

Quiz 1: Equity Instruments

Answer all questions and show necessary work. Please be brief. This is an open books, open notes exam.

1. You have been asked to estimate the cost of equity for Holton Holdings, a firm with operations in three different businesses – retailing, hotels and travel. You have collected information on the firm’s operations and of comparable firms in each of the businesses

	Revenues	Comparable firms	
		Unlevered beta	Firm Value/ Sales
Retailing	\$ 400 million	0.85	2.0
Software	\$ 400 million	1.15	3.0
Travel	\$ 800 million	1.35	1.25

a. Estimate the bottom-up unlevered beta for Holton Holdings. (2 points)

b. Holton Holdings has no market-traded bonds. The firm does, however, have \$ 1.2 billion in book debt and an interest expense of \$ 60 million. If the debt has an average maturity of 5 years, and the fair market interest rate for debt for the firm is 7%, estimate the market value of the debt. (2 points)

c. Holton Holdings has 100 million shares outstanding trading at \$ 10 a share. In conjunction with the estimated market value of debt in (b), estimate the bottom-up levered beta for the firm. (You can assume a marginal tax rate of 40%.) (1 point)

2. Now assume that you have been asked to estimate the free cash flow to the firm last year for Holton Holdings and have collected the following information.

- The firm reported earnings before interest, taxes, depreciation and amortization of \$ 350 million on its revenues of \$ 1600 million.
- Depreciation and amortization charges amounted to \$ 100 million and capital expenditures were \$ 200 million.
- Holton spent \$ 100 million last year on research and development in its software division, following R&D expenditures of \$ 60 million (3 years ago), \$ 75 million (2 years ago) and \$ 90 million (1 year ago) in the prior three years. You believe that research expenditures have an amortizable life of 3 years.
- The working capital items for the last year and the previous year are reported below.

	Last Year	Year before last
Cash	\$ 100 million	\$ 80 million
Accounts Receivable	\$ 80 million	\$ 90 million
Inventory	\$ 150 million	\$ 100 million
Accounts Payable	\$ 130 million	\$ 110 million
Short term Debt	\$ 150 million	\$ 130 million

- The tax rate for the firm is 40%.

a. Estimate the value of the research asset of the firm. (1 point)

b. Estimate the operating income adjusted for R&D expenditures. (1 point)

c. Estimate the free cash flows to the firm last year. (3 points)