BUS-123 Spring 2015
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Sample Valuation & Yield Calculations
Final Exam

Name: KEY
Practice Worksheet

1) Kellogg's (K) is currently selling for $65 and paying $1.96 in dividends. They have been growing their dividends at a constant rate of approximately 6%. If we require a 9% return on our investment, how much would we be willing to pay for Kellogg's?

Constant Perpetual Growth Model = $\frac{\text{Annual Dividends} * (1 + \text{Constant Growth Rate})}{\text{Required rate of return} - \text{Constant dividend Growth rate}} = \frac{\$1.96 * (1+6\%)}{9\% - 6\%} = \frac{\$2.0776}{0.03} = \$69.2533 \simeq \$69.25$ good

2) Assume it is January 1, 2015. Kimberly Clark (KMB) is currently selling for $112. Dividends for the 2015 are expected to be $3.52 per share. We expect that dividends in 2016 will be $3.60 and in 2017 they will be $3.70. We will be selling the stock at the end of 2017 and Value Line expects the price to be $145 per share at that time. Our required rate of return is 9%. Using the discounted cash flow stock valuation formula (Value of stock = present value of future dividends + present value of price of stock when you plan to sell), calculate the present value of the future cash flow from this stock. Should we buy the stock?

Years	Future Cash Flows		PVM 9%		Discounted Cash Flows
2015	$3.52	*	0.917	=	$ 3.22784
2016	$3.60	*	0.842	=	$ 3.0312
2017	($3.70 + 145) $148.70	*	0.772	=	$ 114.7964
					$ 121.0554 ≃ $121.06

Market price = $112

Yes, this is a good investment

3) A 10%, 20-year bond has a par value of $1,000 and a call price of $1,025. It is callable in 5 years. The bond is currently selling for $1,200. Calculate the current yield, yield-to-maturity, and yield-to-call of this bond.

Current yield = $\frac{\text{Annual interest}}{\text{mkt price}}$

10% * $1000 = $100

$\frac{\$100}{\$1200} = 0.08333 \simeq 8.33\%$ current yield

$YTM = \frac{\text{Annual interest} + \frac{\text{PAR VALUE} - \text{mkt VALUE}}{\text{number of years to maturity}}}{\frac{\text{par value} + \text{market value}}{2}} = \frac{\$100 + \frac{1000-1200}{20}}{\frac{1000+1200}{2}} = \frac{\$100 + \frac{-200}{20}}{\frac{2200}{2}} = \frac{\$100 + (-10)}{1100} = \frac{90}{1100} = 0.8818$

$YTM \simeq 8.18\%$

$YTC = \frac{\text{Annual interest} + \frac{\text{CALL VALUE} - \text{MKT VALUE}}{\text{number of years to CALL}}}{\frac{\text{CALL VALUE} + \text{mkt VALUE}}{2}} = \frac{\$100 + \frac{1025-1200}{5}}{\frac{1025+1200}{2}} = \frac{\$100 + (-35)}{1112.50} = \frac{65}{1112.50} = 0.05842$

$YTC \simeq 5.84\%$

4) An investor is in the 35% Federal tax bracket. He is considering a 5% municipal bond (Federal tax-free), versus an 8½% corporate bond (fully-taxable). Calculate the taxable equivalent yield for the municipal bond. Assuming both are high-quality bonds, which should he buy?

Taxable Equivalent Yield of municipal bond = $\frac{\text{Municipal Bond Yield}}{1.0 - [\text{Federal Bracket tax}]} = \frac{0.05}{1.0 - 0.35} = \frac{0.05}{0.65} = 0.076923 \simeq 7.69\%$

8½% corporate bond is a better deal

5) Using annual compounding, find the prices for the following corporate bonds:

a) 7%, 10-year bond priced to yield 9%

$70 interest = present value of interest income + present value of principal repayment

$= \$70 \times 6.418 + \$1000 \times 0.422$

$= \$449.26 + \$422$

$= \$871.26$ discount bond - interest rates went up

b) 9%, 10-year bond priced to yield 7%

$90 interest = present value of interest income + present value of principal repayment

$= \$90 * 7.024 + \$1000 \times 0.508$

$= \$632.16 + \$508$

$= \$1140.16$ premium bond - interest rates went down