**FIN 254 TVM – FORMALUE MzF**

***Future Value - single amounts***

**FV = PV (1 + i)n**

**FV = PV (FVIF i, n )**

***Present Value - single amounts***

**PV = FV / (1 + i)n**

**PV = FV (PVIF i, n )**

***Future Value – annuity***

**FVA = PMT (FVIFA i, n )**

**FVA = PMT X (1 + i)n - 1**

 **i**

***Present Value – annuity***

**PVA = PMT (PVIFA i, n )**

 **\_1\_\_**

**PVA = PMT 1 - (1 + i)n**

 **i**

**Present Value of a Perpetuity**

**PVA = PMT**

  **i**

***Future Value - annuity due***

**FV = PMT (FVIFA i, n ) (1 + i)**

***Present Value - annuity due***

**PV = PMT (PVIFA i, n ) (1 + i)**

**Mixed streams of cash flows**

A series of single amounts – same formulae

***Annual Percentage Yield (APY)/ EAR***

**APY = ( 1 + quoted rate ) m - 1**

 **m**

**Present value of a bond**

**VB = INT(PVIFA Kd, n) + M(PVIF kd, n) 🡪** *one payment/yr*

**VB = INT(PVIFA Kd/2, 2n) + M(PVIF kd/2, 2n) 🡪** *semiannual*

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**PREFERRED STOCK VALUATION**

* **A preferred stock can usually be valued like a perpetuity:**
* **Expected Rate of Return on Preferred stock**

***EXAMPLE (PREF. STOCK)***

**Xerox preferred pays an 8.25% dividend on a $50 par value.**

**Suppose our required rate of return on Xerox preferred is 9.5%.**

**If we know the preferred stock price is $40, and the preferred dividend is $4.125, the expected return is:**

**COMMON STOCK VALUATION**

**SINGLE HOLDING PERIODS**

**You expect XYZ stock to pay a $5.50 dividend at the end of the year. The stock price is expected to be $120 at that time.**

**If you require a 15% rate of return, what would you pay for the stock now?**

***Solution:***

**Vcs = (5.50/1.15) + (120/1.15)**

 **= 4.783 + 104.348**

 **= $109.13**

**MULTIPLE HOLDING PERIODS**

* **Constant Growth Model**

**Assumes common stock dividends will grow at a constant rate into the future.**

* **D1 = the dividend at the end of period 1.**
* **kcs = the required return on the common stock.**
* **g = the constant, annual dividend growth rate.**

***EXAMPLE (COMMON STOCK)***

* **XYZ stock recently paid a $5.00 dividend. The dividend is expected to grow at 10% per year indefinitely. What would we be willing to pay if our required return on XYZ stock is 15%?**

**D0 = $5, so D1 = 5 (1.10) = $5.50**

***Expected Return on Common Stock***

**We know a stock will pay a $3.00 dividend at time 1, has a price of $27 and an expected growth rate of 5%.**