

FNCE 301, Financial Management

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Syllabus Highlights

Handouts

WebCT-Vista

Textbook

Corporate Finance, Ross, Westerfield, and Jaffe, 7th edition

Grades

2 midterm exams (20% each),
final exam (30%),
homework assignments (20%), and
class participation (10%)

Office hours

By appointment, e-mail, after class

Lecture notes posted 3 – 4 days before class on Web-Vista.

Do reading before class

Exams only cover material covered in class.

Homework is due at the beginning of the next class, solutions will be provided. If there are questions e-mail the prof. He will cover in class any questions which generate a lot of e-mails.

Introduction: Discounting and Present Values

What is Financial Management about?

Investment decision

- Should the firm acquire a specific asset?
- How should it decide between many assets?
- What is the best mix of assets?

Financing decision

- How should the firm pay for the assets to be acquired? debt vs. equity
- What is the best mix of financing sources?

The role of financial markets

- Provide a variety of financial assets that firms can buy (investment) and sell (financing)

Two fundamental questions a financial manager deals with:

1. What to invest in?
2. How to finance the investment?

These two questions apply to all kinds of projects and assets including financial assets such as stocks and bonds.

Financial markets are the place where we can buy and sell financial assets with different streams of future cash flows and different levels of uncertainty. We use the financial markets to find investments which meet our needs.

Corporations can also use financial markets to finance their investments by issuing stocks and bonds. Financial markets offer Investment and Financial opportunities to meet a variety of needs.

We need tools to help us make the right decisions.

We need to know:

1. How to **Value** a project? To value a project we need to know three things:
 - a. How to estimate the expected **future cash flows**.
 - b. What is the time frame involved, what is the **discount value**?
 - c. What is the **risk** involved, the **uncertainty**? How does it effect the value now of the future return?
2. Make a decision to take the project or not.

We need rules to tell us how to evaluate different projects, how to distribute money over different projects. This involves **Portfolio Theory** and **Diversification**. This analysis will help us evaluate any type of asset including financial assets such as stocks and bonds.

What is Financial Management about?

Valuation of investments

- Estimating future cash flows, and discounting back to the present due to:
 - Time
 - Risk

Investment criteria

- Finding the optimal investment strategy

Portfolio theory

- Investing in financial assets (stocks, bonds)
- The relation between risk and return

Capital structure

- How the firm's value is affected by its capital structure
- Advantages and disadvantages of using debt vs. equity

How do we pay for the investment (finance the project), equity (our own money) or debt (take loan)? Does the way that we finance our projects effect their value? Why does it matter how we finance our projects? How does finance effect the value of the project? Taxes? Stocks or Bonds? Are there any conflicts of interest raised by our finance decision? Is there an optimal way to finance a specific project? To answer these questions we need to be familiar with the advantages and disadvantages of using debt versus equity? This area is called **capital structure**.

Financial management deals with these types of questions in order to better decide what assets are required and how to pay for these assets. These aspects are evaluated by the financial manager.

Since the first step in making the optimal investment decision is valuation so we will begin the course by examining the concept of **valuation**, the **time value of money**.

The Time Value of Money

- \$100 today is worth more than \$100 one year from today

Example:

Choose between two options:

1. \$100 today.
2. \$100 next year.

- Money that you have today can be invested and will start earning interest immediately

This concept represents the Time Value of Money

The same amount of money is worth more if we receive it earlier. But why? Why is a given amount of money worth more today than some time in the future? I can invest the money if I receive it now, put in an interest earning account at the very least. Now I start earning interest immediately.

So we prefer to have money now rather than later because there is a positive interest rate in the market.

But where is the interest coming from? Why does the bank pay me interest in the first place? Of course the bank is loaning it to someone else at an even higher rate. But why is there interest earnings at all? **Interest represents the payment to the lender for the right to do whatever I please with the money she has lent me. The lender has been denied use of the funds during the time they were lent to me, thus a payment to the lender is due in exchange.**

Interest is payment in exchange for using something which does not belong to us.

Probably want the \$100 today, there is a positive interest rate we can take advantage of to make a return on the money.

INTEREST = RENT CHANGE FOR MONEY

INFLATION = DEPRECIATION ON MONEY

But how much? What is the **present value of the future cash flows?**

Now the question is:

How much is the \$100 next year worth today?

We are asking:

What is the **Present Value of Future Cash Flows?**

The Time Value of Money

- The **Present Value** of a cash flow received some time in the future is equal to that cash flow multiplied by the **Discount Factor**

$$\text{Present Value (C}_1\text{)} = C_1 \times \text{discount factor}$$

- The discount factor is based on a rate of return, r (the discount rate)

$$\text{Discount Factor} = \frac{1}{1+r} = \text{Discount Rate}$$

This is the general form of the discount factor, r is the rate of return.

To calculate the present value we need to reduce the future payment by the Discount Value. **The result will be a present value which is less than the future value.** This is because we demand a return which is greater than our investment.

It is very important to choose the appropriate discount rate, the choice effects the present value of each cash flow in the future and therefore will effect the value of the entire project and ultimately it will effect our decision weather to invest or not to invest.

Choosing the appropriate discount rate

- The **Discount Rate** is determined by the return offered by comparable investments. Comparative meaning same level of risk, same time frame.
- The Discount Rate is sometimes called the **Opportunity Cost of Capital** because money that is invested in a particular project cannot be used for other activities. We are giving up the possibility of other projects because our money will be tied up. If another high value alternative exist it will reduce the value of the project we are considering. Thus the project being considered must be discounted to compensate. Cost reduces the value of a project, the same is true of opportunity cost. If we can get very high return in another project that will make this project very costly to invest in so the value of this project will be lower.
- The **Discount Rate** represents the **Required Rate of Return**. We require at least the same rate of return as that available from another project. The discount rate is determined by the return that we can get in a similar investment. The higher the return of another investment the higher the cost of the alternative investment which does not return as much.
- The higher the discount rate the lower the value now of a given **Future Cash Flow**. Future cash flows of any project are valued relative to cash flows generated by other investments.
- **Risk-Free Cash Flows** should be discounted by the return on risk-free securities such as US government bonds over a similar period of time.
- **Risky Cash Flows** will be **discounted at a higher rate to compensate for their risk** (investors prefer low risk). Generally we the investors do not like risk. A large discount rate on a risky investment means higher return and smaller investment amount to get the same return. People are less likely to pay money for risky payments in the future. Everything is determined by demand and supply. We will find that the present value of risky payments is lower, they are traded at a lower price. This is the same as saying that investors demand a higher rate of return for risky investments. So given the higher rate of return it is not necessary to invest as much in order to reach the same future payment. The higher rate of return compensates us for the greater risk as well as the time period of the investment. In general, the discount rate for risky payments are higher than the risk free discount rate.

We will put off determining the discount rate for risky cash flows until later in the course

THESE TERMS ARE ON THE EXAM!

Example: Next year I will receive \$100 risk free for which I pay \$99 dollars today. I will not take the deal because I can get a better deal at any bank with simple interest. We are asking about the value of \$100 in 1 year compared to the price of \$99. We will look at other similar investments such as the bank which is risk free. The price of this deal will have to be adjusted according to the market value, the return required by the market.

It is fine that we believe we can find a better investment than that offered in the example, but we need to show how much better an alternative investment we can find and express it as a present value result of an appropriate discount rate applied against a future payment of \$100.

$$\text{Present Value} = \frac{C_T}{(1+r)^T}$$

Where T = the number of time periods, C is the initial investment, r is rate of return. This is compounded return (?).

A higher return in an alternative project increases the cost, discount rate, required return, lower the value of the _____ of the project we are considering.

The terms **Discount Rate**, **Opportunity Cost**, and **Required Rate of Return** will be used interchangeably in the text, homework, class, journals, and examinations. They all mean the same thing.

Example:

Say we are offered a **RISK-FREE** project. What should be the discount rate of risk free payments? We are offered \$100 next year, we want to discount it. What is the rate that we apply? We need the r, the discount rate. We will use the return of a comparable project to determine our discount rate. That means we will compare other **RISK-FREE** projects, government bonds for example. The rate of return on a T-bill of similar time period for example. The return on the 1 year government bond will be our discount rate.

Example

- Suppose one year government bonds pay 5% interest (thus 5% is the discount rate).

Then the **Present Value** of \$1,000 paid one year from today is:

$$PV = \frac{\$1000}{(1 + .05)^1} = \$952.38$$

- And if the risk-free rate is 10% (for example, return on government bond):

$$PV = \frac{\$1000}{(1 + .1)^1} = \$909.09$$

VALUE MORE MEANS DISCOUNT LESS

In this example the **discount rate** is the return that we can get on a risk free gov bond of the same period (1 year).