University of Stavanger (UiS)

Exam MSB 370 Cases

Fall 2021.

Permitted Material: Calculator

The number in brackets is the points for each problem. The points sum to 100.

Exercise 1. *Short answer questions* [15]

For the following questions, a couple of sentences should be enough to answer the question.

1. Under what circumstances should valuations involve a *liquidity discount*?
2. What interest rate do we typically use as a proxy for a risk free rate in estimating the cost of capital?
3. A typical valuation involves forecasting detailed cash flows over the *planning horizon* and then estimating the *terminal value* at the horizon. What methods are available for estimating the terminal value?
4. What are the sources of estimates of the Equity Market Risk Premium? Why can the use of the historical equity risk premium of the U.S. be argued to be subject to a *survivorship* bias?
5. Which method is better to reflect the current mood in the market, relative valuation or discounted cash flow valuation?
6. What are *trailing* earnings?

Exercise 2. *Housing valuation* [5]

The bubbles and busts in housing prices has led investors to search for a multiple that they can use to determine when housing prices are getting out of line. One measure that has acquired adherents is the ratio of housing price to annual net rental income (for renting out the same house). Assume that you decide to compute this ratio and compare it to the multiple at which stocks are trading. Which valuation ratio would be the one that corresponds to the house price/rent ratio? Why?

(a) Price Earnings Ratio

(b) EV to Sales

(c) EV to EBITDA

(d) EV to EBIT

Exercise 3. *Filer* [10]

Filer Manufacturing has 9.5 million shares of equity outstanding. The current share price is £53, and the book value per share is £5. Filer Manufacturing also has two bond issues outstanding. The first bond issue has a face value of £75 million and an 8% coupon, and sells for 93% of par. The second issue has a face value of £60 million and a 7.5% coupon, and sells for 96.5% of par. The first issue mature in 10 years, the second in 6 years.

1. What are Filer's capital structure weights on a book value basis?
2. What are Filer's capital structure weights on a market value basis?
3. Which are more relevant, the book or market value weights? Why?

Exercise 4. *BUD* [15]

In 2006, Annheuser-Busch Companies Inc. (BUD), engaged in the production and distribution of beer worldwide, operates through four business segments: Domestic Beer, International Beer, Packaging, and Entertainment. The Domestic Beer segment offers beer under Budweiser, Michelob, Bush, and Natural brands in the United States, in addition to a number of specialty beers including non-alcohol brews, malt liquors, and specialty malt beverages, as well as energy drinks. The International Beer segment markets and sells Budweiser and other brands outside the United States and operates breweries in the United Kingdom and China. In addition, the International Beer segment markets and administers license and contract brewing agreements with various foreign brewers. The packaging segment manufactures beverage cans and can lids for drink customers, buys and sells used aluminum beverage container, and recycles aluminum containers. Finally, the Entertainment segment owns and operates theme parks.

In 2005, Anheuser-Busch reported the following segment revenues and net income:

	Domestic Beer	International Beer	Packaging	Entertainment
Gross sales	10,121	864	1,831	904
Income before income taxes	2,293	70	120	215
Equity income		147		
Net Income	1 421	433	74	133

(Numbers for 2005, $ millions)

Assume that you have just been charged with the responsibility for evaluating the divisional cost of capital for each of the business segments.

1. Outline the general approach you would take in evaluating the cost of capital for each of the business segments.
2. Should the fact that $1,156 million of the Packaging segment's revenues come from internal sales to other Bush segments affect your analysis? If so, how?

Hint: Here you are not supposed to estimate the actual cost of capital, just discuss how to.

Exercise 5. *Goodyear* [10]

Suppose Goodyear Tire and Rubber Company has an equity cost of capital of 8.5%, a debt cost of capital of 7%, a marginal corporate tax rate of 25%, and a debt-equity ratio of 2.6. Suppose Goodyear maintains a constant debt-equity ratio.

1. What is Goodyear's WACC?
2. What is Goodyear's unlevered cost of capital?
3. Explain, intuitively, why Goodyear's unlevered cost of capital is less than its equity cost of capital and higher than its WACC.

Exercise 6. *Alpha Beta* [10]

Alpha Beta Corporation maintains a constant debt-equity ratio of 0.5. The total value of the firm is $30 million, and existing debt is riskless. Over the next three months, news will come out that will either raise or lower Alpha Beta's value by 10%. How will Alpha Beta adjust its debt level in response to keep its debt-equity ratio constant?

(a) Either increase by $1 million or decrease by $1 million.

(b) Either increase by $1.5 million or decrease by $1.5 million.

(c) Either increase by $3 million or decrease by $3 million.

(d) There will be no change—the debt-equity ratio will remain constant.

Exercise 7. *TCM* [15]

The TCM Petroleum Corporation is an integrated oil company headquartered in Forth Worth, Texas. Historical income statements for 2014 and 2015 are found below (dollar figures are in the millions):

TCM Petroleum	Dec-14	Dec-15
Sales	$12,211.00	$13,368.00
Cost of Goods Sold	(9,755.00)	(10,591.00)
Gross Profit	2,456.00	2,777.00
Selling, General, & Administrative Expense	(704.00)	(698.00)
Operating Income Before Deprec.	1,752.00	2,079.00
Depreciation, Depletion, & Amortization	(794.00)	(871.00)
Operating Profit (NOI)	958.00	1,208.00
Interest Expense	(265.00)	(295.00)
Non-Operating Income/Expense	139.00	151.00
Special Items	20.00	-
Pretax Income	852.00	1,064.00
Total Income Taxes	(340.80)	(425.60)
Net Income	$511.20	$638.40

In 2014, TCM made capital expenditures of $875 million, followed by $1,322 million in 2015. TCM also invested and additional $102 million in net working capital in 2014, followed by a decrease in its investment in net working capital of $430 million in 2015.

a. Calculate TCM's Free Cash Flows to the Firm (FCFs) for 2014 and 2015. TCM's tax rate is 40%.

Exercise 8. *Divestures* [10]

An article on *Investopedia* on November 2 writes

> "Call it the end of an era. The General Electric Company (GE), a pioneer in American industry and the largest company by market capitalization during the late 1990s, is splitting into three companies. GE CEO Larry Culp announced on Tuesday, Nov. 9, that the company will form three units focused on healthcare, aviation, and energy.
>
> GE Healthcare will be focused on precision healthcare and will be spun out of its parent in early 2023. A new entity focused on energy transition and consisting of a

> combination of GE Renewable Energy, GE Power, and GE Digital will follow shortly thereafter in early 2024. "Following these transactions, GE will be an aviation-focused company shaping the future of flight," a press release issued by the company states."

An article on *Reuters* on November 12 writes

> "Toshiba Corp outlined plans on Friday to split into three companies in an attempt to appease activist shareholders calling for a radical overhaul of the Japanese conglomerate after years of scandals.
>
> A rare move in a country dominated by conglomerates, Toshiba's breakup comes the same week U.S. industrial powerhouse General Electric called time on its sprawling empire and Johnson & Johnson announced it was splitting up too.
>
> Founded in 1875, Toshiba plans to house its energy and infrastructure divisions in one company while its hard disk drives and power semiconductor businesses will form the backbone of another. A third will manage Toshiba's stake in flash-memory chip company Kioxia Holdings and other assets.
>
> The plan, borne of a five-month strategic review undertaken after a highly damaging corporate governance scandal, is partly designed to encourage activist shareholders to sell their stakes, sources with knowledge of the matter have said."

One of the cases we discussed in class was two divestures by Siemens, of *Healthineers* and *Siemens Energy.*

1. What was the motivations for *Siemens* to divest these subsidiaries?
2. Do you believe the decisions by GE and Toshiba are motivated by similar considerations?

Exercise 9. *ESG* [5]

Institutional investors are today very concerned with ESG (Environmental, Social, Governance) issues. The climate crisis is at the top of everybody's agenda, but other aspects of ESG are also of concern. This concern is driven both by regulation (e.g. EU's taxinomony), and by ESG concerns of the customers of the institutional investors (i.e. mutual fund buyers).

These ESG concerns has led to a plethora of providers of quantitative ESG "scores." Institutional investors desire assets with high (i.e. good) ESG scores to show how "green" their portfolios are.

Let us think about the consequences for companies. Institutional investors are the most important source of corporate capital, providing debt and equity capital. A "bad" ESG score will make this company less attractive for the institutional investors.

1. What are the likely consequences for the access to capital for new investment?
2. Discuss whether ESG considerations should be a part of valuation?

Exercise 10. *Crypto* [5]

In the Ripple case we saw a number of different mechanisms for validating transactions

- Proof of Work (e.g. Bitcoin)

- Proof of Stake (e.g. Ethereum)
- Consensus (e.g. Ripple)

- Which of these mechanisms is most energy-demanding? Why?