

CHAPTER 24
PRIVATE COMPANY VALUATION
1. (C) market approach
Explanation

Under the market approach, a firm is valued using price multiples based on recent sales of comparable assets. Under the income approach, a firm is valued according to the present value of its expected future income. Under the asset-based approach, the value of a firm is calculated as the firm's assets minus its liabilities.

(Module 24.1, LOS 24.d)

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2. (B) An asset-based approach would be used.
Explanation

The valuation approach used will depend on the firm's operations and its lifecycle stage. Early in its life, a firm's future cash flows may be so uncertain that an asset-based approach would be selected. The price multiples from large public firms should not be used for a small private firm when using the market approach. Although a firm's nonoperating assets are not crucial to the firm, they should be included in any valuation.

(Module 24.1, LOS 24.d)

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3. (B) \$35,666,667.
Explanation

To arrive at the value of the equity using the CCM, it can be estimated using the free cash flows to equity and the required return on equity (r):

$$\text{Value of equity} = \frac{\text{FCFF}_1}{r - g}$$

$$\text{Value of equity} = \frac{\$3,000,000 \times (1.07)}{0.16 - 0.07} = \$35,666,667$$

Note that we grow the FCFE at the growth rate because the current year FCFE is provided in the problem (not next year's FCFE). We use normalized earnings, not reported earnings, given that normalized earnings are most relevant for the acquirers

of the firm. The relevant required return for FCFE is the equity discount rate, not the WACC.

An alternative approach to calculate the value of the equity would be to subtract the market value of the firm's debt from total firm value. However, the FCFF are not provided so a total firm value cannot be calculated.

(Module 24.2, LOS 24.g)

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4. (B) Firm B.

Explanation

The firm most likely to be a private firm is Firm B. Compared to public firms, private firms are less mature (4 years for Firm B), smaller (market cap of B is \$1,313.9 million), and have higher required returns (required return for B is 18.3%).

(Module 24.1, LOS 24.a)

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5. (C) It is useful when there are no comparable public firms.

Explanation

If it is not possible to find comparable public firms with which to estimate beta by, the build-up method can be used for a private firm. It is similar to the expanded CAPM except that beta is not used. Implicitly, beta is assumed to be one. Both industry risk premiums and equity risk premiums are used. The risk-free rate, the equity risk premium, the small stock premium, a company-specific risk premium, and an industry risk premium are added together in the build-up method.

(Module 24.2, LOS 24.f)

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6. (B) The expanded CAPM model adds premiums for size and firm-specific risk.

Explanation

Expanded CAPM adds premiums for size and firm-specific risk. CAPM may not be appropriate for private firms because beta is usually estimated from public firm returns. The build-up method adds an industry risk and other risk premiums to market rate of return; it is used when betas for comparable public firms are not available.

(Module 24.2, LOS 24.f)

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7. (C) Bankruptcy proceeding.

Explanation

A bankruptcy proceeding is an example of a transaction-related valuation for a private company.

(Module 24.1, LOS 24.b)

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8. (A) If the firm has minimal profits and poor prospects.

Explanation

If a firm has minimal profits and little hope for better prospects; it might be valued more highly for its liquidation value than as a going concern if another firm can put the assets to better use. Because the asset-based approach values firm equity as the fair value of its assets minus the fair value of its liabilities, it would capture this liquidation value.

Pharmaceutical and biotech firms have a high degree of intangible assets. In these cases, the going concern value is likely to be higher than the value from the asset-based approach.

(Module 24.3, LOS 24.i)

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9. (B) Financial reporting.

Explanation

Venture capital financing, initial public offering (IPO), bankruptcy proceeding, performance-based managerial compensation, and sale in an acquisition are all examples of transaction-related valuations for a private company.

(Module 24.1, LOS 24.b)

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10. (B) excess earnings method.

Explanation

The excess earnings method values tangible and intangible assets separately; this method useful for small firms and when there are intangible assets to value. In the free cash flow method, a firm is valued by discounting a series of discrete cash flows plus a terminal value. In the capitalized cash flow method, a firm is valued by discounting a single cash flow by the capitalization rate.

(Module 24.4, LOS 24.j)

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11. (A) finance firm such as a bank.

Explanation

The asset-based approach is usually not used for most going concerns, but is appropriate for troubled firms, finance firms, investment companies, firms with few intangible assets, and natural resource firms. It values equity as the asset value of a firm minus the debt value of the firm.

(Module 24.4, LOS 24.j)

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12. (A) **A discount for lack of marketability should be applied when the comparables are based on public shares, and the interest in the target company is a minority interest in a private firm.**

Explanation

Discounts for lack of marketability are applied when the comparables are based on highly marketable securities, such as public shares, and the interest in the target company is less marketable, as in the case of a minority interest in a private firm. A discount for lack of control is applied when the comparable values are for the sale of an entire company, and the valuation is being done for a minority interest in the target company. A control premium is added when the comparable company values are for public shares or other minority interests, and the target company valuation is for a controlling interest.

(Module 24.4, LOS 24.j)

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13. (C) **\$2,415,000.**

Explanation

Gross income multiplier technique: $MV = \text{gross income} \times \text{income multiplier}$.

$$MV = \$230,000 \times 10.5 = \$2,415,000$$

(Module 24.1, LOS 24.b)

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14. (A) **for strategic buyers.**

Explanation

In market approaches, the analyst values the subject private firm using price multiples from previous public and private transactions. A strategic buyer is one who will have synergies with the target whereas a financial buyer does not. A financial transaction typically has a smaller price premium. So in this case, the comparable price-multiple will be too high.

If the acquisition involves the acquirer's stock, the acquirer may be using overvalued shares to buy their target. Using comparables where cash is the consideration would result in lower price multiples.

Contingent consideration is payment to the sellers based on the achievement of specific goals such as FDA approval. Contingent consideration increases the risk to the seller and ceteris paribus, they would demand a higher price. Using comparables where the consideration was non-contingent would result in lower price multiples.

(Module 24.3, LOS 24.h)

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15. (B) The income approach.

Explanation

The income approach valued a firm as the present value of its future income. The asset-based approach values a firm as its assets minus liabilities. The market approach values a firm using the price-multiples from the sales of comparable assets.

(Module 24.1, LOS 24.d)

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16. (C) 18.9%.

Explanation

The required return on equity using the CAPM is: $3.5\% + 1.4(6\%) = 11.9\%$.

Note that the risk-free rate is the Treasury yield, not the returns for bonds in general.

Using the expanded CAPM, a small stock premium and company-specific risk premium are added: $11.9\% + 4\% + 3\% = 18.9\%$.

(Module 24.2, LOS 24.f)

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17. (A) \$4,490,000 \$5,190,000

Explanation

Both strategic and financial buyers will attempt to reduce executive compensation to market levels by \$80,000 (\$700,000 - \$620,000). They will also have to pay a higher lease rate of \$90,000 (\$390,000 - \$300,000). So the adjustment for both buyers to generate normalized EBITDA is $\$4,500,000 + \$80,000 - \$90,000 = \$4,490,000$.

However, only a strategic buyer will be able to realize synergistic savings of \$700,000 (\$6,300,000 - \$5,600,000). So normalized EBITDA for a strategic buyer is \$5,190,000 and for a financial buyer it is \$4,490,000.

(Module 24.2, LOS 24.c)

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18. (C) FCFF is usually favored if the firm is going to change its capital structure because the WACC is less sensitive to leverage changes than the cost of equity.

Explanation

Free cash flow to the firm (FCFF) can be used to value the firm as a whole and free cash flow to equity (FCFE) can be used for equity. FCFF is usually favored if the firm is going to significantly change its capital structure. The reason is that the discount rate used for FCFF valuation, the weighted average cost of capital (WACC), is less sensitive to leverage changes than the discount rate used for FCFE valuation, the cost of equity. Thus, the FCFF valuation will not vary as much as the FCFE valuation.

(Module 24.2, LOS 24.c)

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19. (B) fair values.

Explanation

The asset-based approach values firm equity as the fair value of its assets minus the fair value of its liabilities.

(Module 24.3, LOS 24.i)

Related Material

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20. (A) Bankruptcy proceeding.

Explanation

Litigation-related valuations may be required for shareholder suits, damage claims, lost profits claims, or divorce settlements. A bankruptcy proceeding is an example of a transaction-related valuation for a private company.

(Module 24.1, LOS 24.b)

Related Material

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21. (A) The guideline public company method (GPCM) is based on price multiples from comparable traded firms.

Explanation

The guideline public company method (GPCM) approach to private company valuation uses price multiples from traded public companies with adjustments for risk differences. The guideline transactions method (GTM) uses the price multiples from the sale of whole public and private companies, again with adjustments for risk

differences. The prior transaction method (PTM) uses historical stock sales of the subject company; it works best when using recent, arm's-length data of the same motivation.

(Module 24.3, LOS 24.h)

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22. (C) \$1,615,000.

Explanation

Given these figures, the value of the minority shareholder's equity interest is:

Firm's equity value	\$19,000,000
Minority interest	10%
Value of minority interest without discounts	\$1,900,000
minus DLOC of 0%	0
Value of interest if marketable	\$1,900,000
minus DLOM of 15%	\$285,000
Value of minority interest	\$1,615,000

(Module 24.4, LOS 24.j)

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23. (C) Transaction-related valuation

Explanation

Transaction-related valuations may be performed for reasons related to venture capital financing, an IPO, a sale of the firm, bankruptcy, or performance-based managerial compensation. Compliance-related valuations are performed for financial reporting and tax purposes. Litigation-related valuations may be required for shareholder suits, damage claims, lost profits, or divorces.

(Module 24.1, LOS 24.b)

Related Material

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24. (B) If the availability of information from private firms is poor, the uncertainty of projected cash flows may increase.

Explanation

Projection risk refers to the risk of misestimating future cash flows. Given the lower availability of information from private firms, the uncertainty of projected cash flows may increase.

However, management may not be experienced with projections and may underestimate or overestimate future prospects. The discount rate would then be decreased or increased accordingly. So management is not always overly optimistic and projection risk does not always result in higher discount rates.

(Module 24.2, LOS 24.e)

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25. (B) stable growth is expected.

Explanation

The CCM is a growing perpetuity model that assumes stable growth and is in effect a single-stage free cash flow model. It may be suitable when no comparables or projections are available and when stable growth is expected. The excess earnings method (EEM) is useful when there are intangible assets to value. The free cash flow method assumes high growth in an initial period followed by constant growth thereafter.

(Module 24.2, LOS 24.g)

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26. (C) is higher for private firms and debt capacity is lower for private firms.

Explanation

A private firm may not be able to obtain as much debt financing as a public firm. The small size of private firms may result in higher operating risk and a higher cost of debt.

(Module 24.2, LOS 24.e)

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27. (C) \$381,412,500.

Explanation

The adjustment to the MVIC/EBITDA multiple for the higher risk of the private firm is: $8.5 \times (1 - 0.15) = 7.225$. Given that the buyer is a strategic buyer, a control premium adjustment should be made on the value of equity.

$MVIC = 7.225 \times \$42,800,000 = \$309,230,000$.

Subtracting out the debt results in the equity value (before control premium): $\$309,230,000 - \$4,100,000 = \$305,130,000$.

Equity value after applying control premium = $305,130,000(1.25) = 381,412,500$

(Module 24.3, LOS 24.h)

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28. (C) **\$1,245,400.**

Explanation

The answer is calculated as follows:

Pro forma Income Statement	
Revenues	\$31,800,000
Cost of Goods Sold	\$25,440,000
Gross Profit	\$6,360,000
SG &A Expenses	\$3,800,000
Pro forma EBITDA	\$2,560,000
Depreciation and amortization	\$318,000
Pro forma EBIT	\$2,242,000
Pro forma taxes on EBIT	\$672,600
Operating income after tax	\$1,569,400
Adjustments to obtain FCFF	
Plus: Depreciation and amortization	\$318,000
Minus: Capital expenditures	\$372,000
Minus: Increase in working capital	\$270,000
FCFF	\$1,245,400

The following provides a line by line Explanation for the above calculations.

Pro forma Income Statement	Explanation
Revenues	Current revenues times the growth rate: $\$30,000,000 \times (1.06)$
Cost of Goods Sold	Revenues times one minus the gross profit margin: $\$31,800,000 \times (1 - 0.20)$
Gross Profit	Revenues time the gross profit margin: $\$31,800,000 \times 0.20$
SG&A Expenses	Given in the question
Pro forma EBITDA	Gross Profit minus SG&A expenses: $\$6,360,000 - \$3,800,000$
Depreciation and amortization	Revenues time the given depreciation and amortization: $\$31,800,000 \times 0.01$
Pro forma EBIT	EBITDA minus depreciation and amortization: $\$2,560,000 - \$318,000$
Pro forma taxes on EBIT	EBIT times tax rate: $\$2,242,000 \times 0.30$
Operating income after tax	EBIT minus taxes: $\$2,242,000 - \$672,600$

Adjustments to obtain FCFF	
Plus: Depreciation and amort.	Add back noncash charges from above
Minus: Capital expenditures	Expenditures cover depreciation and increase with revenues: $\$318,000 + (0.03 \times \$31,800,000 - \$30,000,000)$
Minus: Increase in working capital	The working capital will increase as revenues increase: $(0.15 \times \$31,800,000 - \$30,000,000)$
FCFF	Operating income net of adjustments above

(Module 24.2, LOS 24.c)

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29. (C) Although managers in a public firm are often paid with incentive compensation, public managers may take a shorter term view than private managers because shareholders often focus on the short-term.

Explanation

Although managers in a public firm are often paid with incentive compensation such as options, shareholders often focus on short-term measures such as quarterly earnings and the consistency of such. Management may therefore take a shorter term view than they otherwise would. Private firms should be able to take a longer term view.

(Module 24.1, LOS 24.a)

Related Material

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30. (C) Shareholders agreements that restrict liquidity.

Explanation

Company specific characteristics include:

- Stage in life-cycle
- Size
- Overlap of shareholders and management
- Quality and depth of management
- Quality of financial and other information
- Less pressure from short-term investors
- Tax consideration

(Module 24.1, LOS 24.a)

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31. (B) investment value.

Explanation

Investment value is the value of a private company that depends on the investor's expectations and investment requirements. Investment value could differ from one buyer to the next due to different perception of risk and future potential.

(Module 24.4, LOS 24.j)

Related Material

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32. (C) 11.5%.

Explanation

Using the build-up method, there is no beta adjustment on the equity risk premium. The discount rate is calculated as follows:

Risk free rate:	3%
Equity risk premium:	4.5%
Company specific risk premium:	1.2%
Small stock premium:	2.8%
Return on equity:	11.5%

(Module 24.2, LOS 24.f)

Related Material

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33. (C) Guideline Public Company Method.

Explanation

Guideline Public Company Method uses the price multiples of comparable public companies as Park Limited. This method typically assumes minority control. Guideline Transaction Method uses the price multiples of acquisitions of the entire public or private companies, thus reflecting controlling interest. Depending on the cash flows and discount rate estimated, the capitalized cash flow method can be applied towards the valuation of minority or control interest.

(Module 24.4, LOS 24.j)

Related Material

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34. (C) the volatility of the firm can be incorporated into the analysis.

Explanation

If an interest in a firm cannot be easily sold, a DLOM is applied. The DLOM can be estimated using restricted share versus publicly traded share prices, pre-IPO versus post-IPO prices, and put prices. The advantage of using put prices over the other two DLOM estimation methods is that the estimated risk of the firm can be factored into the option price.

(Module 24.4, LOS 24.j)

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35. (B) 16.3%.**Explanation**

Using the build-up method: the risk-free rate, the equity risk premium, the small stock premium, a company-specific risk premium, and an industry risk premium are added together: $3.5\% + 6.0\% + 4.0\% + 3.0\% + 2.0\% = 18.5\%$. Note that the risk-free rate is the Treasury yield, not the returns for bonds in general.

Because the firm is being acquired, we assume the new owners will utilize an optimal capital structure and weights in the WACC calculation. The capital structure for public firms should not be used because public firms have better access to debt financing.

The WACC using the optimal capital structure factors in the debt to total cap, the cost of debt, the tax rate, and the given cost of equity:

$$[20\% \times 11\% \times (1 - 30\%)] + [(1 - 20\%) \times 18.5\%] = 16.3\%.$$

(Module 24.2, LOS 24.f)

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36. (B) Price to Book ratios would be the most useful as they would take account of the human capital in a start-up business such as Bakan.**Explanation**

As Bakan has negative earnings over the period, a P/E ratio would be negative and hence meaningless, so A is correct. Book values do not take account of human capital, as it is not on the Balance Sheet within Net Assets. FCFE is preferable to CFO.

(Module 22.1, LOS 22.c)

Related Material

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37. (B) Factor 1 Stock-specific, Factor 2 Company-specific.**Explanation**

Stock-specific factors are **liquidity**, restrictions on marketability, concentration of control.

Company-specific are stage of lifecycle, size, quality and depth of management, management shareholder overlap, short-term investors, quality of information, **taxes**.

(Module 24.1, LOS 24.a)

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38. (C) No, board equity ownership usually results in a longer-term view than public companies.

Explanation

Shareholders in public firms often focus on short-term measures of performance due to pressure from institutional investors, whereas the equity ownership leads to a longer-term view for owner managers.

(Module 24.1, LOS 24.a)

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39. (C) Market Approach.

Explanation

The three major approaches are income—pv of future incomes, market—as described by Choo and asset-based—net asset valuation.

(Module 24.1, LOS 24.d)

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40. (A) Yes.

Explanation

Investment value focuses on the value to a particular buyer and is important in private company valuation.

(Module 24.4, LOS 24.j)

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41. (A) Loss \$150,000.

Explanation

Net Income \$100,000 – \$200,000 – \$50,000 = –\$150,000

Deduct \$200,000 for extra CEO compensation

Deduct \$50,000 for extra lease cost

One off online set up cost is sunk and not relevant to future earnings.

(Module 24.2, LOS 24.c)

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42. (B) \$2,981,714.

Explanation

The answer is calculated using the following steps.

- Step 1:** Calculate the required return for working capital and fixed assets.
Given the required returns in percent, the monetary returns are:
Working Capital: \$600,000 x 5% = \$30,000.
Fixed Assets: \$2,300,000 x 13% = \$299,000.
- Step 2:** Calculate the residual income.
After the monetary returns to assets are calculated, the residual income is that which is left over in the normalized earnings:
Residual Income = \$340,000 - \$30,000 - \$299,000 = \$11,000.
- Step 3:** Value the intangible assets.
Using the formula for a growing perpetuity, the discount rate for intangible assets, and the growth rate for residual income:
Value of Intangible Assets = (\$11,000 x 1.04) / (0.18 - 0.04)
= \$81,714.
- Step 4:** Sum the asset values to arrive at the total firm value.
Firm Value = \$600,000 + \$2,300,000 + \$81,714 = \$2,981,714.

(Module 24.2, LOS 24.g)

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43. (C) 30.4%.

Explanation

The discount for lack of control (DLOC) can be backed out of the control premium.

$$DLOC = 1 - \left[\frac{1}{1 + \text{Control Premium}} \right]$$

$$DLOC = 1 - \left[\frac{1}{1 + 0.15} \right] = 13.04\%$$

The total discount also uses the DLOM.

Total Discount

$$= 1 - [(1 - DLOC)(1 - DLOM)]$$

Total Discount

$$= 1 - [(1 - 0.1304)(1 - 0.20)]$$

$$= 30.4\%$$

(Module 24.4, LOS 24.j)

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44. (C) When using data from comparable public firms, a distress premium may be inadvertently added in.

Explanation

For private company valuations, a size premium is often added in when calculating the discount rate. This is not typically done for public firms. To get the size premium, the appraiser may use data from the smallest cap segment of public equity. This however may include a distress premium that is not applicable to the private firm.

(Module 24.2, LOS 24.e)

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45. (B) Firm C.

Explanation

The stock most likely to be that of a private firm is Firm C. Compared to public stock, private firm stock often has agreements that prevent shareholders from selling, is less liquid (discounts for lack of marketability (DLOM) of C is 15%), and control is usually concentrated in the hands of a few shareholders (stock ownership of largest owners of Firm CC is 64%)

(Module 24.1, LOS 24.a)

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46. (A) results in the lowest valuation.

Explanation

The asset-based approach is generally not used for going concerns. Because it is easier to find comparable data at the firm level compared to the asset level, the income and market approaches would be preferred to value going concerns.

Because it is difficult to find data for individual intangible assets and specialized assets, the asset-based approach can be difficult to apply. It generally results in the lowest valuation because the use of a firm's assets in combination usually results in greater value creation than each of its parts individually.

(Module 24.3, LOS 24.i)

Related Material

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47. (A) The guideline transactions method.

Explanation

The guideline transactions method (GTM) generates a value estimate based on pricing

multiples associated with the acquisition of control of entire companies. The guideline public company method (GPCM) generates an estimate of value based on the multiples from trading activity in the shares of public companies that are similar to the private company in question. The prior transaction method (PTM) uses actual transactions in the stock of the subject private company.

(Module 24.3, LOS 24.h)

Related Material

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48. (C) The market approach.

Explanation

The market approach values a firm using the price-multiples such as the price-to-book-value ratio and price-earnings ratio of comparable assets. The income approach values a firm as the present value of its future income. The asset-based approach values a firm as its assets minus liabilities.

(Module 24.1, LOS 24.d)

Related Material

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49. (C) concerns related to taxes.

Explanation

Private firms may be more concerned with taxes than public firms due to the impact of taxes on private equity owners/managers. Private firms are likely to have lower quality and depth of management, as private firms are likely to be smaller and thus may not be able to attract as many qualified applicants as public firms. Private firms are more likely to focus on the long-term than public companies, since in most private firms, external shareholders have less influence and the firm is able to take a longer-term perspective.

(Module 24.4, LOS 24.j)

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