

## Lesson 5 - Empirical Evidence on Security Returns and mutual funds

Exam questions for this lesson are based on what is covered on the slides. Here are a few examples to give you an idea of the tone of the questions.

- | In the empirical study of a multi-factor model by Chen, Roll, and Ross, a factor that appeared to have significant explanatory power in explaining security returns was \_\_\_\_\_.
- A) the change in the expected rate of inflation
  - B) the risk premium on bonds
  - C) the unexpected change in the rate of inflation
  - D) industrial production
  - E) B, C and D

Answer: E Difficulty: Difficult

Rationale: Of the variables tested, Chen, Roll, and Ross found that B, C, and D were significant predictors of security returns.

Consider the regression equation:

$$r_i - r_f = g_0 + g_1 b_i + g_2 s^2(e_i) + e_{it}$$

where:

$r_i - r_f$  = the average difference between the monthly return on stock  $i$  and the monthly risk-free rate

$b_i$  = the beta of stock  $i$

$s^2(e_i)$  = a measure of the nonsystematic variance of the stock  $i$

If you estimated this regression equation and the CAPM was valid, you would expect the estimated coefficient  $g_0$  to be

- A) 0.
- B) 1.
- C) equal to the risk-free rate of return.
- D) equal to the average difference between the monthly return on the market portfolio and the monthly risk-free rate.
- E) none of the above.

Answer: A Difficulty: Moderate

Rationale: In this model, the coefficient,  $g_0$  represents the excess return of the security, which would be zero if the CAPM held.

## Lesson 5 - Empirical Evidence on Security Returns and mutual funds

18. Consider the regression equation:

$$r_i - r_f = g_0 + g_1 b_i + g_2 s^2(e_i) + e_{it}$$

where:

$r_i - r_f$  = the average difference between the monthly return on stock  $i$  and the monthly risk-free rate

$b_i$  = the beta of stock  $i$

$s^2(e_i)$  = a measure of the nonsystematic variance of the stock  $i$

If you estimated this regression equation and the CAPM was valid, you would expect the estimated coefficient,  $g_1$  to be

- A) 0
- B) 1
- C) equal to the risk-free rate of return.
- D) equal to the average difference between the monthly return on the market portfolio and the monthly risk-free rate.
- E) equal to the average monthly return on the market portfolio.

Answer: D Difficulty: Moderate

Rationale: The variable measured by the coefficient  $g_1$  in this model is the market risk premium.

## Lesson 5 - Empirical Evidence on Security Returns and mutual funds

Benchmark error

- A) refers to the use of an incorrect market proxy in tests of the CAPM.
- B) can result in inconclusive tests of the CAPM.
- C) can result in incorrect evaluation measures for portfolio managers.
- D) A and B.
- E) A, B, and C.

Answer: E Difficulty: Easy

Rationale: If an incorrect market proxy is used, A, B, and C can result.

The CAPM is not testable unless

- A) the exact composition of the true market portfolio is known and used in the tests.
- B) all individual assets are included in the market proxy.
- C) the market proxy and the true market portfolio are highly negatively correlated.
- D) A and B.
- E) B and C.

Answer: D Difficulty: Easy

Rationale: A and B must be true for the CAPM to be tested; however, the exact composition of the true market portfolio cannot be known, thus the CAPM probably can never be tested.

Which of the following statements is **true** about models that attempt to measure the empirical performance of the CAPM?

- A) The conventional CAPM works better than the conditional CAPM with human capital.
- B) The conventional CAPM works about the same as the conditional CAPM with human capital.
- C) The conditional CAPM with human capital yields a better fit for empirical returns than the conventional CAPM.
- D) Adding firm size to the model specification dramatically improves the fit.
- E) Adding firm size to the model specification worsens the fit.

Answer: C Difficulty: Moderate

Rationale: The results are presented in Table 13.2.

## Lesson 5 - Empirical Evidence on Security Returns and mutual funds

Equity premium puzzle studies may be subject to survivorship bias because

- A) the time period covered was not long enough.
- B) an inappropriate index was used.
- C) the indexes used did not exist for the whole period of the study.
- D) both U.S. and foreign data were used.
- E) only U.S. data were used.

Answer: E Difficulty: Moderate

Rationale: The Jurion and Goetzmann (1999) study offers a database of capital appreciation indexes from 1926-1996. As shown in Figure 13.9, the U.S. markets have been in existence the longest and have offered the highest average annual return.

The Fama and French three factor model uses \_\_\_\_, \_\_\_\_, and \_\_\_\_ as factors.

- A) industrial production, term spread, default spread
- B) industrial production, inflation, default spread
- C) firm size, book-to-market ratio, market index
- D) firm size, book-to-market ratio, default spread
- E) none of the above

Answer: C Difficulty: Easy

Heaton and Lucas (2000) report that:

- I) older households allocate a greater percentage of their assets to stocks.
  - II) younger households allocate a greater percentage of their assets to stocks.
  - III) for households with > \$1 million in assets, this may be explained by relatively large business holdings for the under 65 age group.
  - IV) for households with > \$1 million in assets, this may be explained by relatively large business holdings for the over 65 age group.
  - V) the change in aggregate business wealth affect stock holdings.
- A) I, III
  - B) II, IV
  - C) I, III, V
  - D) II, IV, V
  - E) none of the above

Answer: C Difficulty: Difficult