

### Self-Study Quiz 3

#### Equity Valuation - Finance 70610

1. (13 points) You are valuing a large telecom firm and have decided to capitalize the firm's R&D expenses. The firm's R&D expenses for the past five years are listed below.

Year	R&D Expense (\$ millions)
2001	976
2002	1,050
2003	1,204
2004	1,490
2005	1,720

- a) (9 points) Calculate the unamortized value of R&D as of year-end 2005 AND the amount of R&D amortization for 2005 assuming a four-year life for R&D.

Year	R&D Expense (\$ million)	Current Year Amortization	Unamortized Amount Remaining in Current Year	
2001	976.0	244.0	0%	0.0
2002	1,050.0	262.5	25%	262.5
2003	1,204.0	301.0	50%	602.0
2004	1,490.0	372.5	75%	1117.5
2005	1,720.0	0.0	100%	1720.0
Total		1180.0		3702.0

- b) (4 points) The firm had net income of \$2,100 million in 2005. Calculate the adjusted value of net income after accounting for the capitalization of R&D.

$$\begin{aligned} \text{Adjusted Net Income} &= \text{Net Income} + \text{R \& D Expense} - \text{R \& D Amort} \\ &= 2100 + 1720 - 1180 = \$2640 \end{aligned}$$

While it is not part of the question, you could also calculate the ROE after adjusting both Net Income and Equity for the R&D adjustment. If the book value of equity equals 6.500 billion, we get:

$$\text{Unadjusted ROE} = 2100/6500 = 32.31\%$$

$$\text{Adjusted ROE} = (2100 + 1720 - 1180)/(6500+3702) = 25.88\%$$

2. (12 points) The table below lists financial information from the most recent 10K for Cisco Systems. Use this information to answer the questions below.

	2005 value (millions)
EBIT	\$ 7,416
Net Income	5,580
Capital Expenditures	4,014
Depreciation	1,009
Acquisition Expenditures	911
Change in Working Capital	-420
Tax Rate	29.0%
Debt-to-Capital Ratio	20.6%

- a) (6 points) Calculate the free cash flow to the firm (FCFF) for Cisco in 2005.

FCFF =	EBIT(1-T)	7416(1 - 0.29)
	- (Capex - Depr)	- (4014 - 1009)
	- (Acquisitions)	- (911)
	- ( $\Delta$ WC)	- (- 420)
		= \$1769.36

- b) (6 points) Calculate free cash flow to equity (FCFE) for Cisco in 2005.

FCFE =	Net Income	5580
	- (Capex - Depr)(1- $\delta$ )	- (4014 - 1009)(1 - 0.206)
	- (Acquisitions) (1- $\delta$ )	- (911)(1 - 0.206)
	- ( $\Delta$ WC)(1- $\delta$ )	- (- 420)(1 - 0.206)
		= \$2804.18