

Introduction

Advanced Corporate Finance

Introduction

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Course Requirement

- Prerequisite: FINOPMGT 304 and 320
- Grading
 - Mid-Term: 20%
 - Five case writeups: 50% (two presentations)
 - You can choose any 5 of the 8 cases.
 - Final Exam: 20%
 - Peer evaluations and class participation: 10%
- Case Group: 5 individuals

Course Package

- Course package is available at the University store.
 - Brief notes will also be available on my website:
<http://people.umass.edu/nkapadia>
- There is no assigned textbook for the class; however, it would be useful to have a textbook for reference. A good book to buy is Ross, Westerfield and Jaffe, *Corporate Finance*.
 - An older (cheaper) edition (VI edition) is OK.

Overview of Class (1/2)

- This is a case course. That is, most of the learning will emerge through the case discussion. Therefore, attendance and participation in case discussions is extremely important.
- I will supplement the cases with additional material as and when it is necessary..

Overview of Class (2/2)

- What is corporate finance?
- The financial decisions made by corporations comprises primary of (i) the capital investment decision, and (ii) the financing decision.
- We will begin the course by dealing with the capital investment decision, and then proceed to understanding the financing decision (remainder of the cases).

The Investment Decision

- *What you already know:*
- Compute the NPV of the project by discounting the cash flows using the firm's cost of capital. Accept the project if the NPV is positive.
- In addition, we will also deal with an alternative methodology called the Adjusted Present Value (APV).
- Reference: Ross, Westerfield, Jaffe, Chapter 12.

WACC

- Weighted Average Cost of Capital (WACC) is the weighted average of the cost of equity (R_e) and the cost of debt (R_d), where the weights are the fraction of equity and debt in the capital structure of the firm.
- $WACC = w_e R_e + (1-t) w_d R_d$
- $w_e = E/(E + D)$, where E is the market value of equity, and D is the market value of debt in the capital structure of the firm.
- $w_d = D/(E + D) = 1 - w_e$
- $t = \text{tax rate}$

Cost of Equity

- The cost of equity is typically estimated using the beta of the firm, adjusting for the leverage.
- β_A = beta of assets of firm
- β = beta of equity = $\beta_A [1 + (1 - t) D/E]$
- Cost of equity = $R_e = R_f + \beta \text{MRP}$
- MRP = market risk premium, which is typically estimated to be between 5 and 7.5% per year.
- R_f = Risk-free rate

Net Present Value

- $NPV = C_0 + C_1/(1 + r) + C_2/(1 + r)^2 + \dots$
- C_t = incremental cash flow from project in year t.
- $r = WACC$.

An Example (1/2)

- A firm has outstanding debt of market value \$40 million, and its stock has a market value of \$60 million. The firm has a 15% rate of interest on its debt, and it has a beta of 1.41. The corporate tax rate is 34%. The current Treasury rate is 11% and the risk premium on the market is 7.5%. What is the firm's weighted average cost of capital?
- Answer:
 - $R_e = 11\% + 1.41 \times 7.5\% = 21.58\%$
 - $WACC = (60/100) \times (21.58\%) + (40/100) \times (1 - 0.34) \times 15\% = 16.91\%$.

An Example (2)

- Suppose the firm is considering taking a warehouse renovation project costing \$50 million that is expected to yield cost savings of \$12 million a year for six years. Should it take on the renovation?
- Answer: No.
 - $$\text{NPV} = -50 + 12/(1+0.1691) + 12/(1+0.1691)^2 + 12/(1+0.1691)^3 + 12/(1+0.1691)^4 + 12/(1+0.1691)^5 + 12/(1+0.1691)^6 = -6.82.$$

Complications

- The leverage ratio of the firm may be changing over time – in which case the WACC also changes over time. This makes it difficult to apply the standard methodology. We will need to use an alternative methodology to quantify the tax savings directly, instead of using the WACC.
- Many projects may have embedded real options. Real options cannot be valued by the NPV analysis.

Adjusted Present Value

- The adjusted present value method (APV) computes the value of a project to a levered firm as:
- $APV = NPV^U + NPVF$
- APV is the value of the project to a levered firm.
- NPV^U is the value of the project to an unlevered firm.
- NPVF = net present value of the financing side effects (e.g. present value of the tax shields from debt).

The Financing Decision

- How can the firm add value by choosing an appropriate financial strategy or capital structure? This is the central question that we will be dealing with.