Corporate finance Mod 12, Stocks, abnormal returns, practice problems

(The attached PDF file has better formatting.)

** Exercise 12.1: Abnormal Returns

The abnormal return equation says that the expected rate of return on stock S is $r_s = \alpha + \beta \times r_m$, where r_m is the rate of return on the overall market.

Monthly rates of return for stock ABC show a β of 1.150 and an α of 0.3% (0.003) per month.

A. If the rate of return on the overall market is zero, what is the expected rate of return on stock S?
B. If the rates of return on both Stock S and the overall market are zero, what is the abnormal rate of return on stock S?
C. At what market rate of return r_m is the expected rate of return for Stock S equal to r_m?
D. If the rate of return on Stock S is zero and its abnormal rate of return is also zero, what is the overall market rate of return?

Part A: The expected rate of return on stock S is $r_s = \alpha + \beta \times r_m = 0.003 + 1.150 \times 0 = 0.003 = 0.3\%$.

Part B: The *abnormal return* is the *actual return* minus the *expected return*. The expected rate of return on stock S is $r_s = \alpha + \beta \times r_m = 0.003 + 1.150 \times 0 = 0.003 = 0.3\%$. The actual rate of return is zero, so the abnormal rate of return is $0 - 0.003 = -0.003$, or -0.3%.

Part C: Solve for r_m from $r_m = 0.003 + 1.150 \times r_m \Rightarrow 0.150 \times r_m = -0.003 \Rightarrow r_m = -0.003 / 0.15 = -0.020 = -2\%$.

Part D: If the rate of return on Stock S is zero and its abnormal rate of return is also zero, then the expected rate of return on Stock S is zero. Solve for the overall market rate of return as

$0.000 = 0.003 + 1.150 \times r_m \Rightarrow 1.150 \times r_m = -0.003 \Rightarrow r_m = -0.003 / 1.15 = -0.00261 = -2.61\%$.

** Exercise 12.2: Abnormal Returns

Monthly rates of return for stock ABC show a β of 1.200.

In January, when the market rose 5.0%, the expected return on the stock was 5.0%.

In February, when the market falls 5.0%, the stock falls 5.0%.

A. What is the α parameter for this stock in the abnormal returns equation?
B. What is the abnormal return for this stock in February?

Part A: Solve for α as $0.05 \times 1.20 + \alpha = 0.05 \Rightarrow \alpha = 0.05 \times -0.2 = -0.010$, or –1%.

Part B: The expected return for this stock in February is $-0.010 + -0.05 \times 1.20 = -0.070$.

The abnormal return for this stock in February is $-0.05 - (-0.07) = +0.02$, or +2%.