Equity Valuation

共享题干题

【题干】Cátia Pinho is a supervisor in the equity research division of Suite Securities. Pinho asks Flávia Silveira, a junior analyst, to complete an analysis of Adesivo S.A., Enviado S.A., and Gesticular S.A.Pinho directs Silveira to use a valuation metric that would allow for a meaningful ranking of relative value of the three companies' shares. Exhibit 1 provides selected financial information for the three companies.

Exhibit 1. Selected Financial Information for Adesivo, Enviado, and Gesticular (Brazilian Real, BRL)

	Adesivo	Enviado	Gesticular
Stock's current price	14.72	72.20	132.16
Diluted EPS (last four quarters)	0.81	2.92	–0.05
Diluted EPS (next four quarters)	0.91	3.10	2.85
Dividend rate (annualized most recent dividend)	0.44	1.24	0.00

Silveira reviews underlying trailing EPS for Adesivo. Adesivo has basic trailing EPS of BRL0.84. Silveira finds the following note in Adesivo's financial statements: "On a per share basis, Adesivo incurred in the last four quartersi. from a lawsuit, a non-recurring gain of BRL0.04; andii. from factory integration, a non-recurring cost of BRL0.03 and a recurring cost of BRL0.01 in increased depreciation." Silveira notes that Adesivo is forecasted to pay semiannual dividends of BRL0.24 next year. Silveira estimates five-year earnings growth rates for the three companies, which are presented in Exhibit 2.

Exhibit 2. Earnings Growth Rate Estimates over Five Years

Company	Earnings Growth Rate Estimate (%)
Adesivo	16.67
Enviado	21.91
Gesticular	32.33

Pinho asks Silveira about the possible use of the price-to-sales ratio (P/S) in assessing the relative value of the three companies. Silveira tells Pinho:Statement 1The P/S is not affected by revenue recognition practices.Statement 2The P/S is less subject to distortion from expense accounting than is the P/E.

Pinho asks Silveira about using the Fed and Yardeni models to assess the value of the equity market. Silveira states:Statement 3The Fed model concludes that the market is undervalued when the market's current earnings yield is greater than the 10-year Treasury bond yield.Statement 4The Yardeni model includes the consensus five-year earnings growth rate forecast for the market index.

Silveira also analyzes the three companies using the enterprising value (EV)-to-EBITDA multiple. Silveira notes that the EBITDA for Gesticular for the most recent year is BRL560 million and gathers other selected information on Gesticular, which is presented in Exhibit 4.

Exhibit 4. Selected Information on Gesticular at Year-End (BRL Millions)

Market Value of Debt	Market Value of Common Equity	Market Value of Preferred Equity	Cash	Short-Term Investments
1,733	6,766	275	581	495

Pinho asks Silveira about the use of momentum indicators in assessing the shares of the three companies. Silveira states:Statement 5Relative-strength indicators compare an equity’s performance during a period with the performance of some group of equities or its own past performance.Statement 6In the calculation of standardized unexpected earnings (SUE), the magnitude of unexpected earnings is typically scaled by the standard deviation of analysts’ earnings forecasts.

1.【单项选择题】Based on Pinho’s directive and the data from the last four quarters presented in Exhibit 1, the valuation metric that Silveira should use is the:

A. price-to-earnings ratio (P/E).

B. production-to-demand ratio (P/D).

C. earnings-to-price ratio (E/P).

参考答案：C

【莽学解析】The E/P based on trailing earnings would offer the most meaningful ranking of the shares. Using E/P places Gesticular’s negative EPS in the numerator rather than the denominator, leading to a more meaningful ranking.

2.【单项选择题】Based on Exhibit 1 and the note to Adesivo’s financial statements, the trailing P/E for Adesivo using underlying EPS is closest to:

A. 17.7.

B. 18.2.

C. 18.4.

参考答案：C

【莽学解析】The EPS figure that Silveira should use is diluted trailing EPS of R$0.81, adjusted as follows:

1. Subtract the BRL0.04 non-recurring legal gain.
2. Add BRL0.03 for the non-recurring factory integration charge.

No adjustment needs to be made for the BRL0.01 charge related to depreciation because it is a recurring charge.

Therefore, underlying trailing EPS = BRL0.81 - BRL0.04 + BRL0.03 = BRL0.80 and trailing P/E using underlying trailing EPS = BRL14.72/BRL0.80 = 18.4.

3.【单项选择题】Based on Exhibits 1 and 2, which company’s shares are the most attractively priced based on the five-year forward P/E-to-growth ratio (PEG)?

A. Adesivo

B. Enviado

C.Gesticular
参考答案：A
【莽学解析】The forward PEG for the three companies are calculated as follows:
Forward P/E = Stock’s Current Price/Forecasted EPS
Forward PEG = Forward P/E /Expected earnings growth rate (in percentage terms)
Adesivo forward P/E = BRL14.72/ BRL0.91 = 16.18
Adesivo forward PEG = 16.18/16.67 = 0.97
Enviado forward P/E = BRL72.20/ BRL3.10 = 23.29
Enviado forward PEG = 23.29/21.91 = 1.06
Gesticular forward P/E = BRL132.16/ BRL2.85 = 46.37
Gesticular forward PEG = 46.37/32.33 = 1.43
Adesivo has the lowest forward PEG of 0.97, indicating that it is the most undervalued of the three equities based on the forward PEG ratio.

4.【单项选择题】Which of Silveira’s statements concerning the use of the P/S is correct?
A.Statement 1 only
B.Statement 2 only
C.Both Statement 1 and Statement 2
参考答案：B
【莽学解析】Statement 2 is correct because sales, as the top line of the income statement, are less subject to accounting distortion or manipulation than are other fundamentals, such as earnings. Statement 1 is incorrect because sales figures can be distorted by revenue recognition practices, in particular those tending to speed up the recognition of revenues.

5.【单项选择题】Which of Silveira’s statements concerning the Fed and Yardeni models is correct?
A.Statement 3 only
B.Statement 4 only
C.Both Statement 3 and Statement 4
参考答案：C
【莽学解析】The Fed model considers the equity market to be undervalued when the market’s current earnings yield is greater than the 10-year Treasury bond yield. The Yardeni model incorporates the consensus five-year earnings growth rate forecast for the market index, a variable missing in the Fed model.

6.【单项选择题】Based on Exhibit 4, Gesticular’s EV/EBITDA multiple is closest to:
A.11.4.
B.13.7.
C.14.6.
参考答案：B
【莽学解析】The EV for Gesticular is calculated as follows:
EV = Market value of debt ＋ Market value of common equity ＋ Market value of preferred equity － Cash and short-term investments
EV = BRL1,733 million ＋ BRL6,766 million ＋ BRL275 million － BRL581 million － BRL495 million = BRL7,698 million
EV/EBITDA = BRL7,698 million/ BRL560 million = 13.7

7.【单项选择题】Which of Silveira’s statements concerning momentum indicators is correct?
A.Statement 5 only
B.Statement 6 only
C.Both Statement 5 and Statement 6
参考答案：A
【莽学解析】Relative-strength indicators compare an equity’s performance with the performance of a group of equities or with its own past performance. SUE is unexpected earnings scaled by the standard deviation in past unexpected earnings (not the standard deviation of analysts’ earnings forecasts, which is used in the calculation of the scaled earnings surprise).

【题干】Bruno Santos is an equity analyst with a regional investment bank. Santos reviews the growth prospects and quality of earnings for Phoneutria Enterprises, one of the companies he follows. He has developed a stock valuation model for this firm based on its forecasted fundamentals. His revenue growth rate estimate is less than that implied by the market price.Phoneutria’s financial statements over the past five years show strong performance, with above average growth. Santos has decided to use a lower forecasted growth rate in his models, reflecting the effect of “regression to the mean” over time. He notes two reasons for his lower growth rate forecast:Reason 1 Successful companies tend to draw more competition, putting their high profits under pressure.Reason 2 Phoneutria’s intellectual property and franchise agreements will be weakening over time.Santos meets with Walter Hartmann, a newly hired associate in his department. In their conversation, Hartmann states, “Security analysts forecast company performance using both top-down and bottom-up analysis. I can think of three examples:1 A restaurant chain forecasts its sales to be its market share times forecast industry sales.2 An electric utility company forecasts that its sales will grow proportional to increases in GDP.3 A retail furniture company forecasts next year’s sales by assuming that the sales in its newly built stores will have similar sales per square meter to that of its existing stores.” Hartmann is reviewing some possible trades for three stocks in the health care industry based on a pairs-trading strategy. Hartmann’s evaluations are as follows:● HG Health is 15% overvalued.● Corgent Cell Sciences is 10% overvalued.● Johnson Labs is 15% undervalued.

8.【单项选择题】Based on Santos’s revenue growth rate estimate, the shares of Phoneutria are most likely:
A.undervalued.
B.fairly valued.
C.overvalued.
参考答案：C
【莽学解析】If the revenue growth rate inferred by the market price exceeds the growth rate that the firm could reasonably expect, Santos should conclude that the market price is too high and thus that the firm is overvalued.

9.【单项选择题】Which of the reasons given by Santos most likely justifies a reduction in Phoneutria’s forecasted growth rate?
A.Reason 1 only
B.Reason 2 only

C.Both Reason 1 and Reason 2

参考答案：C

【莽学解析】Increased competition for successful firms can cause a regression to the mean of a company’s growth rate. Expiring and weakening intellectual property and franchise agreements can also reduce potential growth.

10.【单项选择题】Which of Hartmann’s examples of company performance forecasting best describes an example of bottom-up forecasting?

A.Restaurant chain

B.Electric utility company

C.Retail furniture company

参考答案：C

【莽学解析】The retail furniture company forecasting sales based on sales per square meter is an example of bottom-up forecasting because it aggregates forecasts at a micro level to larger-scale forecasts.

11.【单项选择题】Based on his trading strategy, which of the following should Hartmann recommend?

A.Short HG Health and Corgent Cell Sciences

B.Buy Johnson Labs and Corgent Cell Sciences

C.Buy Johnson Labs and short Corgent Cell Sciences

参考答案：C

【莽学解析】Pairs trading involves buying an undervalued stock and shorting an overvalued stock in the same industry. Hartmann should buy Johnson Labs (15% undervalued) and short Corgent Cell Sciences (10% overvalued).

【题干】Ryan Leigh is preparing a presentation that analyzes the valuation of the common stock of two companies under consideration as additions to his firm’s recommended list, Emerald Corporation and Holt Corporation. Leigh has prepared preliminary valuations of both companies using an FCFE model and is also preparing a value estimate for Emerald using a dividend discount model. Holt’s 2019 and 2020 financial statements, contained in Exhibits 1 and 2, are prepared in accordance with US GAAP.

Exhibit 1 Holt Corporation Consolidated Balance Sheets (US$ Millions)

		As of 31 December		
		2020		2019
Assets				
Current assets				
Cash and cash equivalents		$ 372		$ 315
Accounts receivable		770		711
Inventories		846		780
Total current assets		1,988		1,806
Gross fixed assets	4,275		3,752	
Less: Accumulated depreciation	1,176	3,099	906	2,846
Total assets		$5,087		$4,652
Liabilities and shareholders' equity				
Current liabilities				
Accounts payable		$ 476		$ 443
Accrued taxes and expenses		149		114
Notes payable		465		450
Total current liabilities		1,090		1,007
Long-term debt		1,575		1,515
Common stock		525		525
Retained earnings		1,897		1,605
Total liabilities and shareholders' equity		$5,087		$4,652

Leigh presents his valuations of the common stock of Emerald and Holt to his supervisor, Alice Smith. Smith has the following questions and comments:1 “I estimate that Emerald’s long-term expected dividend payout rate is 20% and its return on equity is 10% over the long term.” 2 “Why did you use an FCFE model to value Holt’s common stock? Can you use a DDM instead?” 3 “How did Holt’s FCFE for 2020 compare with its FCFF for the same year? I recommend you use an FCFF model to value Holt’s common stock instead of using an FCFE model because Holt has had a history of leverage changes in the past.” 4 “In the last three years, about 5% of Holt’s growth in FCFE has come from decreases in inventory.” Leigh responds to each of Smith’s points as follows:1 “I will use your estimates and calculate Emerald’s long-term, sustainable dividend growth rate.” 2 “There are two reasons why I used the FCFE model to value Holt’s common stock instead of using a DDM. The first reason is that Holt’s dividends have differed significantly from its capacity to pay dividends. The second reason is that Holt is a takeover

Exhibit 2 Holt Corporation Consolidated Income Statement for the Year Ended 31 December 2020 (US$ Millions)

Total revenues	$3,323
Cost of goods sold	1,287
Selling, general, and administrative expenses	858
Earnings before interest, taxes, depreciation, and amortization (EBITDA)	1,178
Depreciation expense	270
Operating income	908
Interest expense	195
Pretax income	713
Income tax (at 32%)	228
Net income	$ 485

target and once the company is taken over, the new owners will have discretion over the uses of free cash flow.” 3 “I will calculate Holt’s FCFF for 2020 and estimate the value of Holt’s common stock using an FCFF model.” 4 “Holt is a growing company. In forecasting either Holt’s FCFE or FCFF growth rates, I will not consider decreases in inventory to be a long-term source of growth.”

12.【单项选择题】Which of the following long-term FCFE growth rates is most consistent with the facts and stated policies of Emerald?

A. 5% or lower.

B. 2% or higher.

C. 8% or higher.

参考答案：C

【莽学解析】The sustainable growth rate is return on equity (ROE) multiplied by the retention ratio. ROE is 10%, and the retention ratio is 1 - Payout ratio, or 1.0 - 0.2 = 0.8. The sustainable growth rate is 0.8 × 10% = 8%. FCFE growth should be at least 8% per year in the long term.

13.【单项选择题】Do the reasons provided by Leigh support his use of the FCFE model to value Holt’s common stock instead of using a DDM?

A. Yes.

B. No, because Holt’s dividend situation argues in favor of using the DDM.

C. No, because FCFE is not appropriate for investors taking a control perspective.

参考答案：A

【莽学解析】Justifications for choosing the FCFE model over the DDM include the following:● The company pays dividends, but its dividends differ significantly from the company’s capacity to pay dividends (the first reason given by Leigh).

● The investor takes a control perspective (the second reason given by Leigh)

14.【单项选择题】Holt's FCFF (in millions) for 2020 is closest to:

A. $308.

B. $370.

C. $422.

参考答案：A

【莽学解析】

FCFF = NI + NCC + Interest expense (1 – Tax rate) – FCInv – WCInv. In this case:

$$\text{NI} = \$485 \text{ million}$$

$$\text{NCC} = \text{Depreciation expense} = \$270 \text{ million}$$

$$\text{Interest expense } (1 - \text{Tax rate}) = 195\,(1 - 0.32) = \$132.6 \text{ million}$$

$$\text{FCInv} = \text{Net purchase of fixed assets} = \text{Increase in gross fixed assets}$$

$$= 4{,}275 - 3{,}752 = \$523 \text{ million}$$

$$\text{WCInv} = \text{Increase in accounts receivable} + \text{Increase in inventory} - \text{Increase in accounts payable} - \text{Increase in accrued liabilities}$$

$$= (770 - 711) + (846 - 780) - (476 - 443) - (149 - 114)$$

$$= \$57 \text{ million}$$

$$\text{FCFF} = 485 + 270 + 132.6 - 523 - 57 = 307.6, \text{ or } \$308 \text{ million}$$

15.【单项选择题】Holt's FCFE (in millions) for 2020 is closest to:

A. $175.

B. $250.

C. $364.

参考答案：B

【莽学解析】FCFE = NI + NCC – FCInv – WCInv + Net borrowing. In this case:NI=$485 millionNCC=Depreciation expense = $270 millionFCInv = Net purchase of fixed assets = Increase in gross fixed assets = 4,275 – 3,752=$523 millionWCInv = Increase in accounts receivable+Increase in inventory – Increase in accounts payable – Increase in accrued liabilities=(770 – 711)+(846 – 780) – (476 – 443)-(149 – 114)= $57 millionNet borrowing =Increase in notes payable + Increase in long-term debt=(465 – 450)+(1,575 – 1,515)=$75 millionFCFE = 485+270 – 523 – 57+75 = $250millionAn alternative calculation isFCFE = FCFF – Int(1 – Tax rate) + Net borrowingFCFE = 307.6 – 195(1 – 0.32) + (15 +60) = $250 million

16.【单项选择题】Leigh's comment about not considering decreases in inventory to be a source of

long-term growth in free cash flow for Holt is:
A. inconsistent with a forecasting perspective.
B. mistaken because decreases in inventory are a use rather than a source of cash.
C. consistent with a forecasting perspective because inventory reduction has a limit, particularly for a growing firm.
参考答案：C
【莽学解析】Inventory cannot be reduced below zero. Furthermore, sales growth tends to increase inventory.

17.【单项选择题】Smith's recommendation to use a FCFF model to value Holt is:
A. logical, given the prospect of Holt changing capital structure.
B. not logical because a FCFF model is used only to value the total firm.
C. not logical because FCFE represents a more direct approach to free cash flow valuation.
参考答案：A
【莽学解析】The FCFF model is often selected when the capital structure is expected to change because FCFF estimation may be easier than FCFE estimation in the presence of changing financial leverage.

【题干】Nigel French, an analyst at Taurus Investment Management, is analyzing Archway Technologies, a manufacturer of luxury electronic auto equipment, at the request of his supervisor, Lukas Wright. French is asked to evaluate Archway's profitability over the past five years relative to its two main competitors, which are located in different countries with significantly different tax structures. French begins by assessing Archway's competitive position within the luxury electronic auto equipment industry using Porter's five forces framework. A summary of French's industry analysis is presented in Exhibit 1.

Exhibit 1 Analysis of Luxury Electronic Auto Equipment Industry Using P Five Forces Framework

Force	Factors to Consider
Threat of substitutes	Customer switching costs are high
Rivalry	Archway holds 60% of world market share; each of its tw competitors holds 15%
Bargaining power of suppliers	Primary inputs are considered basic commodities, and the large number of suppliers
Bargaining power of buyers	Luxury electronic auto equipment is very specialized standardized)
Threat of new entrants	High fixed costs to enter industry

French notes that for the year just ended (2019), Archway's cost of goods sold was 30% of sales. To forecast Archway's income statement for 2020, French assumes that all companies in the industry will experience an inflation rate of 8% on the cost of goods sold. Exhibit 2 shows French's forecasts relating to Archway's price and volume changes.

Exhibit 2. Archway's 2020 Forecasted Price and Volume Changes

Average price increase per unit	5.00%
Volume growth	–3.00%

After putting together income statement projections for Archway, French forecasts Archway's balance sheet items; He uses Archway's historical efficiency ratios to forecast the company's working capital accounts. Based on his financial forecast for Archway, French estimates a terminal value using a valuation multiple based on the company's average price-to-earnings multiple (P/E) over the past five years. Wright discusses with French how the terminal value estimate is sensitive to key assumptions about the company's future prospects. Wright asks French: "What change in the calculation of the terminal value would you make if a technological development that would adversely affect Archway was forecast to occur sometime beyond your financial forecast horizon?"

18.【单项选择题】Which return metric should French use to assess Archway's five-year historic performance relative to its competitors?

A. Return on equity

B. Return on invested capital

C. Return on capital employed

参考答案：C

【莽学解析】The return on capital employed (ROCE) is a pre-tax return measure that can be useful in the peer comparison of companies in countries with different tax structures. Archway's two main competitors are located in different countries with significantly different tax structures, and therefore, a pre-tax measure of return on capital employed is better than an after-tax measure.

19.【单项选择题】Based on the current competitive landscape presented in 1, French should conclude that Archway's ability to:

A. pass along price increases is high.

B. demand lower input prices from suppliers is low.

C. generate above-average returns on invested capital is low.

参考答案：A

【莽学解析】Porter's five forces framework in Exhibit 1 describes an industry with high barriers to entry, high customer switching costs (suggesting a low threat of substitutes), and a specialized product (suggesting low bargaining power of buyers). Furthermore, the primary production inputs from the large group of suppliers are considered basic commodities (suggesting low bargaining power of suppliers). These favorable industry characteristics will likely enable Archway to pass along price increases and generate above-average returns on invested capital.

20.【单项选择题】Based on the current competitive landscape presented in 1, Archway’s operating profit margins over the forecast horizon are least likely to:

A. decrease.

B. remain constant.

C. increase.

参考答案：A

【莽学解析】The current favorable characteristics of the industry (high barriers to entry, low bargaining power of suppliers and buyers, low threat of substitutes), coupled with Archway’s dominant market share position, will likely lead to Archway’s profit margins being at least equal to or greater than current levels over the forecast horizon.

21.【单项选择题】Based on Exhibit 2, Archway’s forecasted gross profit margin for 2020 is closest to:

A. 62.7%.

B. 67.0%.

C. 69.1%.

参考答案：C

【莽学解析】The calculation of Archway’s gross profit margin for 2020, which reflects the industry-wide 8% inflation on cost of goods sold (COGS), is calculated as follows:

Revenue growth	1.85%
Cost of goods sold increase	4.76%
Forecasted revenue (Base revenue = 100)	101.85
Forecasted COGS (Base COGS = 30)	31.43
Forecasted gross profit	70.42
Forecasted gross profit margin	69.14%

Revenue growth = (1 + Price increase for revenue) × (1 + Volume growth) - 1

Revenue growth = (1.05) × (0.97) - 1 = 1.85%

COGS increase = (1 + Price increase for COGS) × (1 + Volume growth) - 1

COGS increase = (1.08) × (0.97) - 1 = 4.76%

Forecasted revenue = Base revenue × Revenue growth increase

Forecasted revenue = 100 × 1.0185 = 101.85

Forecasted COGS = Base COGS × COGS increase

Forecasted COGS = 30 × 1.0476 = 31.43

Forecasted gross profit = Forecasted revenue - Forecasted COGS

Forecasted gross profit = 101.85 - 31.43 = 70.42

Forecasted gross profit margin = Forecasted gross profit/Forecasted revenue

Forecasted gross profit margin = 70.42/101.85 = 69.14%

22.【单项选择题】French’s approach to forecasting Archway’s working capital accounts would be most likely classified as a:

A.hybrid approach.

B.top-down approach.

C.top-down approach.

参考答案：C

【莽学解析】French is using a bottom-up approach to forecast Archway’s working capital accounts by using the company’s historical efficiency ratios to project future performance.

23.【单项选择题】The most appropriate response to Wright’s question about the technological development is to:

A.increase the required return.

B.decrease the price-to-earnings multiple.

C.decrease the perpetual growth rate.

参考答案：B

【莽学解析】If the future growth or profitability of a company is likely to be lower than the historical average (in this case, because of a potential technological development), then the target multiple should reflect a discount to the historical multiple to reflect this difference in growth and/or profitability. If a multiple is used to derive the terminal value of a company, the choice of the multiple should be consistent with the long-run expectations for growth and required return. French tells Wright he believes that such a technological development may have an adverse impact on Archway beyond the forecast horizon.

【题干】Yandie Izzo manages a dividend growth strategy for a large asset management firm. Izzo meets with her investment team to discuss potential investments in three companies: Company A, Company B, and Company C. Statements of cash flow for the three companies are presented in Exhibit 1.

Izzo’s team first discusses key characteristics of Company A. The company has a history of paying modest dividends relative to FCFE, has a stable capital structure, and is owned by a controlling investor.The team also considers the impact of Company A’s three non-cash transactions in the most recent year on its FCFE, including the following:● Transaction 1: A \$900 million loss on a sale of equipment● Transaction 2: An impairment of intangibles of \$400 million● Transaction 3: A \$300 million reversal of a previously recorded restructuring chargeIn addition, Company A’s annual report indicates that the firm expects to incur additional non-cash charges related to restructuring over the next few years.To value the three companies’ shares, one team member suggests valuing the companies’ shares using net income as a proxy for FCFE. Another team member proposes forecasting FCFE using a sales-based methodology based on the following equation:FCFE = NI – (1 – DR)(FCInv – Dep) – (1 – DR)(WCInv)Izzo’s team ultimately decides to use actual free cash flow to value the three companies’ shares. Selected data and assumptions are provided in Exhibit 2.

Exhibit 1 Statements of Cash Flow, Most Recent Fiscal Year End (Amou
Millions of Dollars)

	Company A	Company B	Compa
Cash Flow from Operating Activities			
Net Income	4,844	1,212	15,4
Adjustments			
Depreciation	500	288	3,74
Other noncash expenses	1,000	—	—
Changes in working capital			
(Increase) Decrease accounts receivable	(452)	(150)	(53
(Increase) Decrease inventories	—	(200)	(80
Increase (Decrease) accounts payable	(210)	100	(3)
Increase (Decrease) other current liabilities	540	14	35
Net cash from operating activities	6,222	1,264	18,1
Cash Flow from Investing Activities			
(Purchase) Sale of fixed assets	2,379	(1,000)	(3,46
Net cash from investing activities	2,379	(1,000)	(3,46
Cash Flow from Financing Activities			
Increase (Decrease) notes payable	25	3000	1,23
Increase (Decrease) long-term debt	(1,500)	(1,000)	(1,37
Payment of common stock dividends	(1,000)	(237)	(15,0
Net cash from financing activities	(2,475)	1,763	(15,1
Net change in cash and cash equivalents	6,126	2,027	(44
Cash and equivalents at beginning of year	50	100	3,00
Cash and equivalents at end of year	6,176	2,127	2,55
Supplemental Cash Flow Disclosures			
Interest	(353)	(50)	(55
Income taxes	(1,605)	(648)	(3,78

Exhibit 2 Supplemental Data and Valuation Assumptions

	Company A	Company B	Compa
Tax rate	35%	35%	30%
Beta	1.00	0.90	1.10
Before-tax cost of debt	6%	7%	6%
Target debt ratio	50%	30%	40%
Market data:			
Risk-free rate: 3%			
Market risk premium: 7%			

The team calculates the intrinsic value of Company B using a two-stage FCFE model. FCFE growth rates for the first four years are estimated at 10%, 9%, 8%, and 7%, respectively, before declining to a constant 6% starting in the fifth year. To calculate the intrinsic value of Company C’s equity, the team uses the FCFF approach assuming a single-stage model where FCFF is expected to grow at 5% indefinitely.

24.【单项选择题】Based on Company A’s key characteristics, which discounted cash flow model would most likely be used by the investment team to value Company A’s shares?

A. DDM

B. FCFE

C. FCFF

参考答案：B

【莽学解析】Company A has a history of paying modest dividends relative to FCFE. An FCFF or FCFE model provides a better estimate of value over a DDM model when dividends paid differ significantly from the company’s capacity to pay dividends. Also, Company A has a controlling investor; with control comes discretion over the uses of free cash flow. Therefore, there is the possibility that the controlling shareholder could change the dividend policy. Finally, Company A has a stable capital structure; using FCFE is a more direct and simpler method to value a company’s equity than using FCFF when a company’s capital structure is stable.

25.【单项选择题】Which non-cash transaction should be subtracted from net income in arriving at Company A’s FCFE?

A. Transaction 1

B. Transaction 2

C. Transaction 3

参考答案：C

【莽学解析】The applicable non-cash adjustments to net income in arriving at FCFE are as follows:

Non-Cash Item	Adjustment to Net Income	Amount (millions
Transaction 1: Loss on sale of equipment	Added back	+900
Transaction 2: Impairment of intangibles	Added back	+400
Transaction 3: Reversal of restructuring charge	Subtracted	–300

In the case of Transaction 1, a loss reduces net income and thus must be added back in arriving at FCFE. Similarly, an impairment of intangibles (Transaction 2) reduces net income and thus must be added back in arriving at FCFE. Transaction 3 (reversal of a restructuring charge) would increase net income and thus must be subtracted in arriving at FCFE.

26.【单项选择题】Based on Exhibit 1, Company A’s FCFE for the most recent year is closest to:

A. $5,318 million.

B. $6,126 million.

C. $7,126 million.

参考答案：C

【莽学解析】FCFE for Company A for the most recent year is calculated as follows:

Net income	$4,844
Plus: Net non-cash charges	1,500
Less: Investment in working capital	122
Plus: Proceeds from sale of fixed capital	2,379
Less: Net borrowing repayment	1,475
FCFE (millions)	$7,126

Net non-cash charges are found by adding depreciation to other non-cash expenses: $500 million + $1,000 million = $1,500 million. Investment in working capital is calculated by netting the increase in accounts receivable, the decrease in accounts payable, and the increase in other current liabilities: －$452 million － $210 million + $540 million = －$122 million (outflow). Net borrowing repayment is calculated by netting the increase in notes payable and the decrease in long-term debt: $25 million － $1,500 million = －$1,475 million (outflow).

27.【单项选择题】Based on Exhibit 1, using net income as a proxy for Company B’s FCFE would result in an intrinsic value that is:

A. lower than the intrinsic value if actual FCFE were used.

B. equal to the intrinsic value if actual FCFE were used.

C. higher than the intrinsic value if actual FCFE were used.

参考答案：A

【莽学解析】FCFE is significantly higher than net income for Company B: Net income = $1,212 million. FCFE for Company B is calculated as:

Net income	$1,212
Plus: Net non-cash charges	288
Less: Investment in WC	236
Less: Investment in fixed assets	1,000
Plus: Net borrowing	2,000
FCFE (millions)	$2,264

Investment in working capital is calculated by adding the increase in accounts receivable, the increase in inventories, the increase in accounts payable, and the increase in other current liabilities: －$150 million － $200 million + $100 million + $14 million = －$236 million. Net borrowing is calculated by adding the increase in notes payable to the decrease in long-term debt: $3,000 million － $1,000 million = $2,000 million. Therefore, using net income of $1,212 million as a proxy for FCFE ($2,264 million) for Company B would result in a much lower valuation estimate than if actual FCFE were used.

28.【单项选择题】Based on Exhibit 1, using the proposed sales-based methodology to forecast FCFE would produce an inaccurate FCFE projection for which company?
A.Company A
B.Company B
C.Company C
参考答案：A
【莽学解析】In addition to significant non-cash charges other than depreciation in the most recent year, the annual report indicates that Company A expects to recognize additional non-cash charges related to restructuring over the next few years. The given equation for forecasting assumes that the only non-cash charge is depreciation. When the company being analyzed has significant non-cash charges other than depreciation expense, this sales-based methodology will result in a less accurate estimate of FCFE than one obtained by forecasting all the individual components of FCFE.

29.【单项选择题】Based on Exhibits 1 and 2 and the proposed two-stage FCFE model, the intrinsic value of Company B’s equity is closest to:
A.$70,602 million.
B.$73,588 million.
C.$79,596 million.
参考答案：C
【莽学解析】The required rate of return on equity for Company B is r=E(R_i) =R_F β_i[E(R_M) －R_F] = 3% 0.90(7%) = 9.3%. FCFE for the most recent year for Company B is:
The required rate of return on equity for Company B isr = E(R_i) = R_F

Net income	$1,212
Plus: Net non-cash charges	288
Less: Investment in WC	236
Less: Investment in fixed assets	1,000
Plus: Net borrowing	2,000
FCFE (millions)	$2,264

β_i[E(R_M) - R_F] = 3% 0.90(7%) = 9.3%.The most recent FCFE grows for the next four years at annual growth rates of 10%, 9%, 8%, and 7%, respectively, and then 6% thereafter:

t	*g*	Calculation	FCFE (millions)
1	10%	$2,264.00 × 1.10	$2,490.40
2	9%	$2,490.40 × 1.09	$2,714.54
3	8%	$2,714.54 × 1.08	$2,931.70
4	7%	$2,931.70 × 1.07	$3,136.92
5	6%	$3,136.92 × 1.06	$3,325.13

The present value of FCFE for the first four years is calculated as follows:PV = 2,490.40/1.093^{1} + 2,714.54/1.093^{2} + 2,931.70/1.093^{3} + 3,136.92/1.093^{4}PV = 2,278.50 +2,272.25 +2,245.22 +2.197.97 = 8,993.94The present value of the terminal value is calculated as follows:PV of TV4 = 3,325.13/(0.093-0.06)(1.093)^{4}=70,601.58So, the estimated total market value of the equity is 8,993.94+70,601.58 = 79,595.52 ≈ $79,596 million.

30.【单项选择题】Based on Exhibits 1 and 2 and the proposed single-stage FCFF model, the intrinsic value of Company C’s equity is closest to:

A.$277,907 million.

B.$295,876 million.

C.$306,595 million.

参考答案：C

【莽学解析】Company C’s firm value is calculated as follows:

【题干】BJL Financial provides clients with professional investment management services that are tailored to the specific needs of each client. The firm's portfolio manager, Angelique Kwaza, has called a meeting with the senior analyst, Samira Khan, to discuss the quarterly rebalancing of three client portfolios. The valuation model used in the analyses is the discounted dividend model.● Client 1 has a portfolio with significant exposure to dividend-paying stocks.● Client 2 is interested in including preferred stock in the portfolio.● Client 3 has a growth-oriented equity-only portfolio.Khan has identified two utilities (ABC and XYZ)

The required rate of return on equity for Company C is

$$r = E(R_i) = R_F + \beta_i[E(R_M) - R_F] = 3\% + 1.1(7\%) = 10.7\%.$$

$$\text{WACC} = \frac{\text{MV(Debt)}}{\text{MV(Debt)} + \text{MV(Equity)}} r_d(1 - \text{Tax rate}) + \frac{\text{MV(Equity)}}{\text{MV(Debt)} + \text{MV(Eq}$$

$$\text{WACC} = 0.40(6\%)(1 - 0.30) + 0.60(10.7\%) = 1.68\% + 6.42\% = 8.10\%.$$

FCFF for the most recent year for Company C is calculated as follows:

Net income	\$15,409.00
Plus: Net noncash charges	3,746.00
Less: Investment in working capital	992.00
Less: Investment in fixed capital	3,463.00
Plus: Interest expense × (1 – Tax rate)	386.40
FCFF (in millions)	\$15,086.40

Investment in working capital is found by adding the increase in accounts receivable, the increase in inventories, the decrease in accounts payable, and increase in other current liabilities: –\$536 million – \$803 million – \$3 millio \$350 million = –\$992 million.

FCFF is expected to grow at 5.0% indefinitely. Thus,

$$\text{Firm value} = \frac{\text{FCFF}_1}{\text{WACC} - g} = \frac{\text{FCFF}_0(1+g)}{\text{WACC} - g} = \frac{15{,}086.4(1.05)}{0.081 - 0.05} = \$510{,}990.97$$

The value of equity is the value of the firm minus the value of debt. The valu debt is found by multiplying the target debt ratio by the total firm value:

$$\text{Debt value} = 0.40(\$510{,}990.97) = \$204{,}396.39.$$

Therefore, equity value = \$510,990.97 – \$204,396.39 = \$306,594.58 million.

for possible inclusion in Client 1's portfolio, as shown in Exhibit 1. She uses a discount rate of 7% for both common stocks.

Kwaza asks Khan to investigate the most appropriate models for valuing utility companies. She tells Khan about the following points mentioned in various research reports on the utilities sector.

- Report 1: A resurgence in domestic manufacturing activity will generate longterm

Exhibit 1 Candidate Stocks for Client 1

Stock	Company Description
ABC	■ ABC is a publicly traded utility with an expected constant growt rate for earnings and dividends of 3.5%. ■ The most recent year's dividend payout is 70%. The expected div payout in future years is 60%. ■ The common stock price is $14.49 per share.
XYZ	■ XYZ is a publicly traded utility with several unregulated busines subsidiaries. ■ The company generates 3% growth in dividends and has an annu dividend payout of 80%. No changes in dividend growth or payo expected. ■ The common stock price is $10 per share. ■ The current year earnings are $0.45 per share, and next year's ea ings are expected to be $0.50 per share.

growth in earnings and dividends that exceeds the cost of equity. ● Report 2: Share repurchases are expected to increase. The report expresses confidence in the forecasts regarding the magnitude and timing of these repurchases. ● Report 3: The report forecasts earnings growth of 4.5%. The key growth drivers are increases in population and business creation associated with stable GDP growth of 2.75%.For Client 2's portfolio, Khan has identified the non-callable perpetual preferred stocks of Standard Company and Main Company. ● The Standard Company's preferred stock pays 2.75% on a par value of $100. Khan believes it to be fairly valued at a market price of $49.60. ● The perpetual preferred stock of Main Company has a par value of $50 per share and pays an annual dividend of 5.5%. Khan estimates a capitalization rate at 6%. The current market price of Main Company preferred stock is $42.Finally, Khan has identified three stocks, shown in Exhibit 2, as likely candidates for Client 3's portfolio.

31.【单项选择题】Based on the Gordon growth model, the justified leading P /E for ABC stock is closest to:

A.17.1.

B.17.7.

C.20.0.

参考答案：A

【莽学解析】The justified leading P /E is calculated as

Exhibit 2 Candidate Stocks for Client 3

Stock	Company Description
BIOK	■ BIOK is a profitable biotech firm that currently pays an annual d dend of $1.20 per share. ■ The current annual dividend growth rate is 15%. ■ Patent protection runs out in eight years, after which dividend growth will likely decline at a steady rate over three years before stabilizing at a mature growth rate.
CCAX	■ CCAX builds communication software for state and federal priso and detention facilities. ■ The company is expected to hold its cash dividends steady at $0.56 per share for six years as it builds out facilities and acquire properties. ■ Dividends are expected to grow at the nominal GDP growth rate the next six years.
HLTV	■ HLTV is a health care equipment and services firm that is expect to maintain a stable dividend payout ratio. ■ Earnings are forecast to grow over the next two years by 27% annually. ■ After that, earnings will likely grow by 12% annually for another years before stabilizing at a mature growth rate.

$$\frac{P_0}{E_1}=\frac{(1-b)}{(r-g)}$$

where b is the retention ratio, 1- b is the dividend payout ratio, r is the discount rate, and g is the long-term growth rate. ABC's dividend payout rate, 1 - b, is given as 0.60. For Company ABC, the justified leading P/E is

$$\frac{P_0}{E_1}=\frac{(1-b)}{(r-g)}=\frac{(0.60)}{(0.07-0.035)}\approx 17.1$$

32.【单项选择题】Based on its justified leading P /E and the Gordon growth model, XYZ stock is:

A. undervalued.
B. fairly valued.
C. overvalued.
参考答案：B
【莽学解析】The justified leading P /E is calculated as

$$\frac{P_0}{E_1}=\frac{(1-b)}{(r-g)}$$

where b is the retention ratio, 1- b is the dividend payout ratio, r is the discount rate, and g is the long-term growth rate. The justified leading P /E is

$$\frac{P_0}{E_1}=\frac{0.8}{(0.07-0.03)}=20$$

XYZ's actual leading P/E is

$$\frac{P_0}{E_1}=\frac{\$10}{\$0.50}=20$$

Because the justified leading P/E equals the actual leading P/E, the stock is fairly valued.

33.【单项选择题】Which sector report best describes a situation in which the Gordon growth model could be used to value utility stocks?
A. Report 1
B. Report 2
C. Report 3
参考答案：B
【莽学解析】Because the Gordon growth model can accurately value companies that are repurchasing shares when the analyst can appropriately adjust the dividend growth rate for the impact of share repurchases.

34.【单项选择题】Based on Khan's estimate of the capitalization rate, Main Company's preferred stock is:
A. undervalued.
B. fairly valued.
C. overvalued.
参考答案：A
【莽学解析】The value of a share of Main Company's preferred stock is

$$V_0=\frac{D}{r}=\frac{\$50\times0.055}{0.06}=\frac{\$2.75}{0.06}=\$45.83$$

The current price of a share of Main Company's preferred stock is \$42, so the stock is currently undervalued.

35.【单项选择题】The capitalization rate of the preferred stock of Standard Company is closest to:

A. 2.75%.

B. 4.96%.

C. 5.54%.

参考答案：C

【莽学解析】The value of non-callable fixed-rate perpetual preferred stock is calculated as

$$V_0 = \frac{D}{r} \rightarrow r = \frac{D}{V_0}$$

where D is the constant dividend per share and r is the discount rate. The discount rate of a perpetuity is often called the capitalization rate.For Standard Company, the dividend is D = 2.75% x \$100 = \$2.75.Therefore,

$$r = \frac{\$2.75}{\$49.60} = 5.54\%$$

36.【单项选择题】Based on Exhibit 2, which stock can most appropriately be valued using a three-stage DDM with the second and third stages being treated as an H-model?

A. BIOK

B. CCAX

C. HLTY

参考答案：A

【莽学解析】Because the dividend growth is declining linearly during the second stage of a three-stage DDM used to value BIOIK. As noted in the text, a three-stage valuation clearly has an H-model process in the second and third stages. In contrast, abrupt-rather than linearly declining-dividend growth rates are implied for CCAX and HLTV.

37.【单项选择题】Which of the following models is most appropriate for valuing HLTV?

A. H-model

B. Three-stage DDM

C. Gordon growth model

参考答案：B

【莽学解析】Because HLTV is forecast to have three growth stages: the growth phase (2 years at 27%), the transition phase (10 years at 12%), and the mature phase. Because the earnings growth has three stages and the dividend payout ratio is stable, a three-stage DDM is appropriate.