BITS Pilani presentation

BITS Pilani
Hyderabad Campus

Dr. Nivedita Sinha
Department of Economics & Finance

innovate achieve lead

BITS Pilani
Hyderabad Campus

ECON F355
Business Analysis & Valuation

Agenda

Methods of Valuation for a levered firm

- WACC method
- Flow to equity method
- APV method

APV valuation for LBOs

Nirma probably won't be the last LBO. Photo: Ramesh Pathania/Mint

The latest of these was when washing powder maker Nirma Ltd announced its purchase of Lafarge India Pvt. Ltd's cement assets earlier in the week. Nirma will raise around ₹ 4,000 crore in debt for its purchase through a bond issuance which will be financed by Lafarge's cash flows.

An LBO is a deal which is mostly financed by debt. The acquiring company finances the debt by using the target company's assets or cash flows.

Are leveraged buyouts on the rise?

3 min read . Updated: 14 Jul 2016, 03:44 PM IST

Sachin P. Mampatta, Pooja Sarkar

More than eight out of every 10 leveraged buyouts that happened in post-liberalization India took place after 2007, finds analysis

https://www.livemint.com/Opinion/1yuPmgrn1rfQjELO0oJH9N/Are-leveraged-buyouts-on-the-rise.html

Equity versus Project free cash flow

➢ Equity free cash flow (FCFE): Focuses on the CF that is available for distribution to the firm's common shareholders

FCFE= (EBIT-I) (1-T) + DA – WC – CAPEX-P+NP

= EBIT(1-T) + DA –I(1-T) –WC – CAPEX –P + NP

Where P : Principal payments on the firm's outstanding debt

NP: Net proceeds from the issuance of debt

➢ Project free cash flow (FCFF): Focuses on the CF available for distribution to both the firm's creditors and equity holders

FCFF= EBIT (1-T) + DA – WC – CAPEX =UCF

Weighted Average Cost of capital method

- Calculate the Project Free Cash flow :

$FCFF_{\text{levered firm}}$ = EBIT (1-T) + DA – WC – CAPEX = UCF

- Calculate the WACC: the information regarding capital structure is present in WACC.
  - **Used when the capital structure is constant for the firm**

- Value of a levered firm = Discount PFCF by WACC as the discount rate

$$R_{WACC} = \frac{S}{S+B} R_S + \frac{B}{S+B} R_B (1 - T_C)$$

Weighted Average Cost of capital method drawback

➢ What happens in case of say LBO?

A **leveraged buyout (LBO)** is a method of acquiring a company with money that is nearly all borrowed. The basic idea behind an LBO is that the acquirer purchases the target with a loan collateralized by the target's own assets.

- ➢Very high leveraged transactions .
- ➢ Debt levels have to be brought down with time.
- ➢Capital structure is not constant with time.

Can we use single WACC?

No. Since for WACC, the capital structure used is a constant.

Hence, use Adjusted Present Value method for Valuation.

Flow to equity method

- Value of the levered firm is :
  - Discounting EFCF or FCFE (i.e. Cash flow from project to equity holders of a levered firm) by cost of levered equity (R_s)

    FCFE= (EBIT-I) (1-T) + DA –
    WC – CAPEX-P+NP

  - **$R_s = R_o + B/S\ (1-t_c)(R_0 – R_B)$…….M&M prop II with taxes**

    Again, use Flow to equity method only if the capital structure is constant.

    Similar drawback as WACC method for changing capital structure

Steps to Flow to equity method

- Calculate the Levered Cash Flow or Equity free cash flow for a levered firm or cash flow to the equity holders of a levered firm
- Calculate R_s – COST OF EQUITY CAPITAL

Adjusted Present Value method

➢ Value of the levered firm is the sum of the values of :

APV = NPV (all equity)+ NPV of Financing side effects

- ❑ The unlevered equity cash flows (with discount rate as cost of equity for unlevered firm; R_0) and
- ❑ Financing side effects
  - ❑ Interest tax savings (with discount rate as COST OF DEBT; R_B)
  - ❑ Costs of issuing new securities – floatation costs (fees to the investment banker for their work on the public issuance of debt)
  - ❑ Costs of financial distress
  - ❑ Subsidies to debt financing (say subsidy obtained by govt.)

APV with bankruptcy cost

APV = Value of levered firm = Value of unlevered firm + PV of interest tax shield – PV of expected bankruptcy cost

Table 15.8: Default Rates by Bond Rating Classes

Bond Rating	*Default Rate*
D	100.00%
C	80.00%
CC	65.00%
CCC	46.61%
B-	32.50%
B	26.36%
B+	19.28%
BB	12.20%
BBB	2.30%
A-	1.41%
A	0.53%
A+	0.40%
AA	0.28%
AAA	0.01%

The bankruptcy cost can be estimated, albeit with considerable error, from studies that have looked at the magnitude of this cost in actual bankruptcies. Research that has looked at the direct cost of bankruptcy concludes that they are small, relative to firm value. The indirect costs of bankruptcy can be substantial, but the costs vary widely across firms. Shapiro and Titman speculate that the indirect costs could be as large as 25% to 30% of firm value but provide no direct evidence of the costs.

Altman and Kishore (1988)

http://pages.stern.nyu.edu/~adamodar/New_Home_Page/valquestions/apv.htm

Summary: APV, FTE, and WACC

	APV	WACC	FTE
Initial Investment	All	All	Equity Portion
Cash Flows	*UCF*	*UCF*	*LCF*
Discount Rates	R_0	R_{WACC}	R_S
PV of financing effects	Yes	No	No
When to use If Capital structure	Changing & Constant	Constant	Constant

Case study on APV

Problem on APV

The beta calculated through regression for X Co. is 1.17. The market value of debt to market value of equity for the company is 79%. The tax rate is 30%. Risk free rate is 10.5% and market risk premium is 9.23%. The FCFF at Year 1 is Rs. 212.2 million and a growth rate of 5% p.a. till perpetuity. The existing debt outstanding is Rs. 1807.3 million. The bond rating is BB. The direct and indirect expected cost of bankruptcy is assumed to be 40% of the unlevered firm value. Calculate the value of the firm

Bond Rating	*Default Rate*
D	100.00%
C	80.00%
CC	65.00%
CCC	46.61%
B-	32.50%
B	26.36%
B+	19.28%
BB	12.20%
BBB	2.30%
A-	1.41%
A	0.53%
A+	0.40%
AA	0.28%
AAA	0.01%