

## UNIVERSITY OF TEXAS AT AUSTIN

## Quiz # 24

 $\beta$ .  $\alpha$ . SML. Behavior of individual investors. EMH.

Please, provide your **final answers only** to the following problems:

**Problem 24.1.** (2 points) *Familiarity bias* can result in a systematic trading bias and result in a deviation of prices from their fundamental values. *True or false?*

**Solution: FALSE**

**Problem 24.2.** (2 points) *Overconfidence bias* results from uninformed individuals overestimating the precision of their knowledge. *True or false?*

**Solution: TRUE**

**Problem 24.3.** (2 points) The stocks **alpha** ( $\alpha$ ) measures the distance the stock's average return is away from the **security market line (SML)**. *True or false?*

**Solution: TRUE**

**Problem 24.4.** (2 points) According to the weak formulation of the efficient market hypothesis, one cannot consistently make gains by trading based on the information contained in past prices. *True or false?*

**Solution: TRUE**

**Problem 24.5.** (2 points) In the strong form of the efficient market theory, prices reflect all public information. *True or false?*

**Solution: FALSE**

It also reflects all private information.

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Please, provide your **complete solution** to the following problem:

**Problem 24.6.** (5 points) *Source: Course 2, May 2003, Problem #3.*

Assume the CAPM holds. The beta for QRS Life Insurance Company is 0.4, while the beta for the life insurance industry is  $X$ . The risk-free rate of interest is 4% and the market return is 14%. The expected return on QRS stock minus the expected return for the industry is 0.5%.

Calculate  $X$ .

**Solution:** The expected return for QRS is equal to its required return and, therefore, equal to

$$\mathbb{E}[R_{QRS}] = r_f + \beta_{QRS}(\mathbb{E}[R_{Mkt}] - r_f) = r_f + 0.4(0.14 - 0.04) = r_f + 0.4(0.1).$$

Similarly, the expected return for the life insurance industry is equal to its required return and, therefore, equal to

$$\mathbb{E}[R_{LI}] = r_f + \beta_{LI}(\mathbb{E}[R_{Mkt}] - r_f) = r_f + X(0.14 - 0.04) = r_f + X(0.1).$$

The difference between the two is given in the problem to be equal to 0.005. So, we have

$$\mathbb{E}[R_{QRS}] - \mathbb{E}[R_{LI}] = r_f + 0.4(0.1) - (r_f + X(0.1)) = (0.4 - X)(0.1) = 0.005.$$

Finally,

$$0.4 - X = 0.05 \quad \Rightarrow \quad X = 0.35.$$