

1 Basic Framework

Fundamental Value

$$NPV; \sum_{i=0}^T \frac{FCF_i}{(1+r)^i}$$

Required return: return at which investors fund
Cost of capital: return firm has to offer

Free Cash Flows

$$+EBIT(1-\tau) \\ +Dep/Amort \\ -\Delta NWC \\ -CapEx$$

NWC: current assets – current liabilities

Working Capital

$$A/R \text{ Days} = \frac{A/R}{Sales/365}$$

$$A/P \text{ Days} = \frac{A/P}{COGS/365}$$

$$Inv \text{ Turnover} = \frac{COGS}{Inventory}$$

Cost of Capital

Cost of Capital: r_f + risk premium

$$CAPM: r_A = r_f + \beta_A (\bar{R}_m - r_f)$$

2 PSEG (A)

Valuation: WACC

$$WACC = \frac{E}{V} r_E + \frac{D}{V} r_D (1-\tau)$$

$$EV = MC + D - \text{Cash}$$

Debt load: $D_t = d \times V_t^L$ (d leverage ratio, V_t^L levered firm value)

$$V_t^L = \frac{FCF_{t+1} + V_{t+1}^L}{1+WACC}$$

Discount FCF's at WACC

Valuation: APV

$$\text{Interest: } I_t = r_D D_{t-1}$$

$$\text{Interest Tax Shield: } ITS_t = \tau I_t$$

$$V_0^L = V_0^U + PV(ITS)$$

Discount FCF's at r_u , ITS's at TS risk

3 PSEG (B)

LBO: Intro

Buyout funds take over public or private firms

Takeover financed by firm capital and large debts

Exit to IPO, strategic buyer sale, or secondary sale after 3-8 years

Good LBO targets:

- 1) Stable cash flow (low beta)
- 2) Opportunity for opex improvements/asset sales
- 3) Low current leverage

4) Attractive entry points (e.g., undervalued)

LBO Valuation

Valuation w/Fixed Debt Schedule: risk of tax shields is r_D

T^S : PV of pre-determined TS

$D^S = D - T^S$ with debt schedule,

$$r_U = \frac{E}{E+D^S} r_E + \frac{D^S}{E+D^S} r_D$$

$$\text{Equiv.: } r_E = r_U + \frac{D^S}{E} (r_U - r_D)$$

Hamada equation (permanent

$$\text{debt): } \beta_U = \beta_E \left(1 + \frac{D}{E} (1-\tau)\right)^{-1}$$

4 ECF

Financing Policies

Interest coverage ratio: EBIT / Interest Expense

If leverage annually-adjusted, $T^S = \frac{\tau_c r_D D}{1+r_D}$

Valuation: ECF

Compute FCFE discounted at r_E

$$FCFE = FCF - I_t (1-\tau) + \text{Net Borrowing}_t$$

$$\text{Net Borrowing}_t = D_t - D_{t-1}$$

$$FCFE + FCFD = FCF + I_t \tau$$

LBO Decision

IRR and MOM (Multiple of Money)

MOM: Money made/Money spent

IRR ignores scale of deal

MOM ignores time value of money

IRR rule: invest if $> \text{COC}$

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LBO Rationale

TPG wants to expand Ducati in EU/NA

Unique brand, develop in US

Firm mismanaged

Capable CEO candidate ready

Can be marquee deal

Few intl PE firms targeting Italy

Italian firms ripe for LBO's

Italian equity/debt markets weak

6 Financial Modeling

3-Statement Model

- 1) Income statement
- 2) Cash flows
- 3) Balance sheet

Steps to Build

- 1) Prepare debt schedule
- 2) Model income statement
- 3) Prepare balance sheet
- 4) Build cash flows
- 5) Close cash flow gaps (e.g., revolving loan)

6) Check if sheet balances

Terminal Value

Multiples: assumptions in 1 #

DCF: model TV as perpetuity

$$TV_T = \frac{FCF_{T+1}}{WACC-g}$$

$$FCF_{T+1} = (1-\tau)(1+g)EBIT_T - g \times$$

$$NWC_T - g \times \text{Net PP\&E}_T$$

$$\text{Net PP\&E}_T = \text{CapEX}_T - \text{Dep}_T$$

7 WOW

Rationale

- 1) Geographic/competitive diversification
- 2) Cost synergies
- 3) Technological edge
- 4) Timing re: industry

Loan Types

Revolving: can borrow up to limit, repay, and re-borrow again over a time period

highest priority and secured by receivables/inventory

Term Loans: borrow lump sum for set period with agreed repayment schedule

TLA: senior, 5 - 6 yr. maturity, high amortization 5 - 20%, marketed/sold to banks

TLB: senior, 6 - 7 yr. maturity, low amortization 1%, marketed/sold to inst. investors

Bridge: short-term financing until exit

8 Bankruptcy, Part I

UAL

- 1) Historically high leverage
- 2) Sharp decrease in demand/revenue post-9/11
- 3) Increase in fuel prices
- 4) High labor costs/inefficient contracts

Types

Chapter 11: reorganization

Chapter 7: liquidation

Out of court possible

Benefits

- 1) Protection from creditors
- 2) Flexibility (reject contracts)
- 3) Money/special financing
- 4) Time (to think about issues)

9 Bankruptcy, Part II

Financial Restructuring

Plan of Reorganization: to improve profitability of firm and repay creditors

Use financial advisory forms (RHS

balance sheet) and turnaround specialists (LHS balance sheet)

Every voting class must accept PoR by 2/3 in value and by 1/2 in number

Plan can be "crammed down" past dissenting classes

Chapter 11 must be better for each creditor than Ch. 7

10 Flagstar

Rationale

No decline in profitability, EBITDA/Sales constant.

Issue: leverage; profitable before interest.

Also needs money for CapEx, lagging industry.

11 Credit Risk, Convertibles

Pricing Credit Risk

Credit risk: risk of default by issuer of debt security.

Equity: call option on assets

Debt: short put on assets

Credit spreads calculated over treasuries

$$P = \frac{F}{(1+y)^{T/k}}; y - r_f \text{ spread}$$

Risky Betas

$$\beta_E = \Delta_c (1 + D/E) \beta_A$$

$$\beta_D = (1 - \Delta_c) (1 + E/D) \beta_A$$

12 Corning

Rationale

Issues: deterioration of operating cash flow.

Distressed Raising

Complicated by:

- 1) Depressed equity prices
 - 2) Negative signaling
 - 3) Undervalued equity
 - 4) Debt overhang
 - 5) May require roadshow
- Benefits of convertible:
- 1) Signaling
 - 2) Speed
 - 3) Security of funds raised
 - 4) Interest from special clientele

Convertible Valuation

Components: i) dividend; ii) mandatory conversion at maturity

Replicable by risk reversal plus shares at lower strike

13 Investment Options, Part I

Real Options

$$\beta_O = \frac{S \times \Phi(d_1)}{C} \beta_A$$

14 Investment Options, Part II

Adjusting Betas

$$\beta_F = a + b \times \frac{M}{B} + \varepsilon \text{ for Growth Option and Assets Physical}$$

Growth Options

Investment Staging

Can exercise real options one at a time

Option to Abandon

If biz is bad, might be better to shut down than continue

15 Chase

HK Disneyland

Types of Bidding

No bid, bid to win/lose

Syndication

Bank underwrites, and resells loan to other banks

Goal is to not be holding the loan long-term

16 PF, Part I

Definition

PF: three key aspects

- 1) Investment in a capital asset
- 2) Creation of a separate legal entity owning assets of the project
- 3) Nonrecourse funding nature

MM Analysis

- 1) Very large transaction costs
- 2) Taxes
- 3) Proj structure may change probability
- 4) Helps resolve agency conflicts
- 5) Alleviate information asymmetry

17 PF, Part II

Operating Risks

Pre-completion project risks, Post-completion project risks, Sovereign risks.

Financial Risks

Debt Service Coverage Ratio:

$$\frac{\text{CADS}}{\text{Debt Service}}, \text{CADS: Cash Available for Debt Service.}$$

18 Calpine

Costs of Debt

Carrying costs: interest rate, commitment fees; Transaction costs: underwriting fees.

19 M&A Modeling

Accretion/Dilution Analysis

Accretive: acquisition increases acquirer's EPS

Dilutive: acquisition decreases acquirer's EPS

Exchange ratio: $\frac{\text{Target Stock Price}}{\text{Acquirer Stock Price}}$
 New shares outstanding = Acquirer's shares outstanding + (Exchange Ratio) \times Target's shares outstanding
 Amount Paid = Target's Pre-Bid Market Cap + Acquisition Premium
 Value Acquired = Target's Value + PV(Synergies)
 Value created when: PV(Synergies) > Acquisition premium

$$\frac{x}{N_T} < \frac{P_T}{P_A} \left(1 + \frac{S}{T} \right)$$

Treasury Stock Method

Count firm's fully diluted share count by including net new shares created by unexercised ITM warrants and options as well as other dilutive securities.

Stock-based Compensation

RSU's: give employees stored stock
 ESO's: create new shares for employees who exercise.

20 Saucony

M&A Model Steps

- 1) Build capitalization tables
- 2) Build pro-formas for stand-alone and combined
- 3) Build sources and uses of funds
- 4) Build debt schedule
- 5) Build balance sheet and statement of cash flows pro formas
- 6) Estimate value of synergies
- 7) Perform accretion/dilution analysis.

21 Tesla

Role of Cash

$$r_E = r_U - \frac{C}{E} (r_U - r_f) \text{ if no debt}$$

$$r_E = r_U + \frac{D}{E} (r_U - r_D) - \frac{C}{E} (r_u - r_f)$$

$$r_U = \frac{E}{D-C+E} r_E + \frac{D}{D-C+E} r_D - \frac{C}{D-C+E} r_f$$