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PROBLEMS

1. Joe has been managing a portfolio over the past year. Performance analysis shows that he has realized an

information ratio of 1 and a t statistic of 1 over this period. He argues that information ratios are what matter for value added, and so who cares about t statistics? Is he correct? What can you say about Joe's performance?

2. Jane has managed a portfolio for the past 25 years, realizing a t statistic of 2 and an information ratio of 0.4. She argues that her t statistic proves her skill. Compare her skill and added value to Joe's.
3. Prove the more exact result for the standard error of the information ratio,

$$\text{SE}\{\text{IR}\} = \frac{1}{\sqrt{Y}} \cdot \sqrt{1 + \left(\frac{\text{IR}^2 \cdot \Delta t}{2} \right)}$$

Assume that errors in the mean and standard deviation of the residual returns are uncorrelated, and use the normal distribution result:

$$\text{SE}[\omega] = \frac{\omega}{\sqrt{2 \cdot N}}$$

for a sample standard deviation from N observations.

4. Show that changing the information ratio from an annualized to a monthly statistic does not improve our ability to measure investment performance. It will still require a 16-year track record to demonstrate top-quartile performance with 95 percent confidence. First calculate the standard error of a monthly IR. Second, convert a top-quartile IR of 0.5 to its monthly equivalent. Finally, calculate the required time period to achieve a t statistic of 2.
5. Using Table 17.2, identify the largest active risk index (industry exposures) and the largest risk index and