Artificial Intelligence (AI) for Investments
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Lecture – 01
Goals of Organization

Goals of organization. In this lesson, we will understand the goals of a firm and the role of management. Our focus will be on one of the most important objectives of the firm and its managers, which is the maximization of the firm value. We will start the discussion by getting introduced to different forms of corporations that are private and public corporations. Subsequently, we will focus on the most dominant and interesting structure which is listed public companies.

Next, we will discuss the concept of form value and why it is the central and most important objective of a firm and its managers. Subsequently, we will try to understand the two key decisions of managers that affect the firm value. These are investment and financing decisions. Lastly, we will understand the principal-agent problem between managers and shareholders. We will discuss why the incentives of managers are not aligned with those of shareholders.

We will also explore and understand some good systems of corporate governance that can help align the incentives of managers to those of shareholders and make these managers act in the best interest of shareholders. Corporations invest in real assets which contribute to the long-term future earning potential of the firm. Some of these assets are tangible assets such as plant and machinery and some are intangible assets like research and development-related expenses and intellectual property rights.

Corporations finance these assets by reinvesting the cash inflows from the existing operations, by borrowing, and by issuing shares. Some of the pertinent questions include the following. How to evaluate these investments that are the selection of project investments and more to finance the same. Large corporations are usually listed public entities with thousands of shareholders.
The shareholders differ in various aspects of their demographics such as wealth, risk aversion, risk tolerance, investment, and consumption patterns. So, is it at all feasible for the firm managers to

satisfy all the shareholder's objectives or is there some common well-established objective that all these managers aim to achieve, Can maximization of firm value be considered as one such objective?

Also, there is a fundamental trade-off to investment and financing decisions that is corporations can either invest in new assets or give the cash back to the shareholders who can invest that cash in the financial markets themselves. These investment opportunities offered by financial markets set the standard and benchmark for the financial managers to select the project investments inside the corporation.

This standard for the benchmark is often referred to as the opportunity cost of capital. Modern corporations provide separation of ownership and control which offers various benefits such as longevity of the firm. However, due to this aspect very often the interest and objectives of managers and owners are not aligned. This leads to agency costs, to mitigate these agency costs various good systems of corporate governance are adopted.

To summarize the three key topics that we will cover in this lesson are maximizing firm value, investment and financing decisions, the opportunity cost of capital, and lastly corporate governance as a mechanism to align the incentives of managers and owners.

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Organization of a corporation. In this video, we will talk about the organization of corporations. We will discuss the different forms of corporations and how they are managed. A corporation a firm or a company is a legal entity that is owned by its shareholders. In the eyes of the law, it is a legal person that can make contracts carry out a business borrow or lend money pay taxes acquire other companies, and sue or be sued.

In most countries, corporations are formed under the law based on their articles of incorporation. These articles of incorporation define and state the corporation's purpose and how it is to be governed and operated. For example, articles of association define the composition and role of the board of directors. While a corporation is owned by its shareholders it is legally a different entity. Often these shareholders have limited liability.

That is the shareholders cannot be held personally responsible for the corporation state. Shareholders can at best lose their investment in the corporation but nothing more. Often corporations start as proprietary or partnership firms where the owners or partners are solely responsible for the firm actions with unlimited liability and at times small privately held companies by a small group of investors with limited liability to the extent of their investment in the firm.

In these cases, the shares of the firm are not traded in financial markets. This is different from the publicly listed companies where shares are listed and publicly traded at stock exchanges like New York's stock exchange. Most large companies like Amazon, Apple, and Meta are listed public companies with widely dispersed shareholdings. It is not feasible for this large number of fragmented shareholders to manage and control the firm's operations.

This leads to a very important duality in the structure of corporations that comes from the separation of ownership and control of the firm. This also gives permanence to corporations. Even if managers quit, are dismissed, or are replaced the corporation survives. Moreover, stockholders can sell their shares to new investors thus leading to a change in ownership without disrupting the firm operations. In this fashion, corporations live forever and survive many human lifetimes.

However, this separation of ownership and control also has a downside. It often leads the managers to have different objectives that are not aligned with those of owners that are shareholders. So, the managers may act in a manner that is not in the best interest of the owners. This is often called the principal-agent problem where the incentives of managers are not aligned with those of owners that are shareholders.

Most of these large corporations have chief financial officers CFOs who are the senior most designatory in the finance domain and the person who holds this post takes care of the financial policy and related aspects of the cooperation. He along with the CEO of the corporation is also responsible for the financial results and presenting these results to media analysts and investors. For discussion purposes, we will often refer to the top management, CEO, and CFO as the managers or financial managers.

To summarize these videos large modern corporations, operate as individual independent entities separate from their owners. These organizations are run by managers that are different from owners, the shares of these organizations are listed on exchanges and the trading of the shares by investors does not affect the day-to-day operations of the firm. Also due to the separation of ownership and control the managers may not often act in the interest of shareholders that are owners.

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Introduction to firm value and opportunity cost of capital. In this video, we will discuss the concept of firm value and the opportunity cost of capital. We will understand what are the objectives of managers. And is there an objective that is most desirable and common for all the stakeholders. We will also discuss why maximization of firm value is often considered as the common widely accepted objective.

Maximization of firm value to shareholders is the ultimate goal of the management. However, this appears to be a vague statement. This is so because no two investors are the same in their age, taste, wealth, time horizon, risk tolerance, and investment strategy. so how do we find that common objective to which all the shareholders agree? Fortunately, there is a natural financial objective on which almost all the shareholders agree.

Maximize the current market value of the shareholder's investment in the firm. A smart and effective manager makes decisions that increase the current value of the company shares and the wealth of its stockholders. This increased wealth can then be put to whatever purposes the shareholders want. They can save it for the future; spend it on charity or spend it away on lavish consumption all depending upon their personal tastes and objectives.

They can do so even more if their Shares are worth more. The maximization of shareholders' wealth is indeed an optimum and widely accepted objective. If the shareholders have access to well-functioning financial markets. Financial markets facilitate investors to optimize the investment consumption pattern. Financial markets also facilitate sharing of risk and risk diversification. Thus, leaving managers with only one objective which is to increase the market value of the firm.

This is different from a goal like maximizing profit, profit can be for any year present, future, and past. However, what shareholders are interested in is the future value of their investment. This includes the aspects related to financial performance and its future potential. Measures such as profit, cash, and flow among others capture the performance for a specific period and can be suitably adjusted to improve the performance for that year.

For example, a firm can improve performance in a particular period by cutting down operational costs or capital expenditures. However, some of these expenses may create long-term value. Thus, a firm may artificially improve these measures at the cost of long-term value. Unlike this share price measures the performance comprehensively across a large number of parameters for all future periods.

And therefore, cannot be easily manipulated by adjusting the performance for a particular year. To summarize in this video, we discuss maximization of firm value as the most suitable objective for shareholders as this objective is preferred across all the shareholders irrespective of their tastes, preferences, and risk averseness. Other objectives such as maximization of profit or cash inflows for a given year are short-term objectives that may not add value to the firm in long term.

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Investment and financing decisions. In this video, we will discuss the key decisions that affect firm value. We will understand the role of financial managers in the firm. We will examine the concept of market efficiency and the important role played by financial markets in managerial decision-making. To carry on business activity a firm needs to invest in assets. These assets generate long-term cash flows.

The firm creates a charge on these cash flows often called financial securities. These financial securities are issued to investors to precisely fund these assets. For example, debt securities like bonds are issued to debt financials like a bank. The bank then provides the loan which is used to fund these assets. Against this loan, the bank receives the charge on the financial securities created by the firm.

These financial securities are backed by the promise from the firm to repay the principal and interest on the loan. This discussion points towards two key decisions of a firm investment decision for the purchase of real assets such as plant and machinery and subsequent management of the assets already in place and to dispose off those assets that are not in use. Financing decisions, to issue or sell financial assets which in turn will be used to fund the real assets.

Moreover, these financial assets are backed by claims on cash flow generated by these real assets. Examples of investment decisions include investment in plant and machinery, acquisition of mines, investment and research and development of products, and investment into firm infrastructure. These decisions are well-planned in advance and are often referred to as capital expenditures. Most of these investments have returns, i.e., cash inflows in the distant future.

Some of these investments have immediate consequences such as investment in raw material inventories, these inventories turn into cash flows in the short term. Examples of financing decisions include the issuance of debt and equity securities, repayment of interest, and municipal obligations among others. Financing decisions help organizations in raising money from lenders and shareholders.

If the firm borrows money from lenders, they promise to pay back the debt in the form of principal and interest. If the shareholders provide the funds, they do not get any fixed return. But a residual claim on firm cash flows as owners, we will have more to say on this in subsequent topics. The choice between debt and equity financing is termed a capital-structured decision. Capital is often referred to as a long-term source of financing.

It is often debated amongst financial managers that value comes from the investment side or the financing side. The investment side is termed the asset side or the balance sheet. One example should clarify this argument if firm A has a valuation of one dollar billion what does it mean? and where did this value come from? In simple terms, you would argue that this is the current market value of the assets owned by the firm due to the future earning potential of these assets.

Therefore, it may seem that the so-called sophisticated financing strategies do not have a significant role in it. However, this is not the complete story, financing decisions if not done properly can destroy the firm value substantially. Take for example the case of firm borrowing debt. Debt financing has a lot of advantages to support a firm in dire need of funds. However, too much debt can be harmful and may have considerable side effects.

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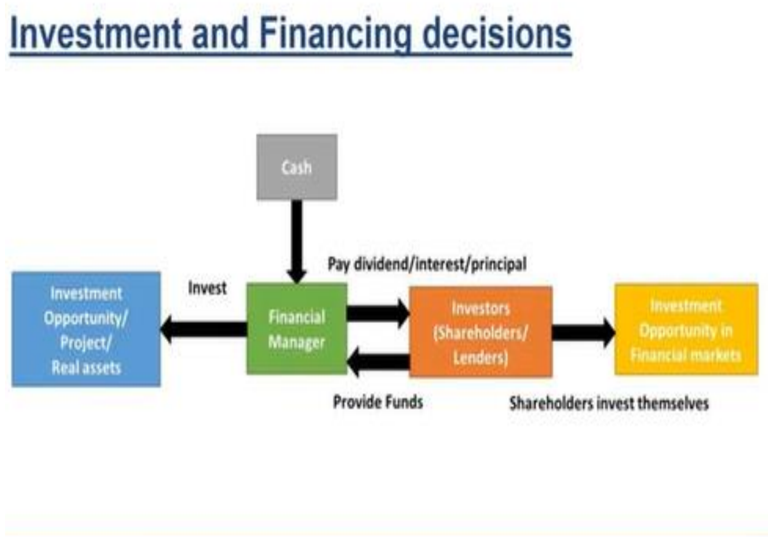

A simple illustration of investment and financing decisions is provided here. Let us understand the simple trade-off in front of the managers through this figure. The corporation has proposed a project investment as a real asset. If the firm has sufficient cash on hand to fund the project, then it need not look outside for funds. Also, in case the firm decides not to invest in the project then the cash can be paid back to investors and lenders in the form of dividends and prepayment of the loan.

If the financial manager is acting in the interest of the owners as a shareholder, should he invest the money in the project or return it to investors? The simple answer is that if the rate of return on the project investment is higher than that available in the financial markets then shareholders would want managers to invest in the project. Otherwise, if the returns available in financial markets are more than that expected from the project investment then the investors would like to have their hands on the money and invest themselves in the market.

But does it mean that any project investment is comparable to any financial market investment as you would have expected the simple answer to this question is a big no. The investment project is compared to only those instruments in financial markets that have the same risk. We will have more to say about this risk in future discussions. For now, it is sufficient to state that if the project investment offers a higher return as compared to the investments available in the financial markets with similar risk.

Then the shareholders would like the financial managers to invest in that project and vice versa. Thus, this return that is available in financial markets on similar risk instruments acts as the hurdle rate or cost of capital. This hurdle rate is often referred to as the much-celebrated concept of the opportunity cost of capital. The simple idea here is that whenever a corporation invests money in new project investments the shareholders lose an opportunity to invest the cash on their own.

Corporations increase value by accepting all investment projects that earn more than the opportunity cost of capital. Rational investors are risk-averse investors and that is why whenever we are talking about the return, we also mentioned the word risk. For example, note that we use the phrase investment in the same risk, why? Because these investors are risk averse. To hold an instrument of higher or lower risk they would demand a higher or lower return according to their risk-averse nature.

Therefore, every time we talk about comparing the returns onto instruments it is given that we are talking about the instruments having the same risk. Also, there is a very fundamental assumption here that is the availability of fairly priced financial market instruments of all flavors. This assumes the presence of fairly liquid and efficient financial markets as given. The assumption is more theoretical and will have more to say on this as well in later more advanced topics.

Right now, we will take a slight detour to understand what is an efficient market. A market is shared to be efficient if it is able to incorporate all the available information in prices. This information may include aspects such as information related to past prices, public information, and sometimes even private information. The higher the degree of information associated with prices the more efficient the prices are considered.

The more efficient markets are less volatile and quickly absorb any new information. Developed and advanced markets such as the US and the UK may offer such liquid and efficient markets but emerging country markets are often less liquid and less efficient and more volatile than the desirable levels. By now it should be quite obvious that investors look toward financial markets to measure the appropriate opportunity cost of capital for their project investments that are real assets.

For example, if the project is a sure short opportunity with a sure riddance a comparable benchmark would be an investment into risk-free government securities. What are the securities? Are they available to retail investors for investments? Often these risk-free securities are not available to small investors. These are very liquid short-term risk-free securities that are traded in money markets.

The ticket sizes in these markets are very large therefore retail investors can only participate in these markets by investing in money market mutual funds. In general, projects are risky and the appropriate interest rates are well above those that are available on risk-free government securities. Estimating the risk and therefore the appropriate return on risky projects is one of the hardest tasks for financial managers.

So, then what is the goal of a financial manager? Maximize firm value by selecting projects that offer higher returns than the opportunity cost of capital. To summarize in this video, we discuss the two most important decisions that affect fund value. Investment decisions and financing decisions. We found that financial managers create value by selecting projects that offer higher returns than the opportunity cost of shareholders.

We also understood that the existence of liquid and efficient markets is desired to estimate this opportunity cost.

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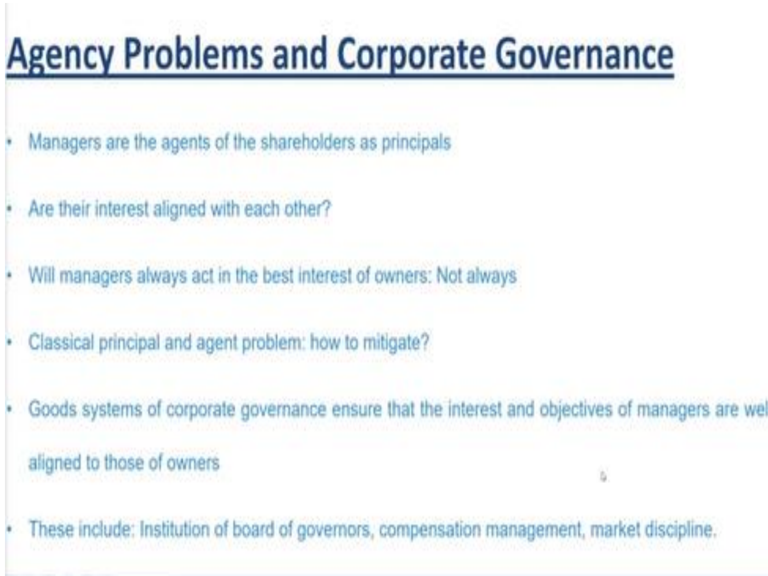

Agency problems and corporate governance. In this video, we will discuss the agency problems that arise in modern corporations and the role of good systems of corporate governance in mitigating these problems. We have understood that shareholders want financial managers to maximize firm value as their ultimate goal. This is a fundamental result. Other goals such as current and future profits cash flows among others are at best short-term and in fact, may adversely affect the firm value.

For example, in order to increase future profits managers may cut the current dividends and investment projects with poor returns. We have also understood that this is not in the best interest of shareholders. As the shareholders can earn commensurate returns according to the risk of the project. By investing in financial markets, we call this concept the opportunity cost. Here one can easily see that managers are acting as the agents of their principals that are shareholders or owners.

It goes without saying that when managers act in the best interest of the firm with firm value maximization being their ultimate goal. They also act in the best interest of other stakeholders such as customers, employees, partners, and their operating environment. This is to suggest that the goal of profit maximization is often misunderstood and considered in conflict with the interest of these stakeholders.

For example, satisfied customers, loyal employees, and a harmonious operating environment enhance the firm value. Shareholders do not directly control the day-to-day operations of the managers. They only control the long-term strategic actions of managers through the institution of the board of directors. In addition, they can show their approval or disapproval by selling and buying the shares.

This is also the reason why liquid and efficient markets are important. Again, we return to our discussion of the separation of ownership and control. This separation does not necessary but also has some negative consequences. Managers may take certain actions that may not be in the best interest of shareholders. For example, they may avoid projects with long-term value creation. In favor of the projects with short-term benefits but less contribution to the firm value.

Other examples include wasteful expenditure on personal luxury for example meeting at luxury resorts, and corporate jets. Such conflicts between the managers and owners are called agency problems. Agency problems arise when agents work for the principal. Shareholders are the principal and managers are their agents. Agency costs are incurred when managers do not aim to maximize the firm value. Shareholders also incur agency costs to monitor and constrain managerial actions.

In order to mitigate these agency costs good systems of corporate governance are needed. These include the design of compensation schemes for the top management legal and regulatory requirements related to accounting and reporting standards for listed firms to ensure consistency and transparency, board of the direct institution, monitoring by a security analyst, shareholder pressure through buying and selling of stocks, market discipline through the threat of takeovers.

These mechanisms help align the interest of managers to those of shareholders. These are considered to be integral aspects of a good system of corporate governance. To summarize in this video, we understood that managers in modern organizations act as the agents of their principals. The separation of ownership and control provides a lot of benefits to organizations. For example, these organizations survive many human lifetimes and are not affected by changes in ownership.

However, this separation of ownership and control also has side effects. For example, managers may not act in the best interest of the shareholders. This is called the classical agency problem this entails agency costs such as costs incurred in monitoring the actions of managers. Good systems of corporate governance such as the design of compensation schemes, and legal and liquidity requirements related to accounting and reporting standards.

Board of the direct institution, monitoring by security analysts and market discipline help in mitigating these agency costs, underlining the interest of managers to those of shareholders. To summarize this lesson, we understand that companies face two very important financial decisions. The first decision is called the investment decision wherein the firm decides in what project it should invest in and what are the projects to be not considered.

The second decision is the financing decision in which the firm decides how to raise funds to pay for these investments. The stockholders want managers to maximize the firm value which is the current price of its shares. This is the commonly agreed goal for all the shareholders as long as they can access liquid and efficient markets. These financial markets help investors in optimizing the time pattern and the risk of their investment and consumption in a flexible manner.

We also discussed that this goal of firm value maximization does not contradict the responsibilities and behavior of a corporation vis-a-vis the other shareholders and stakeholders such as partners, customers, and other stakeholders that are part of its operating environment. The next important question we answered is how to increase the value of the firm. First, we noted that value is often created from the investment side that is the asset side of the balance sheet.

However, value can be destroyed from the financing side by using poor financing structures. Investments that offer a return that is higher than the opportunity cost of capital are set to increase the value of the firm. Also, while making these investment decisions financial managers face a trade-off. The firm can invest in projects or return to investors in the form of dividends or prepayments when a firm invests money into projects the shareholders lose the opportunity to invest themselves in financial markets.

This is often referred to as the loss of opportunity to invest in financial instruments that are available and have a risk that is similar to the investment of the project. That is why this return they are giving up is called the opportunity cost of capital. If the project investments are available the firm offers a higher return than this opportunity cost of capital shareholders rally behind the firm stock that is they buy this stock and its price rises.

On the other hand, if the firm invests at a return that is lower than the opportunity cost of capital the shareholders disapprove that is selling their stock and the price falls. However, managers often do not act in the value maximization manner, they often act in their own self-interest with short-term objectives which conflict with the interest of shareholders that is value maximization objective. This conflict is often referred to as the principal-agent problem.

Any loss of value caused by this conflict is called agency cost. For example, cost incurred in monitoring the actions of managers, to mitigate these costs good systems of corporate governance are prescribed. These systems ensure that managers and shareholders and their interests are aligned. One of the most prominent corporate governance systems is the institution of the board of directors.

These, boards of directors are representatives of shareholders and play a major role in the appointment, removal, and compensation policies of the top management. In addition, various representative schemes for top managers such as stock options are stipulated to align their incentives of managers with those of shareholders.