

1. Anle Corporation has a current price of \$26, is expected to pay a dividend of \$1 in one year, and its expected price right after paying that dividend is \$27.
- What is Anle's expected dividend yield?
 - What is Anle's expected capital gain rate?
 - What is Anle's equity cost of capital?

a. What is Anle's expected dividend yield?

Anle's expected dividend yield is _____%. (Round to two decimal places.)

b. What is Anle's expected capital gain rate?

Anle's expected capital gain rate is _____%. (Round to two decimal places.)

c. What is Anle's equity cost of capital?

Anle's equity cost of capital is _____%. (Round to two decimal places.)

2. Krell Industries has a share price of \$21.25 today. If Krell is expected to pay a dividend of \$1.11 this year, and its stock price is expected to grow to \$24.73 at the end of the year, what is Krell's dividend yield and equity cost of capital?

What is Krell's dividend yield?

Krell's dividend yield is _____%. (Round to one decimal place.)

What is Krell's capital gain rate?

Krell's capital gain rate is _____%. (Round to one decimal place.)

What is Krell's equity cost of capital?

Krell's equity cost of capital, or expected total return is _____%. (Round to one decimal place.)

3. Summit Systems will pay a dividend of \$1.50 one year from now. If you expect Summit's dividend to grow by 6.0% per year, what is its price per share if its equity cost of capital is 11.0%?

The price per share is \$ _____. (Round to the nearest cent.)

4. Halliford Corporation expects to have earnings this coming year of \$3.21 per share. Halliford plans to retain all of its earnings for the next two years. For the subsequent two years, the firm will retain 55% of its earnings. It will then retain 19% of its earnings from that point onward. Each year, retained earnings will be invested in new projects with an expected return of 26.35% per year. Any earnings that are not retained will be paid out as dividends. Assume Halliford's share count remains constant and all earnings growth comes from the investment of retained earnings. If Halliford's equity cost of capital is 9.2%, what price would you estimate for Halliford stock?

The price per share is \$ _____. (Round to the nearest cent.)

5. The figure in the popup window, ¹, shows the one-year return distribution for RCS stock. Calculate:

- The expected return.
- The standard deviation of the return.

Note: Make sure to round all intermediate calculations to at least five decimal places.

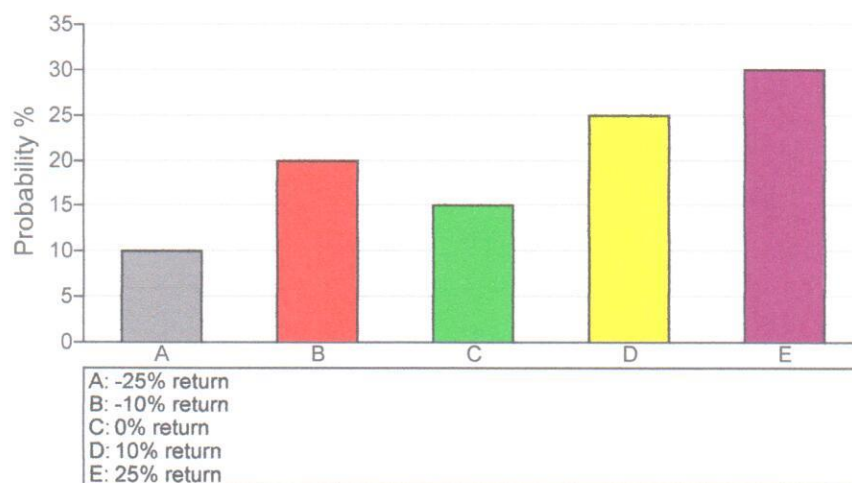
- The expected return.

The expected return is _____%. (Round to two decimal places.)

- The standard deviation of the return.

The standard deviation is _____%. (Round to two decimal places.)

1: Graph/Chart



6. Given the data from the following table: ². What if the period from 1990 to 2014 had been "normal"?
- Calculate the arithmetic average return on the S&P 500 from 1926 to 1989.
 - Replace the actual returns from 1990 to 2014 with the average return from (a). How much would \$100 invested in the S&P 500 at the end of 1925 have grown to by the end of 2014? (*Hint: Use the actual returns from 1926 to 1989 and then continue the growth at the assumed rate.*)
 - Do the same for small stocks.

a. Calculate the arithmetic average return on the S&P 500 from 1926 to 1989.

The arithmetic average return of the S&P 500 from 1926 to 1989 is _____ %. (Round to two decimal places.)

b. Replace the actual returns from 1990 to 2014 with the average return from (a). How much would \$100 invested in the S&P 500 at the end of 1925 have grown to by the end of 2014? (*Hint: Use the actual returns from 1926 to 1989 and then continue the growth at the assumed rate.*)

\$100 invested in the S&P 500 at the end of 1925 would have grown to \$ _____. (Round to the nearest dollar.)

c. Do the same for small stocks.

The arithmetic average return of the small stocks from 1926 to 1989 is _____ %. (Round to two decimal places.)

\$100 invested in the small stocks at the end of 1925 would have grown to \$ _____. (Round to the nearest dollar.)

2: Data Table

(Click on the icon located on the top-right corner of the data table below in order to copy its contents into a spreadsheet.)

**Yearly returns from 1926-2014 for the S&P 500, small stocks, corporate bonds, world portfolio,
Treasury bills, and inflation (as measured by the CPI)**

Year	S&P 500	Small Stocks	Corp Bonds	World Portfolio	Treasury Bills	CPI
1926	0.11138	-0.07200	0.06285	0.22800	0.03194	-0.01188
1927	0.37126	0.25754	0.06550	0.25326	0.03125	-0.02163
1928	0.43308	0.46872	0.03377	0.33463	0.03824	-0.01229
1929	-0.08907	-0.50467	0.04321	-0.07692	0.04737	0.00746
1930	-0.25257	-0.45583	0.06343	-0.22574	0.02347	-0.06420
1931	-0.43858	-0.50216	-0.02380	-0.39305	0.01023	-0.09235
1932	-0.08861	0.08696	0.12198	0.03030	0.00806	-0.10465
1933	0.52895	1.87200	0.05255	0.66449	0.00293	0.00974
1934	-0.02341	0.25209	0.09728	0.02552	0.00155	0.01286
1935	0.47208	0.64739	0.06860	0.22782	0.00165	0.03175
1936	0.32801	0.87508	0.06220	0.19283	0.00175	0.01231
1937	-0.35258	-0.53403	0.02546	-0.16950	0.00319	0.03040
1938	0.33199	0.26275	0.04357	0.05614	0.00041	-0.02950
1939	-0.00910	0.00184	0.04247	-0.01441	0.00008	0.00000
1940	-0.10082	-0.12340	0.04512	0.03528	-0.00058	0.00912
1941	-0.11767	-0.13728	0.01788	0.18744	0.00042	0.09940
1942	0.21076	0.52504	0.03119	0.01189	0.00262	0.09041
1943	0.25758	1.00000	0.03365	0.19895	0.00340	0.02764
1944	0.19694	0.60408	0.03101	-0.10240	0.00321	0.02445
1945	0.36461	0.82665	0.03512	0.11032	0.00321	0.02148
1946	-0.08180	-0.12608	0.02558	-0.15124	0.00352	0.18224
1947	0.05240	-0.02658	0.00450	0.03196	0.00461	0.08893
1948	0.05099	-0.06609	0.03707	-0.05730	0.00979	0.02904
1949	0.18065	0.21502	0.04327	0.05421	0.01106	-0.02116
1950	0.30579	0.45908	0.01891	0.25477	0.01213	0.05946
1951	0.24553	0.09767	-0.00210	0.22446	0.01483	0.06122
1952	0.18501	0.06472	0.03427	0.15822	0.01642	0.00641
1953	-0.01099	-0.05985	0.02061	0.04838	0.01780	0.00796
1954	0.52404	0.65232	0.04658	0.49823	0.00863	-0.00790
1955	0.31429	0.22110	0.01075	0.24739	0.01555	0.00478
1956	0.06627	0.03459	-0.01792	0.06581	0.02422	0.02853
1957	-0.10853	-0.15053	0.04469	-0.06017	0.03129	0.02928
1958	0.43344	0.70923	0.00849	0.34456	0.01415	0.01796
1959	0.11904	0.18680	0.00157	0.23303	0.02815	0.01765
1960	0.00483	-0.05004	0.06722	0.03492	0.02582	0.01301
1961	0.26811	0.30836	0.03681	0.20778	0.02159	0.00713
1962	-0.08784	-0.12950	0.06204	-0.06212	0.02724	0.01275
1963	0.22691	0.18093	0.03167	0.15381	0.03151	0.01678
1964	0.16358	0.19405	0.03988	0.11247	0.03518	0.00963
1965	0.12356	0.36365	0.02082	0.09832	0.03962	0.01907
1966	-0.10105	-0.07302	-0.00255	-0.10116	0.04705	0.03476
1967	0.23942	0.77916	-0.01162	0.21283	0.04147	0.03101
1968	0.11002	0.47611	0.22457	0.13941	0.05294	0.04637
1969	-0.08466	-0.32219	-0.02459	-0.03858	0.06591	0.06228

7. Consider two local banks. Bank A has 100 loans outstanding, each for \$1.0 million, that it expects will be repaid today. Each loan has a 5% probability of default, in which case the bank is not repaid anything. The chance of default is independent across all the loans. Bank B has only one loan of \$100 million outstanding, which it also expects will be repaid today. It also has a 5% probability of not being repaid. Which bank faces less risk? Why?

(Select the best choice below.)

- ☐ A. The expected payoffs are the same, but Bank A is riskier. I prefer Bank B.
- ☐ B. In both cases the expected loan payoff is the same: $\$100 \text{ million} \times 0.95 = \95.0 million . Consequently, I don't care which bank I own.
- ☐ C. The expected payoffs are the same, but Bank A is less risky. I prefer Bank A.
- ☐ D. The expected payoff is higher for Bank A, but is riskier. I prefer Bank B.

8. Suppose the risk-free interest rate is 5%, and the stock market will return either +40% or -20% each year, with each outcome equally likely. Compare the following two investment strategies: (1) invest for one year in the risk-free investment, and one year in the market, or (2) invest for both years in the market.
- a. Which strategy has the highest expected final payoff?
- b. Which strategy has the highest standard deviation for the final payoff?
- c. Does holding stocks for a longer period decrease your risk?

a. Which strategy has the highest expected final payoff?

The two possible outcomes for investment (1) are _____ % or _____ %. (Enter the outcomes from largest to smallest and round to one decimal place.)

The four possible outcomes for investment (2) are _____ % or _____ % or _____ % or _____ %. (Enter the outcomes from largest to smallest and round to one decimal place.)

The expected return for investment (1) is _____ %. (Round to one decimal place.)

The expected return for investment (2) is _____ %. (Round to one decimal place.)

The strategy with the highest expected final payoff is (1) _____. (Select from the drop-down menu.)

b. Which strategy has the highest standard deviation for the final payoff?

The standard deviation for investment (1) is _____ %. (Round to one decimal place.)

The standard deviation for investment (2) is _____ %. (Round to one decimal place.)

The investment with the highest volatility is (2) _____. (Select from the drop-down menu.)

c. Does holding stocks for a longer period decrease your risk?

The answer is (3) _____. (Select from the drop-down menu.)

- (1) ☐ investment (1) (2) ☐ investment (2) (3) ☐ Yes
☐ investment (2) ☐ investment (1) ☐ No

9. What does the beta of a stock measure?

(Select the best choice below.)

- ☐ A. Beta measures the amount of uncertainty in a stock.
- ☐ B. Beta measures the amount of systematic risk in a stock.
- ☐ C. Beta measures the use of debt.
- ☐ D. Beta measures interest rate risk.

10. Suppose the market portfolio is equally likely to increase by 30% or decrease by 10%. Also suppose that the risk-free interest rate is 4%.

a. Use the beta of a firm that goes up on average by 43% when the market goes up and goes down by 17% when the market goes down to estimate the expected return of its stock. How does this compare with the stock's actual expected return?

b. Use the beta of a firm that goes up on average by 18% when the market goes down and goes down by 22% when the market goes up to estimate the expected return of its stock. How does this compare with the stock's actual expected return?

a. Use the beta of a firm that goes up on average by 43% when the market goes up and goes down by 17% when the market goes down to estimate the expected return of its stock. How does this compare with the stock's actual expected return?

The beta of the stock is _____. (Round to two decimal places.)

The expected return of the market is _____%. (Round to two decimal places.)

According to CAPM, the expected return of the stock should be _____%. (Round to two decimal places.)

Does the CAPM hold in this case? (1) _____. (Select from the drop-down menu.)

b. Use the beta of a firm that goes up on average by 18% when the market goes down and goes down by 22% when the market goes up to estimate the expected return of its stock. How does this compare with the stock's actual expected return?

The beta of the stock is _____. (Round to two decimal places.)

The expected return of the stock is _____%. (Round to two decimal places.)

Does the CAPM hold in this case? (2) _____. (Select from the drop-down menu.)

- (1) ☐ Yes (2) ☐ No
☐ No ☐ Yes

11. You are considering how to invest part of your retirement savings. You have decided to put \$200,000 into three stocks: 50% of the money in GoldFinger (currently \$25/share), 25% of the money in Moosehead (currently \$80/share), and the remainder in Venture Associates (currently \$2/share). If GoldFinger stock goes up to \$30/share, Moosehead stock drops to \$60/share, and Venture Associates stock rises to \$3 per share.
- What is the new value of the portfolio?
 - What return did the portfolio earn?
 - If you don't buy or sell any shares after the price change, what are your new portfolio weights?

a. What is the new value of the portfolio?

The number of shares of GoldFinger is _____ shares. (Round to the nearest integer.)

The number of shares of Moosehead is _____ shares. (Round to the nearest integer.)

The number of shares of Venture is _____ shares. (Round to the nearest integer.)

The new value of the portfolio is \$ _____. (Round to the nearest dollar.)

b. What return did the portfolio earn?

The portfolio earned a return of _____ %. (Round to two decimal places.)

c. If you don't buy or sell any shares after the price change, what are your new portfolio weights?

Weight of GoldFinger is now _____ %. (Round to two decimal places.)

Weight of Moosehead is now _____ %. (Round to two decimal places.)

Weight of Venture is now _____ %. (Round to two decimal places.)

12. Using the data in the following table,³ estimate the:

- Average return and volatility for each stock.
- Covariance between the stocks.
- Correlation between these two stocks.

a. Estimate the average return and volatility for each stock.

The average return of stock A is _____%. (Round to two decimal places.)

The average return of stock B is _____%. (Round to two decimal places.)

The standard deviation of stock A is _____. (Round to five decimal places.)

The standard deviation of stock B is _____. (Round to five decimal places.)

b. Estimate the covariance between the stocks.

The covariance is _____. (Round to five decimal places.)

c. Estimate the correlation between these two stocks.

The correlation is _____. (Round to five decimal places.)

3: Data Table

(Click on the icon located on the top-right corner of the data table below in order to copy its contents into a spreadsheet.)

Year	2010	2011	2012	2013	2014	2015
Stock A	- 10%	20%	5%	- 5%	2%	9%
Stock B	21%	7%	30%	- 3%	- 8%	25%

13. A hedge fund has created a portfolio using just two stocks. It has shorted \$35,000,000 worth of Oracle stock and has purchased \$85,000,000 of Intel stock. The correlation between Oracle's and Intel's returns is 0.65. The expected returns and standard deviations of the two stocks are given in the table below:⁴

- What is the expected return of the hedge fund's portfolio?
- What is the standard deviation of the hedge fund's portfolio?

a. What is the expected return of the hedge fund's portfolio?

The expected return of the hedge fund's portfolio is _____%. (Round to two decimal places.)

b. What is the standard deviation of the hedge fund's portfolio?

The standard deviation of the hedge fund's portfolio _____%. (Round to one decimal place.)

4: Data Table

(Click on the icon located on the top-right corner of the data table below in order to copy its contents into a spreadsheet.)

	Expected Return	Standard Deviation
Oracle	12.00%	45.00%
Intel	14.50%	40.00%

14. You expect HGH stock have a 20% return next year and a 30% volatility. You have \$25,000 to invest, but plan to invest a total of \$50,000 in HGH, raising the additional \$25,000 by shorting either KBH or LWI stock. Both KBH and LWI have an expected return of 10% and a volatility of 20%. If KBH has a correlation of + 0.5 with HGH, and LWI has a correlation of - 0.5 with HGH, which stock should you short?

Which portfolio is superior? Why? (Select the best choice below.)

- ☐ A. Both portfolios have the same expected return, but shorting LWI is better because we should seek to hold stocks that are negatively correlated to reduce volatility.
- ☐ B. Both portfolios have the same expected return, but shorting KBH is better because we should seek to hold stocks that are positively correlated to reduce volatility.
- ☐ C. Both portfolios have the same expected return, but shorting LWI is better because we should seek to hold stocks that are positively correlated to reduce volatility.
- ☐ D. Both portfolios have the same expected return, but by shorting KBH, we achieve a lower volatility because it has a positive correlation with HGH. By shorting KBH, some of the common risk shared by the stocks is reduced.

15. Assume the risk-free rate is 4%. You are a financial advisor, and must choose one of the funds below to recommend to each of your clients. Whichever fund you recommend, your clients will then combine it with risk-free borrowing and lending depending on their desired level of risk.

	Expected Return	Volatility
Fund A	10%	10%
Fund B	15%	22%
Fund C	6%	2%

(Click on the icon located on the top-right corner of the data table below in order to copy its contents into a spreadsheet.)

Which fund would you recommend (without knowing your client's risk preferences)?

The fund you should recommend to each of your clients is Fund (1) _____. (Select from the drop-down menu.)

- (1) ☐ C
- ☐ A
- ☐ B

16. In addition to risk-free securities, you are currently invested in the Tanglewood Fund, a broad-based fund of stocks and other securities with an expected return of 12% and a volatility of 25%. Currently, the risk-free rate of interest is 4%. Your broker suggests that you add a venture capital fund to your current portfolio. The venture capital fund has an expected return of 20%, a volatility of 80%, and a correlation of 0.2 with the Tanglewood Fund. Assume you follow your broker's advice and put 50% of your money in the venture fund:
- What is the Sharpe ratio of the Tanglewood Fund?
 - What is the Sharpe ratio of your new portfolio?
 - What is the optimal Sharpe ratio you can obtain by investing in the venture fund? (*Hint: Use Excel and round your answer to two decimal places.*)

a. What is the Sharpe ratio of the Tanglewood Fund? (Round all intermediate values to five decimal places as needed.)

The Sharpe ratio of the Tanglewood Fund is _____. (Round to two decimal places.)

b. What is the Sharpe ratio of your new portfolio? (Round all intermediate values to five decimal places as needed.)

The Sharpe ratio of your new portfolio is _____. (Round to two decimal places.)

c. What is the optimal Sharpe ratio you can obtain by investing in the venture fund and what would be the percentage invested in the venture fund in the optimal portfolio? (*Hint: Use Excel and round your answer to two decimal places.*) (Round all intermediate values to five decimal places as needed.)

The optimal Sharpe ratio you can obtain by investing in the venture fund is _____ and the percentage in the venture fund would be _____. (Round the first answer to two decimal places and the second answer to the nearest integer.)

17. Suppose the risk-free return is 2.4% and the market portfolio has an expected return of 11.5% and a volatility of 13.6%. Merck & Co. (Ticker: MRK) stock has a 17.2% volatility and a correlation with the market of 0.053.
- What is Merck's beta with respect to the market?
 - Under the CAPM assumptions, what is its expected return?

a. What is Merck's beta with respect to the market?

Merck's beta with respect to the market is _____. (Round to three decimal places.)

b. Under the CAPM assumptions, what is its expected return?

Under the CAPM assumptions, its expected return is _____. (Round to two decimal places.)

18. Suppose PepsiCo's stock has a beta of 0.57. If the risk-free rate is 3% and the expected return of the market portfolio is 8%, what is PepsiCo's equity cost of capital?

PepsiCo's equity cost of capital is _____. (Round to two decimal places.)

19. Suppose all possible investment opportunities in the world are limited to the five stocks listed in the table: ⁵. What does the market portfolio consist of (what are the portfolio weights)?

Enter the percentage that each stock makes up of the total portfolio. (Round to two decimal places.)

Stock	Portfolio Weight
A	_____ %

(Round to two decimal places.)

Stock	Portfolio Weight
B	_____ %

(Round to two decimal places.)

Stock	Portfolio Weight
C	_____ %

(Round to two decimal places.)

Stock	Portfolio Weight
D	_____ %

(Round to two decimal places.)

Stock	Portfolio Weight
E	_____ %

5: Data Table

(Click on the icon located on the top-right corner of the data table below in order to copy its contents into a spreadsheet.)

Stock	Price/Share (\$)	Number of Shares Outstanding (millions)
A	10	10
B	20	12
C	8	3
D	50	1
E	45	20

20. You need to estimate the equity cost of capital for XYZ Corp. You have the following data available regarding past returns:

- a. What was XYZ's average historical return?
- b. Compute the market's and XYZ's excess returns for each year. Estimate XYZ's beta.
- c. Estimate XYZ's historical alpha.
- d. Suppose the current risk-free rate is 3%, and you expect the market's return to be 10%. Use the CAPM to estimate an expected return for XYZ Corp.'s stock.
- e. Would you base your estimate of XYZ's equity cost of capital on your answer in part (a) or in part (d)?

a. What was XYZ's average historical return?

XYZ's average historical return was _____%. (Round to one decimal place.)

b. Compute the market's and XYZ's excess returns for each year.

The market's excess return for 2011 was _____%. (Round to the nearest integer.)

The market's excess return for 2012 was _____%. (Round to the nearest integer.)

XYZ's excess return for 2011 was _____%. (Round to the nearest integer.)

XYZ's excess return for 2012 was _____%. (Round to the nearest integer.)

Estimate XYZ's beta.

XYZ's beta is _____. (Round to two decimal places.)

c. Estimate XYZ's historical alpha.

XYZ's historical alpha was _____%. (Round to one decimal place.)

d. Suppose the current risk-free rate is 3%, and you expect the market's return to be 10%. Use the CAPM to estimate an expected return for XYZ Corp.'s stock.

The expected return for XYZ Corp.'s stock was _____%. (Round to two decimal places.)

e. Would you base your estimate of XYZ's equity cost of capital on your answer in part (a) or in part (d)? (Select the best choice below.)

- ☐ A. Part (a) because the average past returns provides a better estimate of expected returns.
- ☐ B. Part (a) because the CAPM provides a better estimate of expected returns.
- ☐ C. Part (d) because the average past returns provides a better estimate of expected returns.
- ☐ D. Part (d) because the CAPM provides a better estimate of expected returns.

6: Data Table

(Click on the icon located on the top-right corner of the data table below in order to copy its contents into a spreadsheet.)

Year	Risk-free Return	Market Return	XYZ Return
2011	3%	7%	9%
2012	1%	-37%	-44%

21. In mid-2012, Ralston Purina had AA-rated, 10-year bonds outstanding with a yield to maturity of 1.98%.
- What is the highest expected return these bonds could have?
 - At the time, similar maturity Treasuries had a yield of 0.98%. Could these bonds actually have an expected return equal to your answer in part (a)?
 - If you believe Ralston Purina's bonds have 1.3% chance of default per year, and that expected loss rate in the event of default is 49%, what is your estimate of the expected return for these bonds?

a. What is the highest expected return these bonds could have?

The highest expected return these bonds could have is _____%. (Round to two decimal places.)

b. At the time, similar maturity Treasuries had a yield of 0.98%. Could these bonds actually have an expected return equal to your answer in part (a)? (Select the best choice below.)

- ☐ A. No, if the bonds are risk-free, the expected return equals the risk-free rate, and if they are not risk-free the expected return is less than the yield.
- ☐ B. Yes, the yield to maturity is the maximum expected return you can expect.
- ☐ C. Yes, if the bonds are risky enough, that is if the probability of default is high enough.
- ☐ D. Yes, because the reasons given in both A. and B. are true.

c. If you believe Ralston Purina's bonds have 1.3% chance of default per year, and that expected loss rate in the event of default is 49%, what is your estimate of the expected return for these bonds?

The estimated expected return for these bonds will be _____%. (Round to two decimal places.)

22. During the recession in mid-2009, homebuilder KB Home had outstanding 6-year bonds with a yield to maturity of 8.5% and a BB rating. If corresponding risk-free rates were 3.0%, and the market risk premium was 5.0%, estimate the expected return of KB Home's debt using two different methods. How do your results compare? (Note: the average loss rate for unsecured debt is about 60%. See annual default rates by debt rating here ⁷ and average debt betas by rating and maturity here ⁸.)

Considering the probability of default, the expected return of the bond is _____%. (Round to two decimal places.)

Considering CAPM and given the beta for a 7-year bond, the expected return of the bond is _____%. (Round to two decimal places.)

How do your results compare? (Select from the drop-down menu.)

While both estimates are rough approximations, they both confirm that the expected return of KB Home's debt is well

(1) _____ its promised yield.

7: Data Table

TABLE 12.2

Annual Default Rates by Debt Rating (1983–2011)¹⁴

Rating:	AAA	AA	A	BBB	BB	B	CCC	CC-C
Default Rate:								
Average	0.0%	0.1%	0.2%	0.5%	2.2%	5.5%	12.2%	14.1%
In Recessions	0.0%	1.0%	3.0%	3.0%	8.0%	16.0%	48.0%	79.0%

Source: "Corporate Defaults and Recovery Rates, 1920–2011," *Moody's Global Credit Policy*, February 2012.

8: Data Table

TABLE 12.3

Average Debt Betas by Rating and Maturity¹⁵

By Rating	A and above	BBB	BB	B	CCC
Avg. Beta	< 0.05	0.10	0.17	0.26	0.31
By Maturity	(BBB and above)	1–5 Year	5–10 Year	10–15 Year	> 15 Year
Avg. Beta		0.01	0.06	0.07	0.14

Source: S. Schaefer and I. Strebulaev, "Risk in Capital Structure Arbitrage," Stanford GSB working paper, 2009.

- (1) ☐ above
☐ below

23. In mid-2015, Cisco Systems had a market capitalization of \$130 billion. It had A-rated debt of \$25 billion as well as cash and short-term investments of \$60 billion, and its estimated equity beta at the time was 1.11.

- a. What is Cisco's enterprise value?
b. Assuming Cisco's debt has a beta of zero, estimate the beta of Cisco's underlying business enterprise.

- a. What is Cisco's enterprise value?

Cisco's enterprise value is \$ _____ billion. (Round to the nearest integer.)

- b. Assuming Cisco's debt has a beta of zero, estimate the beta of Cisco's underlying business enterprise.

The beta of Cisco's underlying business enterprise is _____. (Round to two decimal places.)

24. Your company operates a steel plant. On average, revenues from the plant are \$30 million per year. All of the plant's costs are variable costs, and are consistently 80% of revenues. (This includes the energy costs associated with powering the plant which represent one quarter of the plant's costs, or an average of \$6.00 million per year.) Suppose the plant has an asset beta of 1.25, the risk-free rate is 4%, and the market risk premium is 5%. The tax rate is 40%, and there are no other costs.

- a. Estimate the value of the plant today assuming no growth.
b. Suppose you enter a long-term contract which will supply all of the plant's energy needs for a fixed cost of \$3 million per year (before tax). What is the value of the plant if you take this contract?
c. How would taking the contract in (b) change the plant's cost of capital? Explain.

- a. Estimate the value of the plant today assuming no growth.

The value of the plant today assuming no growth is \$ _____ million. (Round to two decimal places.)

- b. Suppose you enter a long-term contract which will supply all of the plant's energy needs for a fixed cost of 3 million per year (before tax). What is the value of the plant if you take this contract?

The value of the plant if you take this contract \$ _____ million. (Round to two decimal places.)

- c. What is the plant's overall cost of capital if you chose to enter the contract in part (b)?

The plant's overall cost of capital, if you choose to enter the contract in part (b) is _____ %. (Round to one decimal place.)