STRATHMORE BUSINESS SCHOOL

BACHELOR OF FINANCIAL SERVICES

END OF SEMESTER EXAMINATION

AMS 3201: ASSET VALUATION THEORY & TECHNIQUES

DATE: Thursday, 5th December 2024 **TIME:** 10:30 – 12:30

INSTRUCTIONS:

Answer Question **ONE** in Section A and **TWO** other Questions in Section B.

Section A-COMPULSORY

QUESTION ONE

(a) A company is expected to pay a dividend at the end of the year of $1.25. The analyst estimates the required return to be 8% and the expected price at the end of the year to be $28.0 The current market price share is $26.00.

Required:

(i) Calculate the value of the shares today. **(2 marks)**

(ii) Determine whether the company's share is overvalued, undervalued, or properly valued. **(1 mark)**

(b) Reliable company shares trade at $60.0 with expected earnings of $5.00 per share and a required return of 10%. Assume the shares are properly priced, so price is equal to the fundamental value.

Required:

(i) Calculate the Present value of growth opportunities (PVGO). **(2 marks)**

(ii) Calculate the proportion of the leading P/E related to PVGO. **(2 marks)**

(c) Consider a two-period binomial model for the stock-price movement over the following year. The current stock price is So = $100, the up factor is given to be u = 1.3 and the down factor is d = 0.8 The stock pays no dividends. The continuously compounded risk-free interest rate is given to be 5%.

Required:

Calculate the value of a call option with exercise date in one year which pays one share of stock in case that the stock price exceeds $100. **(6 marks)**

(d) Western Atlantic has a book value of $23.00 per share. The company's return on new investments (ROE) is 14% and its required return on equity is 12%. The dividend payout ratio is 60%. Required: Calculate the value of the shares using a single stage residual income model and the present value of expected economic profits. **(3 marks)**

(e) ABC investment trust expects to earn Sh8.00, Sh10.00 and Sh16.00 for the next three years. ABC will pay annual dividends of Sh4.00, Sh5.00 and Sh41.00 in each of these years. The last dividend includes a liquidating payment to the shareholders at the end of year 3 when the trust terminates. The Company's book value is Sh16 per share and the required return on equity is 10%.

Required;

(i) The Current Value per share of ABC according to the dividend discount model **(3 marks)**

(ii) Calculate the per share book value and residual income for ABC for each of the next three years and use those results to find the stock's value using the residual income model. **(5 marks)**

(iii) Calculate the return on equity and use it as input model to the residual income model to calculate ABC investment trust's value. **(6 marks)**

Total Marks= 30 Marks

QUESTION TWO

(a) Explain **Four** circumstances where an analyst will prefer to use Free Cash Flows Valuation over other valuation techniques. **(4 marks)**

(b) McMillan has EPS of $3.000 in 2022 and expects EPS to increase by 21% in 2023. Earnings per share are expected to grow at a decreasing rate for the following five years, as shown in the following table.

	2023	**2024**	**2025**	**2026**	**2027**	**2028**
Growth rate for EPS	21%	18%	15%	12%	9%	6%
Net Capital Expenditure per share	$5.00	$5.00	$4.50	$4.00	$3.50	$1.50

Additional Information;

(i) In 2028, the growth rate will be 6% and is expected to stay at that rate thereafter. Net capital expenditures (capital expenditures minus depreciation) will be $5.0 per share in 2022 and then follow the pattern predicted in the table.

(ii) In 2028, net capital expenditures are expected to be \$1.50 and then grow at 6% annually.

(iii) The investment in working capital parallels the increase in net capital expenditures and is predicted to equal 25% of net capital expenditures each year.

(iv) In 2028, investment in working capital will be \$0.375 and is predicted to grow at 6% thereafter.

(v) McMillan will use debt financing to fund 40% of net capital expenditures and 40% of the investment in working capital.

(vi) The company's required rate of return is 12%.

Required:

Estimate the company's value per share using a two-stage Free cash flows (FCFE) valuation approach. **(16 marks)**

Total: 20 Marks

QUESTION THREE

(a) In Options Theory, differentiate between a "Call Option" and a "Put Option." **(3 marks)**

(b) A financial analyst is interested in using the Black-Scholes Model to value call options on a stock.

The following information is available:

- The price of the stock is Sh.35.
- The strike price is Sh.30.
- The option matures in 9 months.
- The volatility of returns of the stock is 0.30.
- The risk-free rate is 10%.

Required:

The value of a call option using the Black-Scholes Model. **(5 marks)**

$$c = P_a N(d_1) - P_e N(d_2) e^{-rt}$$

$$d_1 = \frac{\text{In}\ (P_a/P_e) + (r + 0.5s^2)t}{s\sqrt{t}}$$

$$d_2 = d_1 - s\sqrt{t}$$

(c) (i) Great Rift is a public utility holding company that listed its 4.5% cumulative perpetual preferred stock series in March 2012. The par value of the preferred stock is Sh.100. If the required rate of return on this stock is 5.6%, estimate the value of the stock. **(3 marks)**

(ii) Diwani Ltd recently paid a dividend of Sh1.80 An analyst has examined the financial statements and historical dividend policy of Diwani and expects that the firm's dividend rate will grow at a constant rate of 3.5% indefinitely. The analyst has also determined the beta to be 1.5, the risk free rate is 4%, and the expected return on the market portfolio is 8%.

Required: Calculate the current value of Diwani Ltd's shares. **(3 marks)**

(iii) The Gordon growth model (GGM) has a number of characteristics that make it useful and appropriate for many applications. However, the model has some characteristics that limits its application. Explain ***Three*** limitations of the GGM. **(3 marks)**

(d) Heri Haki Ltd has issued 5 years' corporate bonds of par value Sh1,000. The coupon rate is 8% and the required rate of return is 10%.

Required:

(i) Calculate the Market Value of the bond. **(2 marks)**

(ii) Is the bond selling at a premium or a discount? **(3 marks)**

Total: 20 Marks

QUESTION FOUR

(a) The Gordon's growth model has a number of fundamental assumptions. Explain ***three*** assumptions of the model. **(3 marks)**

(b) A company has a dividend payout ratio of 80% and the current return on equity is 35%. Calculate the sustainable growth rate of the company. **(2 marks)**

(c) Lavender is preparing a valuation of Quick Auto Centre Ltd. She has decided to use a three stage Free Cash Flow to Equity (FCFE) model and the following estimates. The FCFE per share for the current year is Sh0.75 The FCFE is expected to grow at 10% for the next year, then at 26% annually for the following three years, and then 6% in year 5 and thereafter. Lawrence has estimated beta to be 2.00 and the risk free rate to be 4.5%. The equity risk premium is 5%.

Required:

Given the above data collected by Lawrence, estimate the value per share of Quick Auto Ltd.

(5 marks)

(d) Naikare Baraka (NB) is a family controlled company that dominates the retail book market. NB has a book value of Sh10 per share, is expected to earn Sh2.00 forever, and pays out all of its earnings as dividends. Its required return on equity is 12.5%.

Required:

Calculate the value of the stock of NB using the following**:**

(i) Dividend discount model. **(2 marks)**

(ii) Residual income model. **(2 marks)**

(iii) How does the value calculated using residual income compare with the dividend discount model? **(1 mark)**

(e) Explain Five drivers that affects the value of a call option. **(5 marks)**

Total: 20 Marks

QUESTION FIVE

(a) An analyst following General Appliances has compiled the following information in preparation for additional analysis she has to include in a report she has been asked to produce. She wants to use the Free cash flows to firm (FCFF) and the Free cash flows to Equity (FCFE).

Security Type	Market Value	Before Tax Required Return
Preferred stock	$400	8%
Bonds	$100	8%
Common stock	$500	12.0%
Total	**$1,000**	

Additional information: (in millions)

- Net income available to common shareholders= $110
- Interest expenses= $32
- Preferred dividends= $8
- Investment in working capital= $20
- Investment in fixed capital= $70
- Net borrowing = $25
- Depreciation= $40
- Tax rate= 30%
- Long-term growth rate of FCFF = 4%
- Long-term growth rate of FCFE= 5.4%

Required:

(i) Calculate the company's Weighted average cost of capital (WACC). **(2 marks)**

(ii) Calculate the current value of FCFE. **(3 marks)**

(iii) Based on the forecasted year 1 FCFE, what is the total value of the company and the value of its equity? **(3 marks)**

(iv) Calculate the current value of FCFE. **(2 marks)**

(v) Based on the forecasted year 1 FCFE, what is the value of equity? **(2 marks)**

(b) Explain the following terms as used in Mergers and Acquisitions;

(i) Synergy. **(2marks)**

(ii) Horizontal integration. **(2marks)**

(iii) Conglomerate integration. **(2marks)**

(iv) Congeneric integration. **(2marks)**

Total: 20 Marks