**AcF. 321 – Formula Sheet**

* Portfolio expected return and variance (2 assets):



* Portfolio expected return and variance (N assets):
* If all equities have volatility of σ and a correlation with every other equity of ρ, an equally weighted portfolio of N shares has volatility:
* CAPM: E[*rY*] = *rf* + βy(E[*rM*] - *rf*); where

sY2 = *b*2 sm2 *+ se* 2

* Fama and French Three-Factor model:
* Carhart Four-Factor Model:
* Time-weighted average rate of return over *T* years is {(1+*r1*)(1+*r2*)…(1+*rT*)}1/*T*
* Jensen’s measure:
* Treynor’s measure:
* Fama’s measure:
* Sharpe’s measure:
* Appraisal ratio:
* Bond Valuation Formula (annual coupons):

* Bond Valuation Formula (semi-annual coupons):
* Forward Rate: