

Question #1 of 144

Question ID: 1479959

A high-yield bond analyst is trying to develop an equation using financial ratios to estimate the probability of a company defaulting on its bonds. A technique that can be used to develop this equation is:

- A) dummy variable regression.
 - B) logistic regression model.
 - C) multiple linear regression adjusting for heteroskedasticity.
-

Question #2 of 144

Question ID: 1586007

Which of the following conditions will *least likely* affect the statistical inference about regression parameters by itself?

- A) Multicollinearity.
 - B) Model misspecification.
 - C) Unconditional heteroskedasticity.
-

Question #3 of 144

Question ID: 1489310

Jacob Warner, CFA, is evaluating a regression analysis recently published in a trade journal that hypothesizes that the annual performance of the S&P 500 stock index can be explained by movements in the Federal Funds rate and the U.S. Producer Price Index (PPI). Which of the following statements regarding his analysis is *most accurate*?

- A) If the p -value of a variable is less than the significance level, the null hypothesis can be rejected.
 - B) If the p -value of a variable is less than the significance level, the null hypothesis cannot be rejected.
 - C) If the t -value of a variable is less than the significance level, the null hypothesis should be rejected.
-

Question #4 of 144

Question ID: 1586005

Consider the following estimated regression equation:

$$\text{Sales}_i = 10.0 + 1.25 \text{R\&D}_i + 1.0 \text{ADV}_i - 2.0 \text{COMP}_i + 8.0 \text{CAP}_i$$

Sales are in millions of dollars. An analyst is given the following predictions on the independent variables: R&D = 5, ADV = 4, COMP = 10, and CAP = 40.

The predicted level of sales is *closest* to:

- A) \$310.25 million.
 - B) \$320.25 million.
 - C) \$300.25 million.
-

William Brent, CFA, is the chief financial officer for Mega Flowers, one of the largest producers of flowers and bedding plants in the Western United States. Mega Flowers grows its plants in three large nursery facilities located in California. Its products are sold in its company-owned retail nurseries as well as in large, home and garden "super centers". For its retail stores, Mega Flowers has designed and implemented marketing plans each season that are aimed at its consumers in order to generate additional sales for certain high-margin products. To fully implement the marketing plan, additional contract salespeople are seasonally employed.

For the past several years, these marketing plans seemed to be successful, providing a significant boost in sales to those specific products highlighted by the marketing efforts. However, for the past year, revenues have been flat, even though marketing expenditures increased slightly. Brent is concerned that the expensive seasonal marketing campaigns are simply no longer generating the desired returns, and should either be significantly modified or eliminated altogether. He proposes that the company hire additional, permanent salespeople to focus on selling Mega Flowers' high-margin products all year long. The chief operating officer, David Johnson, disagrees with Brent. He believes that although last year's results were disappointing, the marketing campaign has demonstrated impressive results for the past five years, and should be continued. His belief is that the prior years' performance can be used as a gauge for future results, and that a simple increase in the sales force will not bring about the desired results.

Brent gathers information regarding quarterly sales revenue and marketing expenditures for the past five years. Based upon historical data, Brent derives the following regression equation for Mega Flowers (stated in millions of dollars):

$$\text{Expected Sales} = 12.6 + 1.6 (\text{Marketing Expenditures}) + 1.2 (\# \text{ of Salespeople})$$

Brent shows the equation to Johnson and tells him, "This equation shows that a \$1 million increase in marketing expenditures will increase the independent variable by \$1 .6 million, all other factors being equal." Johnson replies , "It also appears that sales will equal \$12.6 million if all independent variables are equal to zero."

Brent makes the following statements about model evaluation:

- Statement 1: The BIC metric usually imposes a higher penalty for overfitting than AIC.
- Statement 2: AIC is used if the goal is to have a better forecast, while BIC is used if the goal is a better goodness of fit.

Question #5 - 8 of 144

Question ID: 1471900

In regard to their conversation about the regression equation:

- A) Brent's statement is correct; Johnson's statement is incorrect.
 - B) Brent's statement is incorrect; Johnson's statement is correct.
 - C) Brent's statement is correct; Johnson's statement is correct.
-

Question #6 - 8 of 144

Question ID: 1586001

Regarding Brent's Statements 1 and 2:

- A) Only Statement 2 is correct.
 - B) Only Statement 1 is correct.
 - C) Both statements are correct.
-

Question #7 - 8 of 144

Question ID: 1471904

Assuming that next year's marketing expenditures are \$3,500,000 and there are five salespeople, predicted sales for Mega Flowers should will be:

- A) \$24,200,000.
 - B) \$24,000,000.
 - C) \$11,600,000.
-

Question #8 - 8 of 144

Question ID: 1471905

Brent would like to further investigate whether at least one of the independent variables can explain a significant portion of the variation of the dependent variable. Which of the following methods would be best for Brent to use?

- A) An ANOVA table.
 - B) The multiple coefficient of determination.
 - C) The F -statistic.
-

Question #9 of 144

Question ID: 1471869

Consider the following regression equation:

$$\text{Sales}_i = 20.5 + 1.5 \text{R\&D}_i + 2.5 \text{ADV}_i - 3.0 \text{COMP}_i$$

where Sales is dollar sales in millions, R&D is research and development expenditures in millions, ADV is dollar amount spent on advertising in millions, and COMP is the number of competitors in the industry.

Which of the following is NOT a correct interpretation of this regression information?

- A) One more competitor will mean \$3 million less in sales (holding everything else constant).
 - B) If a company spends \$1 more on R&D (holding everything else constant), sales are expected to increase by \$1.5 million.
 - C) If R&D and advertising expenditures are \$1 million each and there are 5 competitors, expected sales are \$9.5 million.
-

Question #10 of 144

Question ID: 1472012

Which of the following statements regarding heteroskedasticity is *least* accurate?

- A)** Heteroskedasticity results in an estimated variance that is too small and, therefore, affects statistical inference.
 - B)** The assumption of linear regression is that the residuals are heteroskedastic.
 - C)** Heteroskedasticity may occur in cross-sectional or time-series analyses.
-

A real estate agent wants to develop a model to predict the selling price of a home. The agent believes that the most important variables in determining the price of a house are its size (in square feet) and the number of bedrooms. Accordingly, he takes a random sample of 32 homes that has recently been sold. The results of the regression are:

	Coefficient	Standard Error	t-statistics
Intercept	66,500	59,292	1.12
House Size	74.30	21.11	3.52
Number of Bedrooms	10306	3230	3.19

$$R^2 = 0.56; F = 40.73$$

Selected F- table values for significance level of 0.05:

	1	2
28	4.20	3.34
29	4.18	3.33
30	4.17	3.32
32	4.15	3.29

(Degrees of freedom for the numerator in columns; Degrees of freedom for the denominator in rows)

Additional information regarding this multiple regression:

1. Variance of error is not constant across the 32 observations.
2. The two variables (size of the house and the number of bedrooms) are highly correlated.
3. The error variance is not correlated with the size of the house nor with the number of bedrooms.

Question #11 - 13 of 144

Question ID: 1479936

The predicted price of a house that has 2,000 square feet of space and 4 bedrooms is *closest* to:

- A) \$114,000.
 - B) \$256,000.
 - C) \$185,000.
-

Question #12 - 13 of 144

Question ID: 1479937

The conclusion from the hypothesis test of $H_0: b_1 = b_2 = 0$, is that the null hypothesis should:

- A) not be rejected as the calculated F of 40.73 is greater than the critical value of 3.29.
 - B) be rejected as the calculated F of 40.73 is greater than the critical value of 3.33.
 - C) be rejected as the calculated F of 40.73 is greater than the critical value of 3.29.
-

Question #13 - 13 of 144

Question ID: 1479938

Which of the following is *most likely* to present a problem in using this regression for forecasting?

- A) Heteroskedasticity.
 - B) Multicollinearity.
 - C) Autocorrelation.
-