Corporate finance cheatsheet assignment

Business

* PV(CF) = CF/(1+r)t AKA PV = FV/(1+r)t * NPV = PV(CFs) ??? Investment = -C0 +C1/(1+r)+C2/(1+r)2+C3/(1+r)3+… = ? (Expected CFt)/(1+r)t ??? Investment * Perpetuity ??? pays a fixed amount C per period forever * P(C, r) = C/r requires cash flow to begin NEXT period. If begin now, then PV = C + C/r * Annuity ??? fixed stream of cash flows that has a final period t * A(C, r, t) = C/r [1-1/(1+r)t] Growing Perpetuity ??? G(C, r, g) = C/(r-g) C is initial cash flow, r is discount rate, g is growth rate * P/E = 1/(r-g) * High P-E multiple means the firm has good growth opportunities (high g), investments have low risk (low r), or both * Computing NPV ??? obtain the proper CF to use in the calculation * Rule: Determine all CF which will be realized if the project is taken. Subtract from this the CF that will be realized if the project is not taken.

Result represents the CF impact of the project. The present discounted value of these incremental CF is the NPV of the project * CF = EBIT ??? Taxes + Depreciation ??? Capital Expenditures (CAPX) * EBIT (Earnings Before Interest & Taxes) = Revenues ??? Cost ??? Depreciation * EBIAT = EBIT * (1-TaxRate) * Taxes = CorpTaxRate * (Revenues ??? Costs ??? TaxShield) * FinalCF = SellingPrice ??? Taxes NWC = Current Assets ??? Current Liabilities (change in NWC must = 0) * Projects of greater risk must have a higher discount rate as investors demand more return to compensate them for added risk * Risk Premium ??? the additional return above the riskless rate required for a particular investment based on the additional risk associated with it * Required Return: Ri = Rf + ? i * (Rm – Rf) risk premium (how much extra return required to go from 0 to normal risk) * ? measure of risk inherent in investment (investment’s sensitivity to market). (0 = riskless, 1 =

as risky as entire market) * ? A = D/(D+E) ? D + E/(D+E) ? E, where D ; E are Market Values of Debt ; Equity * E = Price/Share * # Shares * D = Market Value of outstanding Debt * ? E = ? A + D/E (? A ??? ? D) * If firm is unlevered (D= 0), ? E = ? A. If little chance of default then ? D = 0 and ? A = ?

E E/(D+E) * Use the risk measure associated with the project you are investing in ??? not necessarily the risk measure for your firm * VL = VU + PV (Tax Benefits) + Corporate Benefits (Debt) ??? Costs of Financial Distress * VL is the value of the firm with leverage, VU is the value of the all-equity firm * 2 methods used to incorporate tax benefits to previous valuation techniques: APV ; WACC * APV (Adjusted Present Value ??? adjusts for tax by increasing the cash flows due to the tax benefit * Increase each annual CF by Debt capacity * Debt Rate * Corporate Tax Rate = ITS (Interest Tax Shield) * Step: Plug into CAPM to get Discount Rate Ra = Treasury + 6*Asset Beta if current * WACC (Weighted Average Cost of Capital) ??? adjusts for taxes by decreasing the discount rate * WACC = r* = rd (1-tc) [D/(D+E)] + rE [E/(D+E)] done on a Market Value basis (D can be book value but not E) * Steps: (1) Relever Asset Beta to Equity Beta: Asset Beta / Proposed Equity Ratio, (2) Plug into CAPM to get Equity Discount Rate, (3) WACC = %Eq*Re + %D*Rd*(1-Tc) * Pstock = Equity Value / #Shares Outstanding = (Enterprise value + Cash ??? Debt) / # Shares Outstanding * Two primary methods to calculate value: Multiples-Based Method ; Discounted Cash Flow (DCF) * DCF: Value of a firm = Investment + Net Present Value of all investments * PV(Cash Flows) = C1/(1+WACC) + C2/(1+WACC)2 + … * Free Cash Flows =

EBIAT + Depreciation ??? CAPX ??? Inc. NWC + Other DCF Method| Cash Flow| Discount Rate| Resulting Value|

WACC| FCF| WACC| Enterprise| APV| CCF| Ra| Enterprise| FCF to Equity (PE)| FCFE = CCF – Debt Payments| Re| Equity| * Multiple-Based: Steps: (1) Find a comp, (2) Find the multiple, (3) Slap onto your company * Value of Equity = VE = VF ??? VD (value remaining after debt is paid) * In a perfect world, capital structure doesn’t matter (AKA MM Proposition I) * Assumptions: (1) no taxes, (2) no bankruptcy costs, (3) no transaction costs, (4) investments of the firm aren’t effected by capital structure, (5) symmetric information, (6) a close substitute for the firm exists or can be created * Debt = Total Capitalization * D/TC D/TC = % Debt MVE = Stock Price * # Shares * # Shares = NI / EPS EPS = NI/Shares * Equity/TC = MVE/Total Capitalization * Beta (unlevered) = E/TC * E E/(D+E)* E * rA = (%E) rE + (%D) rD cost of capital w/only Debt ; Equity * rE = rA + D/E (rA ??? rD) * [DE Ratio / (1 + DE Ratio)] (Total Book Capitalization) = Debt You run a gelati company that is thinking about also offering pizza. You must build a new location that will have a total cost of $2, 000, 000 up front. 50% of this figure is depreciating equipment, the rest land. You expect to run this operation for 10 years and generate extra sales of $550, 000 per year for each year of that time period.

The annual production costs that are needed to generate this are as always 40% of sales. Also, you expect that the pizza will result in a decrease in your existing sales of snacks, such as pretzels, of about $100, 000. Half of this decline is expected from the increase in competition in this area and will occur even if you do not undertake the investment. Overhead was $875, 000 last year but increased by $50, 000 with a new hire made a few months ago.

You now expect overhead to increase to $1 million per year if you undertake this project. Headquarters expects to allocate 5% of this figure as an overhead charge to the new venture. Also, you must increase Net Working Capital by $40, 000 if you do the project.

Assume straight-line depreciation of equipment and a 40% tax rate; and that all cash flows except the up-front costs occur at year-end. Also assume that the salvage value at the end of the horizon for the land is $900, 000 and $100, 000 for the equipment. The project is financed appropriately with $200, 000 of AAA debt. Show whether you should undertake this investment via discounted cash flow analysis? You also have the following financial data pertaining to the market and to your publicly-traded competitors: | 0| 1-9| 10| Outlay| -2000| | | Increase in sales| | 500| 500| Cost| | -200| -200| Overhead| | -75| -75| NWC| -40| | 40| Depreciation| | -100| -100| Salvage| | | 1000| PBT| | 125| 125| NI| | 75| 75 = 125)1-0. 4)|

CF| -2040| 175| 1215| CCF| -2040| 183| 1223| Treasury Security Rate 3-month T-bill5% 1-Year T-bond7% 5-year T-bond7. 5% 10-year T-bond8. 95% AAA Corporate Bond10% MRP 6% over long bonds and 7% over T-bills Food Stuff Pizza Pete Pizza U. Stock Price $10 $13 $21 Shares Outstanding 35 Million 30 Million 40 Million Total Book Capitalization$400 Million $400 Million $900 Million Book Leverage Ratio 15% 10% 10% Beta (Value-Line) 0. 9 1. 0 1. 1 Total Sales$150 Million $100 Million $200 Million Pizza Sales$5 Million $90 Million $160 Million