

1 (Taken from actual Data). Allele Inc. is a company in the upper Midwest. It is an energy company consisting of two parts. The first part is a regulated utility and the second part is mining and other non-regulated industries. Assume throughout a 6% SAIR compounded quarterly is the return necessary for this company's investors. Its most current (already paid) dividend was \$0.363, and it pays dividends quarterly.

- If the company was only in the utility business we could assume the dividends would continue indefinitely into the future but remain constant at \$0.363. What is a share of this company worth under that assumption?
- Historically, Allele's dividends increased 1.5% per year (SAIR, compounded quarterly). If we forecast that growth to continue indefinitely, what is Allele's current stock price?
- (Not from actual data) Suppose Allele is looking at an expansion that will cost \$25 million in the first two years to construct a new mine, and then generate net revenues of \$15 million every year starting with the third year. If Allele has 30 million shares of stock, what will be the effect of this expansion opportunity on the price of Allele's stock?

a. 6% SAIR \rightarrow 1.5% quarterly
 stock is a perpetuity of \$0.363,

$$P = \frac{.363}{0.015} = \$24.20$$

b. 1.5% SAIR increase \rightarrow .375%

Next dividend will be $\$0.363(1.00375) \approx .36436 \dots$

It will be a growing annuity:

$$P = \frac{.36436}{r-g} = \frac{.364}{.015 - .00375} \approx \$32.39$$

c).

0	1	2	3	4	5	6	...
	-25	-25	+15	+15	+15	+15	...

\$244.46 \leftarrow value of perp. in period 2.

$$\text{Annual IR} = (1 + 1.5\%)^4 - 1 = .06136 = 6.136\%$$

$$\text{Value of project} = \frac{-25}{1.06136} + \frac{-25 + 244.46}{(1.06136)^2} = \$171.26 \text{ million}$$

$$30 \text{ million shares} \Rightarrow \text{price increase of } \frac{171.26}{30} = \$5.71$$

