

- 13) The following table shows the beta and expected return for each of five stocks.

Stock (<i>i</i>)	β_i	$E(R_i)$
1	1.2	0.124
2	1.0	0.110
3	0.7	0.103
4	0.4	0.068
5	0.1	0.047

All of these stocks except one lie on the Security Market Line.

Calculate the alpha of the stock that does NOT lie on the Security Market Line.

- A) -0.026
- B) -0.014
- C) 0.000
- D) 0.014
- E) 0.026

• There is no obviously efficient way to solve this problem.

⇒ Let's start w/ the first two stocks assuming they are both on the SML.

$$\begin{aligned} E[R_1] &= r_f + \beta_1 (E[R_{Mkt}] - r_f) \\ E[R_2] &= r_f + \beta_2 (E[R_{Mkt}] - r_f) \end{aligned}$$

From the given table:

$$0.124 = r_f + 1.2 (E[R_{Mkt}] - r_f) \quad \left. \right\} -$$

$$0.11 = r_f + 1 (E[R_{Mkt}] - r_f) \quad \underline{\hspace{10em}}$$

$$0.014 = 0.2 (E[R_{Mkt}] - r_f)$$

$$\Rightarrow \underline{\hspace{10em}} E[R_{Mkt}] - r_f = 5(0.014) = 0.07$$

$$\Rightarrow 0.11 = r_f + 0.07 \Rightarrow r_f = 0.04$$

The above intercept of 0.04 and slope of 0.07 are my candidates for the parameters of the SML.

Next, we verify if Stocks #3, #4 and #5 lie on this line.

- Checking for Stock #3.

$$\underline{0.103} \stackrel{?}{=} 0.04 + 0.7(0.07) = 0.04 + 0.049 = \underline{0.089} \quad \text{X}$$

- Checking for Stock #4.

$$0.068 = 0.04 + 0.4(0.07) = 0.04 + 0.028 = 0.068 \quad \text{:-)}$$

\Rightarrow Stocks #1, #2, #4 are all on the same SML line.

\Rightarrow Stock #3 is not on the SML.

$$\alpha_3 = 0.103 - 0.089 = 0.014$$

□

The Behavior of Individual Investors.

Recall: In the assumptions of CAPM, all investors hold efficient portfolios.
As a consequence of all the three assumptions:

The market portfolio is efficient and all investors hold it as the risky part of their investments.

- Familiarity Bias: Investing in companies whose brand they're familiar with, e.g., their employer.
- Relative Wealth Concerns: Caring about the relative performance of your portfolio when compared to that of your peers.
- Overconfidence Bias: Less informed or less skilled individuals have a tendency to overestimate the extent of their knowledge and skill
 - => the frequency of their trades is higher than that of the skilled investors
 - => they spend a lot on transaction costs

They won't create a systematic trading bias, i.e., they will not cause the individual stock prices to deviate from their "fundamental" value.

Systematic Trading Biases.

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$T/2$

T ... time horizon;
we intend to liquidate
our portfolio here

Invest in one
share of stock S
 \Rightarrow spend $S(0)$

Observe the
stock price $S(T/2)$
and (maybe)
rebalance your
portfolio!

• Disposition Effect: Hanging onto losers and selling the winners.

• Herd Behavior: The tendency to imitate others' behavior on a global scale .

They can create deviations from a stock's "fundamental" value.