5	1 104,8	1 129,3	1 168,4	2 365,9
ECONOMIC CASH FLOWS TO THE FIR	32 000,0	-566,9	1 090,5	1 104,8	1 129,3	1 168,4	39 946,0
Weighted Average Cost of Capital		8,85%	9,74%	9,96%	10,15%	10,30%	10,30%
Increase in firm value (NPV)	17 074,4	19 151,8	19 926,4	20 805,5	21 787,7	22 863,4	
Book value of equity and debt (t=0)	32 000,0	32 000,0	32 000,0	32 000,0	32 000,0	32 000,0	
VALUE OF LEVERED FIRM	49 074,4	51 151,8	51 926,4	52 805,5	53 787,7	54 863,4	

8. ECONOMIC CASH FLOW (E)

		1	2	3	4	5	17
Book value of equity (t=0)	24 000,0	24 000,0	24 000,0	24 000,0	24 000,0	24 000,0	24 000,0
Version 1							
Free cash flows to equity (FCFE)		1 006,8	982,1	1 492,6	2 256,8	4 464,4	5 661,9
Required FCFE = Cost of equity x Book value of equity (t=0		2 261,3	2 540,5	2 533,0	2 474,8	2 472,0	2 472,0
Economic Cash Flow (E) = FCFE - Required FCFE		-1 254,4	-1 558,4	-1 040,4	-218,0	1 992,4	3 189,9
Version 2							
Cash return (E) = FCFE / Book value of equity (t=0)		4,20%	4,09%	6,22%	9,40%	18,60%	23,59%
Cost of equity capital		9,42%	10,59%	10,55%	10,31%	10,30%	10,30%
Excess return		-5,23%	-6,49%	-4,33%	-0,91%	8,30%	13,29%
Economic cash flow (E) = Excess return x Book value of equ		-1 254,4	-1 558,4	-1 040,4	-218,0	1 992,4	3 189,9
ECONOMIC CASH FLOWS TO EQUITY	24 000,0	-1 254,4	-1 558,4	-1 040,4	-218,0	1 992,4	48 770,0
Cost of equity capital		9,42%	10,59%	10,55%	10,31%	10,30%	10,30%
Increase in equity value (NPV)	16 825,7	19 665,4	23 305,4	26 805,5	29 787,7	30 863,4	
Book value of equity (t=0)	24 000,0	24 000,0	24 000,0	24 000,0	24 000,0	24 000,0	
VALUE OF EQUITY	40 825,7	43 665,4	47 305,4	50 805,5	53 787,7	54 863,4	

9. BUSINESS ADJUSTED FREE CASH FLOWS TO THE FIRM

		1	2	3	4	5	17
FCFF + V_L*(R_U - R_A)		2 584,7	4 494,1	4 469,2	4 456,8	4 464,4	5 661,9
BUSINESS CASH FLOWS TO THE FIRM, including fi		2 584,7	4 494,1	4 469,2	4 456,8	4 464,4	75 242,0
Unlevered cost of capital		9,50%	10,30%	10,30%	10,30%	10,30%	10,30%
VALUE OF LEVERED FIRM	49 074,4	51 151,8	51 926,4	52 805,5	53 787,7	54 863,4	

10. BUSINESS ADJUSTED FREE CASH FLOWS TO EQUITY

		1	2	3	4	5	17
FCFE + V_E*(R_U - R_E)		1 038,7	857,5	1 372,3	2 250,8	4 464,4	5 661,9
BUSINESS CASH FLOWS TO EQUITY, including final		1 038,7	857,5	1 372,3	2 250,8	4 464,4	75 242,0
Unlevered cost of capital		9,50%	10,30%	10,30%	10,30%	10,30%	10,30%
VALUE OF EQUITY	40 825,7	43 665,4	47 305,4	50 805,5	53 787,7	54 863,4	

11. RISK-FREE-RATE ADJUSTED FREE CASH FLOWS TO THE FIRM

		1	2	3	4	5	17
FCFF + V_L*(R_F - R_A)		-114,4	1 680,7	1 613,3	1 552,5	1 506,1	1 910,0
RISK ADJUSTED CASH FLOWS TO THE FIRM, inclu		-114,4	1 680,7	1 613,3	1 552,5	1 506,1	71 490,1
Risk free spot rate		4,00%	4,80%	4,80%	4,80%	4,80%	4,80%
VALUE OF LEVERED FIRM	49 074,4	51 151,8	51 926,4	52 805,5	53 787,7	54 863,4	

12. RISK-FREE-RATE ADJUSTED FREE CASH FLOWS TO EQUITY

		1	2	3	4	5	17
FCFE + V_E*(R_F-R_E)		-1 206,7	-1 544,1	-1 229,5	-543,5	1 506,1	1 910,0
RISK ADJUSTED CASH FLOWS TO EQUITY, includi		-1 206,7	-1 544,1	-1 229,5	-543,5	1 506,1	71 490,1
Risk free spot rate		4,00%	4,80%	4,80%	4,80%	4,80%	4,80%
VALUE OF EQUITY	40 825,7	43 665,4	47 305,4	50 805,5	53 787,7	54 863,4	

13. ADJUSTED PRESENT VALUE METHOD (F)

		1	2	3	4	5	17
Free cash flows to the firm (FCFF)	-32 000,0	2 264,1	4 206,9	4 291,0	4 376,8	4 464,4	5 661,9
FREE CASH FLOWS TO THE FIRM (FC	-32 000,0	2 264,1	4 206,9	4 291,0	4 376,8	4 464,4	75 242,0
Unlevered cost of capital		9,50%	10,30%	10,30%	10,30%	10,30%	10,30%
VALUE OF UNLEVERED FIRM	48 355,7	50 685,3	51 699,0	52 733,0	53 787,7	54 863,4	
Tax savings		320,0	288,5	178,8	80,0		
TAX SAVINGS, including final value		320,0	288,5	178,8	80,0		
Discounting rate		9,42%	10,59%	10,55%	10,31%	10,30%	10,30%
TAX SHIELD	718,7	466,5	227,3	72,5			
VALUE OF LEVERED FIRM	49 074,4	51 151,8	51 926,4	52 805,5	53 787,7	54 863,4	

14. ADJUSTED PRESENT VALUE METHOD (E)

		1	2	3	4	5	17
Free cash flows to equity (FCFE)	-24 000,0	1 006,8	982,1	1 492,6	2 256,8	4 464,4	5 661,9
FREE CASH FLOWS TO EQUITY (FCFE	-24 000,0	1 006,8	982,1	1 492,6	2 256,8	4 464,4	75 242,0
Unlevered cost of capital		9,50%	10,30%	10,30%	10,30%	10,30%	10,30%
VALUE OF UNLEVERED EQUITY	40 994,1	43 881,7	47 419,4	50 811,0	53 787,7	54 863,4	
Financing flow	-8 248,7	1 257,3	3 224,8	2 798,4	2 120,0		
Financing flow, including final value	-8 248,7	1 257,3	3 224,8	2 798,4	2 120,0		
Unlevered cost of capital		9,50%	10,30%	10,30%	10,30%	10,30%	10,30%
Value of financing flow (discounted at unlever	7 361,5	6 803,6	4 279,6	1 922,0			
Market value of debt	8 248,7	7 486,4	4 620,9	2 000,0			
VALUE OF FINANCING FLOW - MARK	-887,2	-682,8	-341,3	-78,0			
TAX SHIELD	718,7	466,5	227,3	72,5			
VALUE OF EQUITY	40 825,7	43 665,4	47 305,4	50 805,5	53 787,7	54 863,4	

15. FEVA

		1	2	3	4	5	17
1. INITIAL CASH OR CAPITAL INVEST	49 074,4	51 151,8	51 926,4	52 805,5	53 787,7	54 863,4	
Return on capital invested		9,10%	8,91%	8,95%	8,98%	8,99%	8,99%
Unlevered cost of capital		9,50%	10,30%	10,30%	10,30%	10,30%	10,30%
Operating, adjusted EVA		-107,8	-607,1	-585,2	-571,9	-567,5	-719,7
Operating EVA, inc. final value		-107,8	-607,1	-585,2	-571,9	-567,5	-9 564,7
Unlevered cost of capital		9,50%	10,30%	10,30%	10,30%	10,30%	10,30%
2. OPERATING EVA = (ROA-unlevered c	-6 082,8	-6 552,8	-6 620,7	-6 717,4	-6 837,4	-6 974,2	-9 564,7
The franchise factor							
g		4,23%	1,51%	1,69%	1,86%	2,00%	2,00%
$EBIT(1-T)/R_U*(R_I-R_U)/R_I*g$		-212,7	319,9	407,0	491,9	567,5	719,7
The franchise factor, ic. final value		-212,7	319,9	407,0	491,9	567,5	9 564,7
Unlevered cost of capital		9,50%	10,30%	10,30%	10,30%	10,30%	10,30%
3. THE FRANCHISE FACTOR	5 364,0	6 086,4	6 393,4	6 644,9	6 837,4	6 974,2	9 564,7
Tax shield from existing debt		173,8	263,1	159,1	67,5		
Tax shield from existing debt, including final value		173,8	263,1	159,1	67,5		
Unlevered cost of capital		9,50%	10,30%	10,30%	10,30%	10,30%	10,30%
4. TAX SHIELD FROM EXISTING DEBT	541,9	419,6	199,7	61,2			
Tax shield from growth opportunities		139,7	45,3	31,3	14,9		
Tax shield from growth opportunities, including final val		139,7	45,3	31,3	14,9		
Unlevered cost of capital		9,50%	10,30%	10,30%	10,30%	10,30%	10,30%
5. TAX SHIELD FROM GROWTH OPOR	198,7	77,9	40,6	13,5			
Present value of bankruptcy costs		-164,6	-122,6	-37,1	-51,1		
Present value of bankruptcy costs, incl. final value		-164,6	-122,6	-37,1	-51,1		
Unlevered cost of capital		9,50%	10,30%	10,30%	10,30%	10,30%	10,30%
6. PRESENT VALUE OF BANKRUPTCY	-314,5	-179,7	-75,6	-46,4			
The bankruptcy costs from growing opportunities		-132,3	-21,1	-7,3	-11,3		
The bankruptcy costs from growing opportunities, incl. f		-132,3	-21,1	-7,3	-11,3		
Unlevered cost of capital		9,50%	10,30%	10,30%	10,30%	10,30%	10,30%
7. BANKRUPTCY COSTS FROM GROW	-151,5	-33,5	-15,9	-10,2			
8. MARKET VALUE OF DEBT	-8 248,7	-7 486,4	-4 620,9	-2 000,0			
Tax shield correction	444,1	182,2	78,5	54,4			
VALUE OF EQUITY	40 825,67	43 665,41	47 305,41	50 805,54	53 787,68	54 863,43	0,00

16. DIVIDEND DISCOUNTING MODEL

		1	2	3	4	5	17
Dividends		996,9	1 031,0	1 095,0	1 160,1	1 225,5	2 100,1
Dividends, including final value		996,9	1 031,0	1 095,0	1 160,1	1 225,5	27 908,5
Cost of equity capital		9,42%	10,59%	10,55%	10,31%	10,30%	10,30%
VALUE OF DIVIDENDS	15 541,9	16 009,4	16 672,9	17 337,7	17 965,4	18 590,4	
Increase in cash				458,2	1 116,0	3 305,0	5 829,2
Increase in cash, inc. final value				458,2	1 116,0	3 305,0	77 464,5
Cost of equity capital		9,42%	10,59%	10,55%	10,31%	10,30%	10,30%
VALUE OF CASH	34 588,1	37 847,0	41 853,2	45 812,4	49 420,5	51 205,8	
Increase in equity							
Increase in equity, inc. final value							
Cost of equity capital		9,42%	10,59%	10,55%	10,31%	10,30%	10,30%
VALUE OF CASH							
Interests difference after tax		9,9	-48,9	-60,5			
Interests difference after tax, including fina		9,9	-48,9	-60,5			
Cost of equity capital		9,42%	10,59%	10,55%	10,31%	10,30%	10,30%
VALUE OF INTEREST DIFFERENCE	-76,6	-93,7	-54,7				
Interest expense after tax					-19,2	-66,1	-2 267,3
Interest expense after tax, includng final va					-19,2	-66,1	-30 131,0
Cost of equity capital		9,42%	10,59%	10,55%	10,31%	10,30%	10,30%
VALUE OF INTEREST INCOME AFTER	-9 227,8	-10 097,2	-11 166,0	-12 344,5	-13 598,2	-14 932,7	
VALUE OF EQUITY	40 825,7	43 665,4	47 305,4	50 805,5	53 787,7	54 863,4	

17. DECOMPOSITION METHOD

		1	2	3	4	5	17
Free cash flows to the firm (FCFF)	-32 000,0	2 264,1	4 206,9	4 291,0	4 376,8	4 464,4	5 661,9
+ Interests difference after tax		9,9	-48,9	-60,5			
Total cash flows	-32 000,0	2 274,1	4 157,9	4 230,5	4 376,8	4 464,4	5 661,9
Total cash flows, including final value	-32 000,0	2 274,1	4 157,9	4 230,5	4 376,8	4 464,4	75 242,0
Cost of equity capital		9,42%	10,59%	10,55%	10,31%	10,30%	10,30%
Gross investment and operating activity effect	48 091,6	50 348,7	51 520,3	52 727,4	53 787,7	54 863,4	
Book value of equity and debt, end of period	32 000,0	34 203,5	34 553,5	34 910,6	35 274,8	35 646,3	40 728,5
INVESTMENT AND OPERATING ACTI	16 091,6	16 145,2	16 966,7	17 816,7	18 512,8	19 217,1	-40 728,5
Tax savings		320,0	288,5	178,8	80,0		
Tax savings, inclufing final value		320,0	288,5	178,8	80,0		
TAX SHIELD	718,7	466,5	227,3	72,5			
Interests calculated using cost of equity		753,8	763,5	471,7	206,2		
- interests paid with coupon rate		-800,0	-721,3	-447,0	-200,0		
Net effect		-46,2	42,2	24,8	6,2		
Total cash flows		-46,2	42,2	24,8	6,2		
DIFFERENCE IN COST OF EQUITY AN	15,4	63,1	27,5	5,7			
Increase in equity value (NPV)	16 825,7	16 674,7	17 221,6	17 894,9	18 512,8	19 217,1	-40 728,5
Book value of equity, end of period	24 000,0	26 990,7	30 083,8	32 910,6	35 274,8	35 646,3	40 728,5
VALUE OF EQUITY	40 825,7	43 665,4	47 305,4	50 805,5	53 787,7	54 863,4	

FINAL RESULTS

	Beta t=1	R_E t=1	Tax shield	V_L	V_E	NPV
Risk-free rate		4,00%				
Market rate	1,000	9,00%				
Unlevered beta	1,100	9,50%				
Modigliani-Miller	1,167	9,84%	368,5	48 724,2	40 475,5	16 475,5
Myers	1,081	9,41%	652,7	49 008,4	40 759,7	16 759,7
Miller	1,244	10,22%		48 355,7	40 106,9	16 106,9
Miles-Ezzell	1,080	9,40%	649,2	49 004,8	40 756,1	16 756,1
Harris-Pringle	1,080	9,40%	642,9	48 998,6	40 749,9	16 749,9
Damodaran	1,235	10,17%	274,7	48 630,3	40 381,6	16 381,6
Fernandez - Practioners	1,327	10,63%	-133,7	48 222,0	39 973,2	15 973,2
Fernanzdez - With Cost of Leverage	1,335	10,67%	-36,0	48 319,7	40 070,9	16 070,9
Fernandez - No Cost of Leverage	1,088	9,44%	740,6	49 096,3	40 847,6	16 847,6
Marciniak	1,084	9,42%	718,7	49 074,4	40 825,7	16 825,7