AAM
Business School

Corporate Finance

II SEMESTER

(Approved by Alagappa University)

22 Corporate Finance

Module I: Corporate finance introduction

Corporate Investment and Financing Decisions - Calculation of Present values -Investment criteria - Net present value - Payback - internal rate of return - capital rationing - Capital investment process - sensitivity analysis -Monte Carlo simulation -real options and decision trees . Risk and return – Arithmetic averages and compound annual returns – Measuring and calculating portfolio risk – Portfolio theory – Markowitz theory – Capital asset pricing model

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Venture capital - IPO – Private placements - Kinds of Debt – leasing.

Bond: Types of bond – Duratio n and volatility – The term structure of interest rates – Valuation of bond – bond ratings. Valuation f common stock – valuing the business by disco unted cash flow

Module III: Cost of capital and Capital structure

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Module IV: Dividend Policy

Pay out policy: Various methods of payout; dividend patterns; why dividends are important? Irrelevance of dividend policy in perfect markets-Dividend Payments-Stock Repurchase

Module V: Management of Working Capital

Short Term Financial Planning, Cash vs. working capital; cash budgeting; sources of short term borrowing. Working Capital Management: Inventory- Receivables. Cash Management: Using cash efficiently; ETF; International cash management. Marketable Securities, Money market instruments; yields on money market instruments

Textbook:

Principles of Corporate Finance, Richard A. Brealey, Stewart C. Myers, Franklin Allen &Pitabas Mohanty

Unit I

Corporate Investment and Financing Decisions

Corporate finance or corporate investment is an area of finance that deals with sources of funding, the capital structure of corporations, the actions that managers take to increase the value of the firm to the shareholders, and the tools and analysis used to allocate financial resources. The primary goal of corporate finance is to maximize or increase shareholder value.

It is the **investment that is made by companies rather than by governments or individual people.**

Finance Functions:

The following explanation will help in understanding each finance function in detail

Investment Decision

One of the most important finance functions is to intelligently allocate capital to long term assets. This activity is also known as capital budgeting. It is important to allocate capital in those long term assets so as to get maximum yield in future. Following are the two aspects of investment decision

a. Evaluation of new investment in terms of profitability
b. Comparison of cut off rate against new investment and prevailing investment.

Since the future is uncertain therefore there are difficulties in calculation of expected return. Along with uncertainty comes the risk factor which has to be taken into consideration. This risk factor plays a very significant role in calculating the expected return of the prospective investment. Therefore while considering investment proposal it is important to take into consideration both expected return and the risk involved.

Investment decision not only involves allocating capital to long term assets but also involves decisions of using funds which are obtained by selling those assets which become less profitable and less productive. It wise decisions to decompose depreciated assets which are not adding value and utilize those funds in securing other beneficial assets. An opportunity cost of capital needs to be calculating while dissolving such assets. The correct cut off rate is calculated by using this opportunity cost of the required rate of return (RRR)

Financial Decision

Financial decision is yet another important function which a financial manger must perform. It is important to make wise decisions about when, where and how should a business acquire funds. Funds can be acquired through many ways and channels. Broadly speaking a correct ratio of an equity and debt has to be maintained. This mix of equity capital and debt is known as a firm's capital structure.

A firm tends to benefit most when the market value of a company's share maximizes this not only is a sign of growth for the firm but also maximizes shareholders wealth. On the other hand

the use of debt affects the risk and return of a shareholder. It is more risky though it may increase the return on equity funds.

A sound financial structure is said to be one which aims at maximizing shareholders return with minimum risk. In such a scenario the market value of the firm will maximize and hence an optimum capital structure would be achieved. Other than equity and debt there are several other tools which are used in deciding a firm capital structure.

Dividend Decision

Earning profit or a positive return is a common aim of all the businesses. But the key function a financial manger performs in case of profitability is to decide whether to distribute all the profits to the shareholder or retain all the profits or distribute part of the profits to the shareholder and retain the other half in the business.

It's the financial manager's responsibility to decide a optimum dividend policy which maximizes the market value of the firm. Hence an optimum dividend payout ratio is calculated. It is a common practice to pay regular dividends in case of profitability Another way is to issue bonus shares to existing shareholders.

Liquidity Decision

It is very important to maintain a liquidity position of a firm to avoid insolvency. Firm's profitability, liquidity and risk all are associated with the investment in current assets. In order to maintain a tradeoff between profitability and liquidity it is important to invest sufficient funds in current assets. But since current assets do not earn anything for business therefore a proper calculation must be done before investing in current assets.

Current assets should properly be valued and disposed of from time to time once they become non profitable. Currents assets must be used in times of liquidity problems and times of insolvency.

Investment criteria:

Payback method :

What is the meaning of payback period?

Payback period is the time required to recover the initial cost of an investment. It is the number of years it would take to get back the initial investment made for a project. Therefore, as a technique of capital budgeting, the payback period will be used to compare projects and derive the number of years it takes to get back the initial investment. The project with the least number of years usually is selected.

Salient features of Payback period method

- Payback period is a simple calculation of time for the initial investment to return.
- It ignores the time value of money. All other techniques of capital budgeting consider the concept of time value of money. Time value of money means that a rupee today is more valuable than a rupee tomorrow. So other techniques discount the future inflows and arrive at discounted flows.

- It is used in combination with other techniques of capital budgeting. Owing to its simplicity the payback period cannot be the only technique used for deciding the project to be selected.

Illustrations

Let us understand the payback period method with a few illustrations.

Apple Limited has two project options. The initial investment in both the projects is Rs. 10,00,000.

Project A has even inflow of Rs. 1,00,000 every year.

Project B has uneven cash flows as follows:

Year 1 – Rs. 2,00,000

Year 2 – Rs. 3,00,000

Year 3 – Rs. 4,00,000

Year 4 – Rs. 1,00,000

Now let us apply the payback period method to both the projects.

The formula for computing payback period with even cashflows is:

Pay back period =

Total outflows **Initial investment**

_____ or _____

Inflow every year **Net annual cash inflows**

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Project A

If we use the formula, **Initial investment / Net annual cash inflows** then:

10,00,000/ 1,00,000 = 10 years

Project B

Total inflows = 10,00,000 (2,00,000+ 3,00,000+ 4,00,000+ 1,00,000)

Total outflows = 10,00,000

Project B takes four years to get back the initial investment.

Now, let us modify the cash flows of project B and see how to get the payback period:

Say, cash inflows are –

Year 1 – Rs. 2,00,000

Year 2 – Rs. 3,00,000

Year 3 – Rs. 7,00,000

Year 4 – Rs. 1,50,000

The payback period can be calculated as follows:

Year	Total flow (in Lakhs)	Cumulative flow
1	2	2
2	3	5
3	7	12
4	1.5	13.5

Now to find out the payback period:

Step 1: We must pick the year in which the outflows have become positive. In other words, the year with the last negative outflow has to be selected. So, in this case, it will be year two.

Step 2: Divide the total cumulative flow in the year in which the cash flows became positive by the total flow of the consecutive year.

So that is: 5/7 = 0.71

Step 3: Step 1 + Step 2 = the payback period is 2.71 years.

Therefore, between Project A and B, solely on the payback method, Project B (in both the examples) will be selected.

The example stated above is a very simple presentation. In an actual scenario, an investment might not generate returns for the first few years. Gradually over time, it might generate returns. That too will play a major role in determining the payback period.

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Note: In case an organization is replacing an existing machinery, the inflows will be considered on an incremental basis.

Calculation of PV:

Introduction to the Present Value of a Single Amount (PV)

If you received $100 today and deposited it into a savings account, it would grow over time to be worth *more* than $100. This fact of financial life is a result of the **time value of money**, a concept which says it's more valuable to receive $100 *now* rather than a year from now. To put it another way, the *present value* of receiving $100 one year from now is less than $100. Accountants use Present Value (PV) calculations to account for the time value of money in a number of different applications. For example, assume your company provides a service in December 2018 and agrees to be paid $100 in December 2019. The time value of money tells us that the part of the $100 is interest you will earn for waiting one year for the $100. Perhaps only $91 of the $100 is service revenue earned in 2018 and $9 is interest that will be earned in 2019. The calculation of present value will remove the interest, so that the amount of the service revenue can be determined. Another example might involve the purchase of land: the owners will either sell it to you for $160,000 *today*, or for $200,000 if you pay at the end of two years.

To help analyze the alternatives, you would use a PV calculation to tell you the interest rate *implicit* in the second option.
PV calculations can also tell you such things as how much money to invest right now in return for specific cash amounts to be received in the future, or how to estimate the rate of return on your investments. Our focus will be on *single* amounts that are received or paid in the future. We'll discuss PV calculations that solve for the present value, the implicit interest rate, and/or the length of time between the present and future amounts.

Calculations for the Present Value of a Single Amount

At the outset, it's important for you to understand that PV calculations involve *cash* amounts—not *accrual* amounts.
In present value calculations, future cash amounts are *discounted* back to the present time. (Discounting means removing the interest that is imbedded in the future cash amounts.) As a result, present value calculations are often referred to as a **discounted cash flow technique**.
PV calculations involve the compounding of interest. This means that any interest earned is reinvested and *itself* will earn interest at the same rate as the principal. In other words, you "*earn* interest *on* interest." The compounding of interest can be very significant when the interest rate and/or the number of years is sizeable.
We will use present value (PV) to mean a single future amount such as one receipt or one payment. Here are the components of a present value (PV) calculation:

1. Present value amount (PV)
2. Future value amount (FV)
3. Length of time before the future value amount occurs (n)
4. Interest rate used for discounting the future value amount (i)

If you know any **three** of these four components, you will be able to calculate the unknown component. Accountants are often called upon to calculate this unknown component.

Calculation Using the PV Formula
The present value formula for a single amount is:

$$PV = FV\,(1 + i)^{-n} \quad \text{(or)} \quad PV = FV \times [\,1 \div (1 + i)^{n}\,]$$

Using the second version of the formula, the solution is:

$PV = FV \times [\ 1 \div (1 + i)^n\ ]$

$PV = \$100 \times [\ 1 \div (1 + 0.08)^2\ ]$

$PV = \$100 \times [\ 1 \div (1.08)^2\ ]$

$PV = \$100 \times [\ 1 \div 1.1664\ ]$

$PV = \$100 \times [\ 0.8573388\ ] \leftarrow$ *PV factor*

PV = $85.73

The answer, **$85.73**, tells us that receiving $100 in two years is the same as receiving $85.73 today, if the time value of money is 8% per year compounded annually. ("Today" is the same concept as "time period 0.")

Present Value of 1 Table (PV of 1 Table)

Present Value Factors for 1.000 at Compound Interest
Rounded to three decimal places.

Example:
When interest is 8% per period and it is compounded each period, receiving 1.000 at the end of the 10th period has a present value of 0.463.

n	1%	2%	3%	4%	5%	6%	8%	10%	12%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.926	0.909	0.893
2	0.980	0.961	0.943	0.925	0.907	0.890	0.857	0.826	0.797
3	0.971	0.942	0.915	0.889	0.864	0.840	0.794	0.751	0.712
4	0.961	0.924	0.888	0.855	0.823	0.792	0.735	0.683	0.636
5	0.951	0.906	0.863	0.822	0.784	0.747	0.681	0.621	0.567
6	0.942	0.888	0.837	0.790	0.746	0.705	0.630	0.564	0.507
7	0.933	0.871	0.813	0.760	0.711	0.665	0.583	0.513	0.452
8	0.923	0.853	0.789	0.731	0.677	0.627	0.540	0.467	0.404
9	0.914	0.837	0.766	0.703	0.645	0.592	0.500	0.424	0.361
10	0.905	0.820	0.744	0.676	0.614	0.558	0.463	0.386	0.322
11	0.896	0.804	0.722	0.650	0.585	0.527	0.429	0.350	0.287
12	0.887	0.788	0.701	0.625	0.557	0.497	0.397	0.319	0.257
13	0.879	0.773	0.681	0.601	0.530	0.469	0.368	0.290	0.229
14	0.870	0.758	0.661	0.577	0.505	0.442	0.340	0.263	0.205
15	0.861	0.743	0.642	0.555	0.481	0.417	0.315	0.239	0.183
16	0.853	0.728	0.623	0.534	0.458	0.394	0.292	0.218	0.163
17	0.844	0.714	0.605	0.513	0.436	0.371	0.270	0.198	0.146

18	0.836	0.700	0.587	0.494	0.416	0.350	0.250	0.180	0.130
19	0.828	0.686	0.570	0.475	0.396	0.331	0.232	0.164	0.116
20	0.820	0.673	0.554	0.456	0.377	0.312	0.215	0.149	0.104
21	0.811	0.660	0.538	0.439	0.359	0.294	0.199	0.135	0.093
22	0.803	0.647	0.522	0.422	0.342	0.278	0.184	0.123	0.083
23	0.795	0.634	0.507	0.406	0.326	0.262	0.170	0.112	0.074
24	0.788	0.622	0.492	0.390	0.310	0.247	0.158	0.102	0.066
25	0.780	0.610	0.478	0.375	0.295	0.233	0.146	0.092	0.059
26	0.772	0.598	0.464	0.361	0.281	0.220	0.135	0.084	0.053
27	0.764	0.586	0.450	0.347	0.268	0.207	0.125	0.076	0.047
28	0.757	0.574	0.437	0.333	0.255	0.196	0.116	0.069	0.042
29	0.749	0.563	0.424	0.321	0.243	0.185	0.107	0.063	0.037
30	0.742	0.552	0.412	0.308	0.231	0.174	0.099	0.057	0.033

IRR

The Internal Rate of Return is a good way of **judging an investment**. The bigger the better!

The **Internal Rate of Return** is the interest rate
that makes the Net Present Value zero. **It is an Interest Rate.**

We find it by first **guessing what it might be** (say 10%), then work out the **Net Present Value.**

The **Net Present Value** is how much the investment is worth in today's money
(we find how to calculate it later)

Then keep guessing (maybe 8%? 9%?) and calculating, until we get a **Net Present Value of zero**.

Example: Sam is going to start a small bakery!

Sam estimates all the costs and earnings for the next 2 years, and calculates the Net Present Value:

At **6%** Sam gets a Net Present Value of **$2000**

But the Net Present Value should be **zero**, so Sam tries 8% interest:

At **8%** Sam gets a Net Present Value of **−$1600**

Now it's negative! So Sam tries once more, but with 7% interest:

At **7%** Sam gets a Net Present Value of **$15**

Close enough to zero, Sam doesn't want to calculate any more.

The Internal Rate of Return (IRR) is **about 7%**

So the Internal Rate of Return is the **interest rate that makes the Net Present Value zero**.

And that "guess and check" method is the common way to find it (though in that simple case it could have been worked out directly).

Formula :

PV = CF / (1+i)^n

IRR:

$$\text{Internal Rate of Return}$$

$$\left(\frac{\text{Cash Flows Year 1}}{(1+\text{IRR})^1} + \frac{\text{Cash Flows Year 2}}{(1+\text{IRR})^2} + \frac{\text{Cash Flows Year 3}}{(1+\text{IRR})^3} + \frac{\text{Cash Flows Year 4}}{(1+\text{IRR})^4}\right) - \text{Initial Investment} = 0$$

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Let's try a example: Example: Invest $2,000 now, receive 3 yearly payments of $100 each, plus $2,500 in the 3rd year. Find out IRR?

Year	CF	IRR @ 10%	PV
1	100	1.1	90.90909
2	100	1.21	82.64463
3	100	1.331	75.13148
3	2500	1.331	1878.287
		Total Returns	2126.972
		Investment	2000
			126.9722

Year	**CF**	**IRR @ 12%**	**PV**
1	100	1.12	89.28571
2	100	1.2544	79.71939
3	100	1.404928	71.17802
3	2500	1.404928	1779.451

		Total Returns	2019.634
		Investment	2000
			19.63375

Year	CF	IRR @ 12.4.%	PV
1	100	1.124	88.96797
2	100	1.263376	79.153
3	100	1.420034624	70.42082
3	2500	1.4200346	1760.52
		Total Returns	1999.062
		Investment	2000
			-0.93773

IRR = 12.4%

Capital rationing /Profitability Index:

Capital rationing is a strategy used by companies or investors to limit the number of projects they take on at a time. If there is a pool of available investments that are all expected to be profitable, capital rationing helps the investor or business owner choose the most profitable ones to pursue.

Companies that employ a capital rationing strategy typically produce a relatively higher return on investment (ROI). This is simply because the company invests its resources where it identifies the highest profit potental

Capital Rationing Example
Capital rationing is about putting restrictions on investments and projects taken on by a business. To illustrate this better, let's consider the following example:

VV Construction is looking at five possible projects to invest in, as shown below:

Project	Investment Capital	Net Present Value (NPV)
1	$2 billion	$2 billion
2	$4 billion	$4 billion
3	$5 billion	$3 billion
4	$4 billion	$2 billion
5	$6 billion	$5 billion

To determine which project offers the greatest potential profitability, we compute each project using the following formula:

Profitability = NPV / Investment Capital

Project	NPV / Investment Capital	Profitability
1	$2 billion / $2 billion	1
2	$4 billion / $4 billion	1
3	$3 billion / $5 billion	0.6
4	$2 billion / $4 billion	0.5
5	$5 billion / $6 billion	.83

Based on the table above, we can conclude that projects 1 and 2 offer the greatest potential profit. Therefore, VV Construction will likely invest in those two projects.

Types of Capital Rationing

There are two types of capital rationing – **hard** and **soft** rationing.

1. Hard capital rationing

Hard capital rationing represents rationing that is being imposed on a company by circumstances beyond its control. For example, a company may be restricted from borrowing money to finance new projects because it has suffered a downgrade in its credit rating. Thus, it may be difficult or effectively impossible for the company to secure financing, or it may only be able to do so at exorbitant interest rates.

2. Soft capital rationing

In contrast, soft capital rationing refers to a situation where a company has freely chosen to impose some restrictions on its capital expenditures, even though it may have the ability to make much higher capital investments than it chooses to. The company may choose from any of a number of methods for imposing investment restrictions on itself. For example, it may temporarily require that a project offer a higher rate of return than is usually required in order for the company to consider pursuing it. Or the company may simply impose a limit on the number of new projects that it will taken on during the next 12 months.

Why is Capital Rationing Used? – Benefits

Capital rationing is used by many investors and companies in order to ensure that only the most feasible investments are made. It helps ensure that businesses will invest only in those projects that offer the highest returns. It may appear that all investments with high projected returns should be taken. However, there are times when funds are low or when a company or an individual investor merely wants to improve their cash flows before making any more

investments. It may also be the case that the investor has reason to believe that they can make the investment under more favorable terms by waiting a bit longer before pursuing it. For example, the company's management may expect a significant drop in interest rates within the next six months, which would make for less expensive financing costs.

Limited Numbers of Projects are Easier to Manage

When a company invests in a large number of projects simultaneously, the sharing of funds means less capital available for each individual project. This typically translates to more time and effort being required to monitor and manage each project. Also, allocating limited resources across several projects may actually threaten the success of the projects, if, for example, the projected budget for one or more projects turns out to have significantly underestimated costs. Wise capital rationing can help a company avoid such problems.

Capital Rationing Offers Increased Investment Flexibility

Investment opportunities are constantly changing. Portfolio managers usually keep a significant portion of available investment funds in the form of cash. Maintaining a ready supply of excess cash, first of all, provides greater financial stability and makes it easier for investors to adjust to sudden adverse circumstances that may arise.

Keeping some excess cash in reserve accomplishes something else as well. It ensures that if a particularly attractive unseen golden opportunity should suddenly arise, the investor has funds available to take immediate advantage of the situation. The abiliity to act quickly may be the difference between a good investment opportunity and a great one.

Potential Disadvantages of Capital Rationing

Capital rationing also comes with its own set of potential disadvantages, including the following:

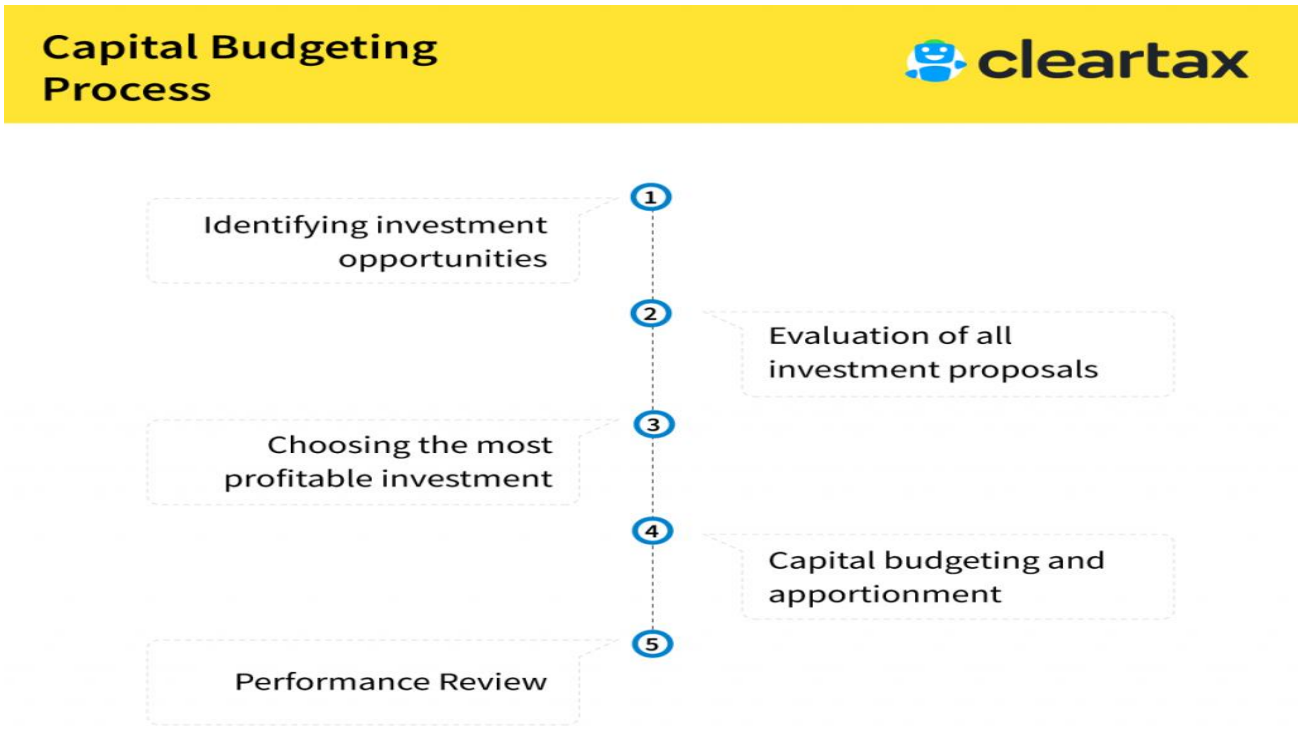
1. High capital requirements

Because only the most profitable investments are takenon under a capital rationing scenario, rationing can also spell high capital requirements.

2. Goes against the efficient capital markets theory

Instead of investing in all projects that offer high profits, capital rationing only allows for selecting the projects with the highest estimated returns on investment. But the efficient markets theory holds that it is virtually impossible, over time, to continually select superior investments that significantly outperfruouterfre/versa. Capital rationing may, in fact, expose an investor to greater risk by failing to hold a diversified investment portfolio.

Capital Investment Process:



1. Identifying investment opportunities

An organization needs to first identify an investment opportunity. An investment opportunity can be anything from a new business line to product expansion to purchasing a new asset. For example, a company finds two new products that they can add to their product line.

2. Evaluating investment proposals

Once an investment opportunity has been recognized an organization needs to evaluate its options for investment. That is to say, once it is decided that new product/products should be added to the product line, the next step would be deciding on how to acquire these products. There might be multiple ways of acquiring them. Some of these products could be:

- Manufactured In-house
- Manufactured by Outsourcing manufacturing the process, or
- Purchased from the market

3. Choosing a profitable investment

Once the investment opportunities are identified and all proposals are evaluated an organization needs to decide the most profitable investment and select it. While selecting a particular project an organization may have to use the technique of capital rationing to rank the projects as per returns and select the best option available.

In our example, the company here has to decide what is more profitable for them. Manufacturing or purchasing one or both of the products or scrapping the idea of acquiring both.

4. Capital Budgeting and Apportionment

After the project is selected an organization needs to fund this project. To fund the project it needs to identify the sources of funds and allocate it accordingly.

The sources of these funds could be reserves, investments, loans or any other available channel.

5. Performance Review

The last step in the process of capital budgeting is reviewing the investment. Initially, the organization had selected a particular investment for a predicted return. So now, they will compare the investments expected performance to the actual performance.

In our example, when the screening for the most profitable investment happened, an expected return would have been worked out. Once the investment is made, the products are released in the market, the profits earned from its sales should be compared to the set expected returns. This will help in the performance review.

Monte carlo simulation (Refer PDF)

Real options and decision tree:

A real option is a choice made available to the managers of a company concerning business investment opportunities. It is referred to as "real" because it typically references projects involving a tangible asset instead of a financial instrument. Tangible assets are physical assets such as machinery, land, and buildings, as well as inventory. Real options are a right but not an obligation to make a business decision. The concept of a real option is crucial to the success of a business as the ability to choose the right business opportunity bears a significant effect on the company's profitability and growth. A real option allows the management team to analyze and evaluate business opportunities and choose the right one.

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The concept of real options is based on the concept of financial options; thus, fundamental knowledge of financial options is crucial to understanding real options.

Understanding Real Options:

Real options are choices a company's management makes to expand, change, or curtail projects based on changing economic, technological, or market conditions. Factoring in real options affects the valuation of potential investments, although commonly used valuations fail to account for potential benefits provided by real options. Using real options value analysis (ROV), managers can estimate the opportunity cost of continuing or abandoning a project and make decisions accordingly.

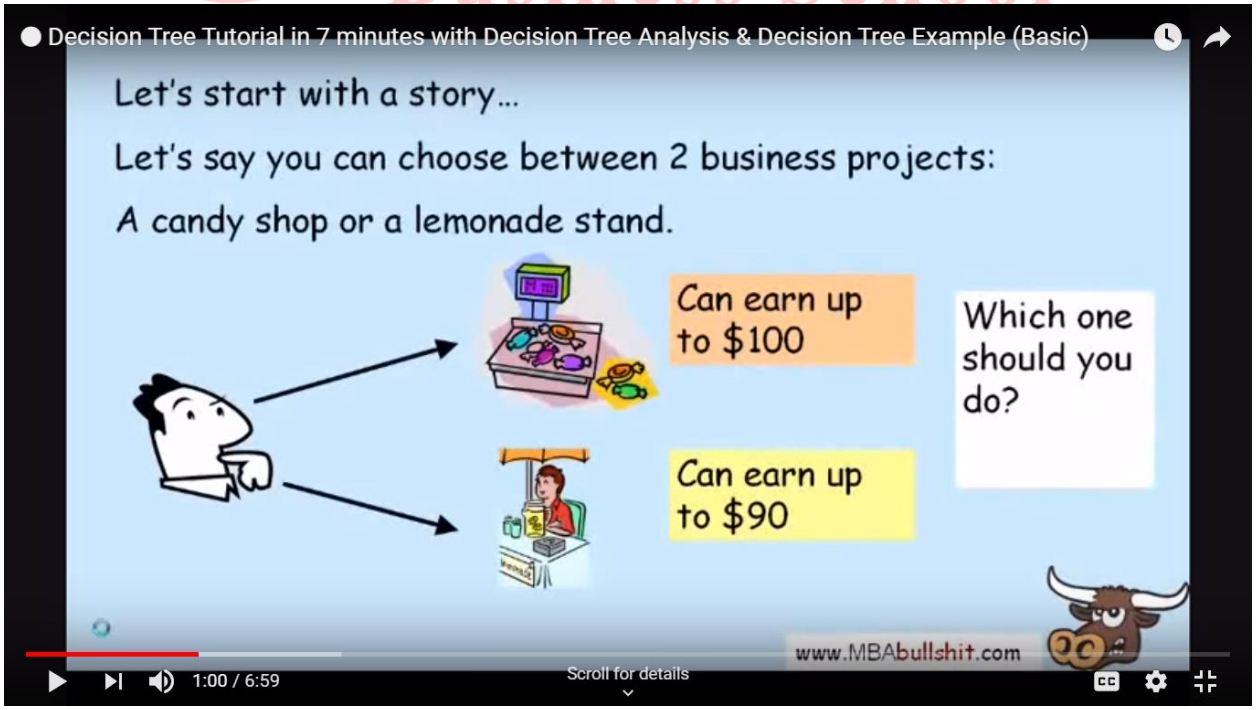
It's an important distinction that real options do not refer to a derivative financial instrument, such as options contracts, which give the holder the right to buy or sell an underlying asset. Instead, real options refer to choices or opportunities that a business may or may not take advantage of or realize. For example, investing in a new manufacturing facility may provide a company with real options for introducing new products, consolidating operations, or making other adjustments to changing market conditions.

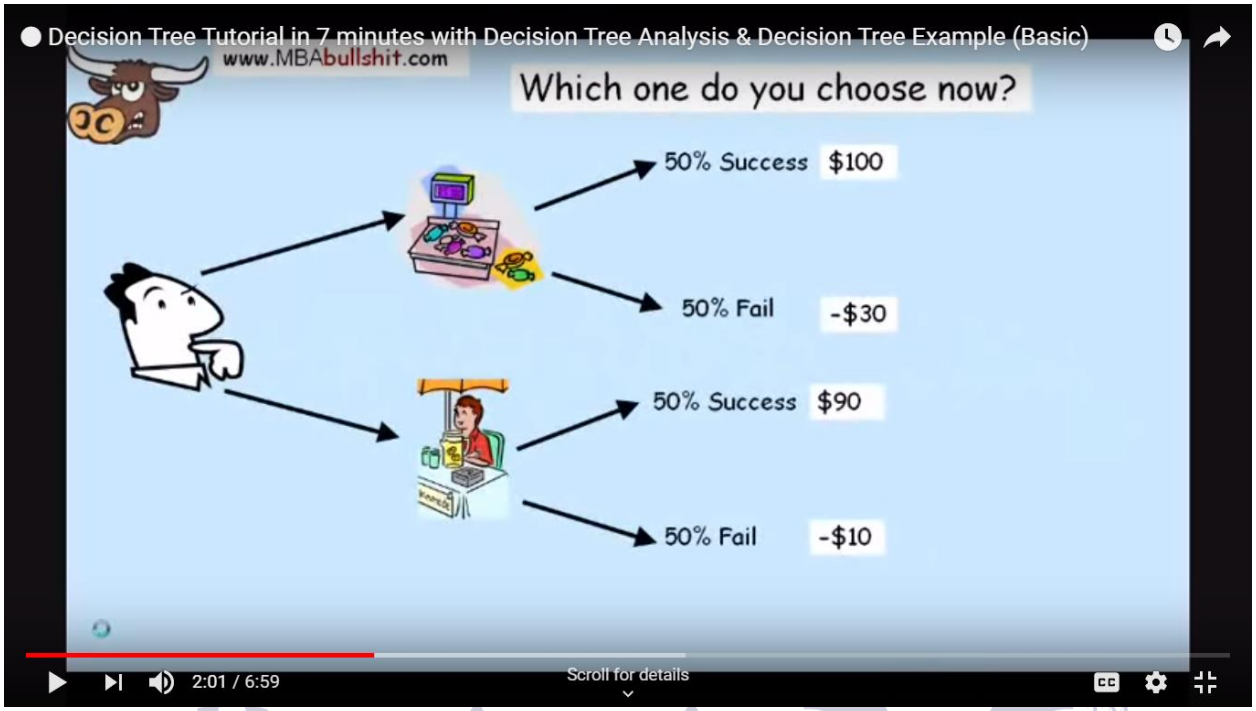
In deciding whether to invest in the new facility, the company should consider the real option value the facility provides. Other examples of real options include possibilities for mergers and acquisitions (M&A) or joint ventures.

Types of Real Options
Real options may be classified into different groups. The most common types are: option to expand, option to abandon, option to wait, option to switch, and option to contract.

- **Option to expand** is the option to make an investment or undertake a project in the future to expand the business operations (a fast food chain considers opening new restaurants).
- **Option to abandon** is the option to cease a project or an asset to realize its salvage value (a manufacturer can opt to sell old equipment).
- **Option to wait** is the option of deferring the business decision to the future (a fast food chain considers opening new restaurants this year or in the next year).
- **Option to contract** is the option to shut down a project at some point in the future if conditions are unfavorable (a multinational corporation can stop the operations of its branches in a country with an unstable political situation).
- **Option to switch** is the option to shut down a project at some point in the future if the conditions are unfavorable and resume it when the conditions are favorable (an oil company can shut down the operation of one of its plants when oil prices are low and resume operation when prices are high).

Decision Tree:

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50% Success $100
50% Fail -$30
50% Success $90
50% Fail -$10
2:01 / 6:59
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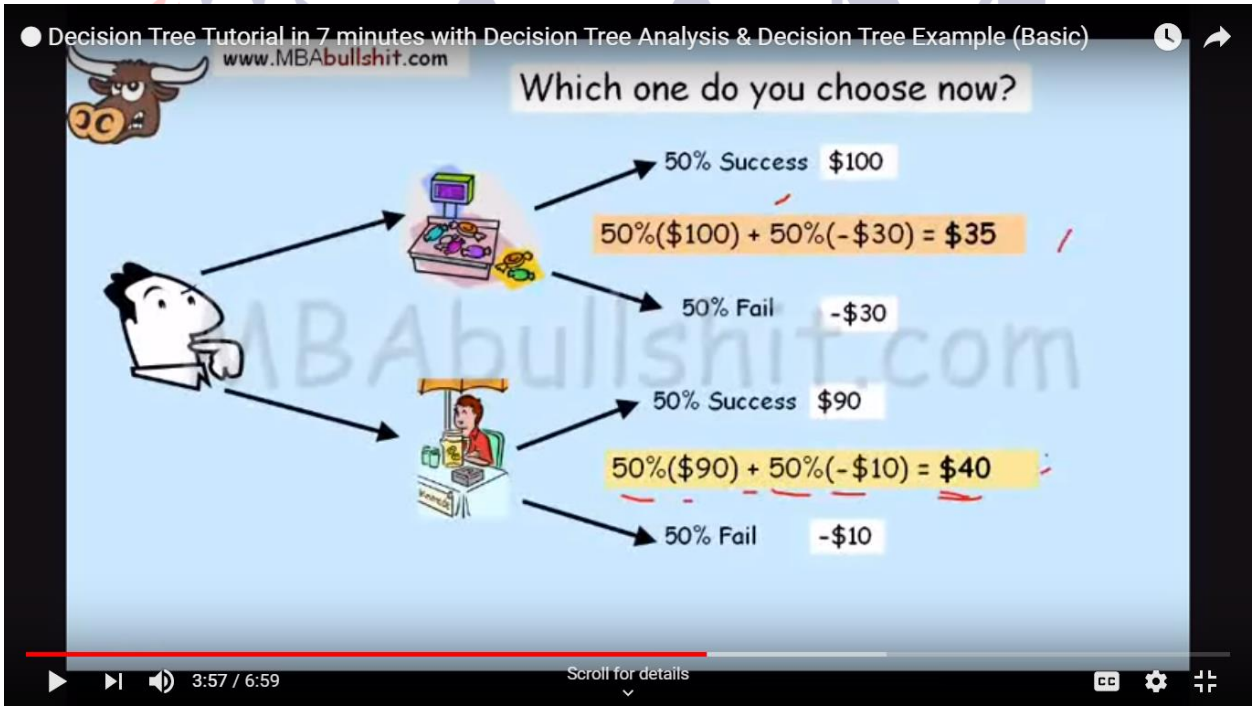
Decision Tree Tutorial in 7 minutes with Decision Tree Analysis & Decision Tree Example (Basic)
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Which one do you choose now?
50% Success $100
50%($100) + 50%(-$30) = $35
50% Fail -$30
50% Success $90
50%($90) + 50%(-$10) = $40
50% Fail -$10
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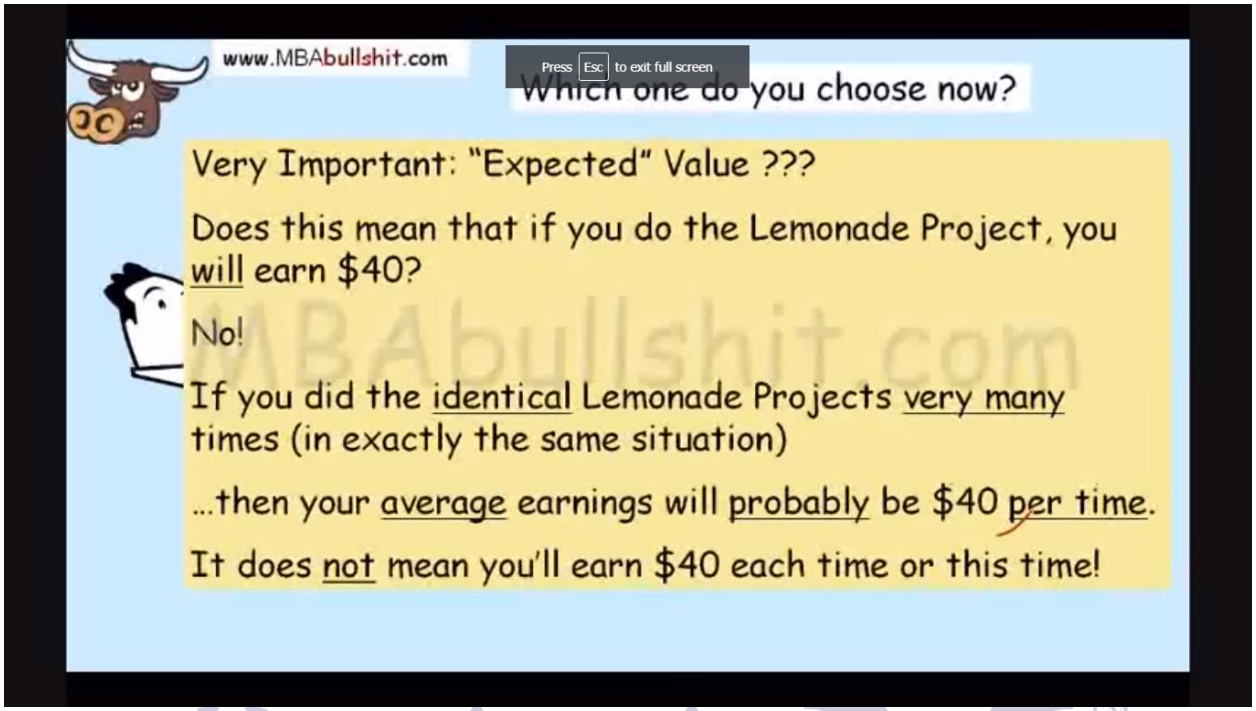


Risk and returns:

What is 'Risk and Return'?

In investing, risk and return are highly correlated. Increased potential returns on investment usually go hand-in-hand with increased risk. Different types of risks include project-specific risk, industry-specific risk, competitive risk, international risk, and market risk. Return refers to either gains or losses made from trading a security.

The return on an investment is expressed as a percentage and considered a random variable that takes any value within a given range. Several factors influence the type of returns that investors can expect from trading in the markets.

Diversification allows investors to reduce the overall risk associated with their portfolio but may limit potential returns. Making investments in only one market sector may, if that sector significantly outperforms the overall market, generate superior returns, but should the sector decline then you may experience lower returns than could have been achieved with a broadly diversified portfolio.

First, each investment in a diversified portfolio represents only a small percentage of that portfolio. Thus, any risk that increases or reduces the value of that particular investment or group of investments will only have a small impact on the overall portfolio.

Second, the effects of firm-specific actions on the prices of individual assets in a portfolio can be either positive or negative for each asset for any period. Thus, in large portfolios, it can be reasonably argued that positive and negative factors will average out so as not to affect the overall risk level of the total portfolio.

Arithmetic average and compound annual returns:

How to Calculate the Arithmetic Average
An arithmetic average is the sum of a series of numbers divided by the count of that series of numbers.

If you were asked to find the class (arithmetic) average of test scores, you would simply add up all the test scores of the students and then divide that sum by the number of students. For example, if five students took an exam and their scores were 60%, 70%, 80%, 90%, and 100%, the arithmetic class average would be 80%.

This would be calculated as:

{60% + 70% + 80% + 90% + 100% }/{ 5 } = 80%

The reason we use an arithmetic average for test scores is that each score is an independent event. If one student happens to perform poorly on the exam, the next student's chances of doing poor (or well) on the exam isn't affected.

In the world of finance, the arithmetic mean is not usually an appropriate method for calculating an average. Consider investment returns, for example. Suppose you've invested your savings in the financial markets for five years. If your portfolio returns each year were 90%, 10%, 20%, 30% and -90%, what would your average return be during this period?

With the arithmetic average, the average return would be 12%, which appears at first glance to be impressive—but it's not entirely accurate. That's because when it comes to annual investment returns, the numbers are not independent of each other. If you lose a substantial amount of money in a particular year, you have that much less capital to invest and generate returns in the following years.

What is the Compound Return?
The compound return is the rate of return, usually expressed as a percentage, that represents the cumulative effect that a series of gains or losses has on an original amount of capital over a period of time. Compound returns are usually expressed in annual terms, meaning that the percentage number that is reported represents the annualized rate at which capital has compounded over time.

When expressed in annual terms, a compound return can be referred to as a Compound Annual Growth Rate (CAGR).

If an investment fund claims to have produced a 10% annual compound return over the past five years, this means that at the end of its fifth year, the fund's capital has grown to a size equal to what it would be if the funds on hand at the beginning of each year had earned exactly 10% by the end of each year.

Understanding Compound Return
Compound return is viewed as a much more accurate measure of performance of an investment's return over time than the average return. This is because the average annual return does not take compounding into effect, which results in a gross misstatement of an investor's actual returns. Average returns either overestimate or underestimate growth or decline in returns. In effect, compound returns ensure that volatility, which can inflate or deflate returns, is accounted for in calculations.

KEY TAKEAWAYS

- Compound return is the rate of return for capital over a cumulative series of time.
- Compound returns are a more accurate measure as compared to average returns to calculate growth or decline in an investment over a period of time.

Example of Compound Return
For example, suppose you started with an initial investment of $1,000. If you multiply 1,000 by 1.1 five times, that is, $1,000 x $(1.1)^5$, you will end up with about $1,611. If an investment of $1,000 ended up being worth $1,611 by the end of five years, the investment could be said to have generated a 10% annual compound return over that five-year period.

Here is the math:

- Year 1: $1,000 x 10% = $1,100
- Year 2: $1,100 x 10% = $1,210
- Year 3: $1,210 x 10% = $1,331
- Year 4: $1,331 x 10% = $1,464.10
- Year 5: $1,464 x 10% = $1,610.51

However, this does not mean that the investment actually appreciated by 10% during each of the five years. Any pattern of growth that led to a final value of $1,611 after five years would equate to a 10% annualized return. Suppose the investment earned nothing for the first four years, and then earned $611 in its last year (a 61.1% return for the year). This would still equate to a 10% annual compound return over the five-year measurement period, since the final amount is still equal to what the $1,000 would have grown to if it had appreciated by a steady 10% each year.

If returns for the investment described in the example above were calculated using average returns, then it would end up with an incorrect percentage. If the investment above earned nothing in the first four years, but earned 61.1% in its fifth year, the average return will be calculated as: (0% + 0% + 0% + 0% + 61.1%) / 5 = 12.22%

Measuring and operating Portfolio risk:

Types of risk

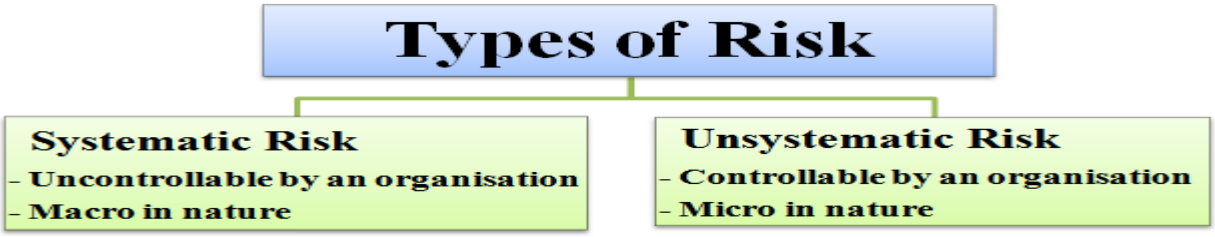
First let's revise the simple meaning of two words, viz., types and risk.

In general and in context of this finance article,
1. Types mean different classes or various forms / kinds of something or someone.

2. Risk implies the extend to which any chosen action or an inaction that may lead to a loss or some unwanted outcome. The notion implies that a choice may have an influence on the outcome that exists or has existed.

However, in financial management, risk relates to any material loss attached to the project that may affect the productivity, tenure, legal issues, etc. of the project.

In finance, different types of risk can be classified under two main groups, viz.,



1. Systematic risk.
2. Unsystematic risk.

The meaning of systematic and unsystematic risk in finance:

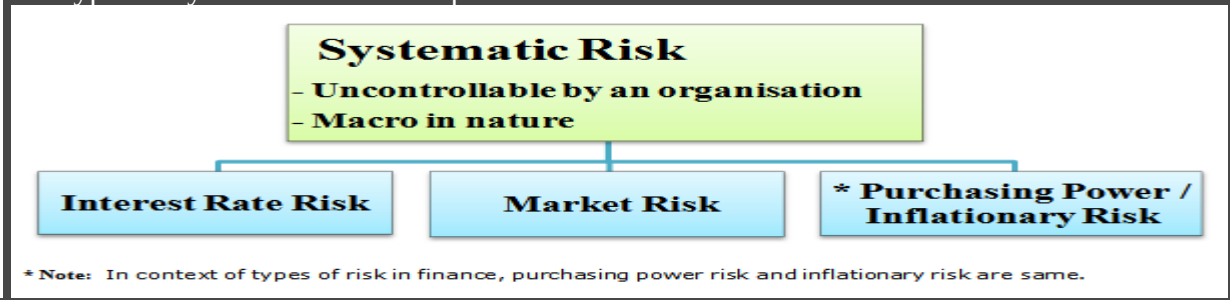
1. Systematic risk is uncontrollable by an organization and macro in nature.
2. Unsystematic risk is controllable by an organization and micro in nature.

A. Systematic Risk

Systematic risk is due to the influence of external factors on an organization. Such factors are normally uncontrollable from an organization's point of view.

It is a macro in nature as it affects a large number of organizations operating under a similar stream or same domain. It cannot be planned by the organization.

The types of systematic risk are depicted and listed below.



1. Interest rate risk,
2. Market risk and
3. Purchasing power or inflationary risk.

Now let's discuss each risk classified under this group.

1. Interest rate risk

Interest-rate risk arises due to variability in the interest rates from time to time. It particularly affects debt securities as they carry the fixed rate of interest.

The types of interest-rate risk are depicted and listed below.

1. Price risk and
2. Reinvestment rate risk.

The meaning of price and reinvestment rate risk is as follows:

1. Price risk arises due to the possibility that the price of the shares, commodity, investment, etc. may decline or fall in the future.
2. Reinvestment rate risk results from fact that the interest or dividend earned from an investment can't be reinvested with the same rate of return as it was acquiring earlier.

2. Market risk

Market risk is associated with consistent fluctuations seen in the trading price of any particular shares or securities. That is, it arises due to rise or fall in the trading price of listed shares or securities in the stock market.

The types of market risk are depicted and listed below.

1. Absolute risk,
2. Relative risk,
3. Directional risk,
4. Non-directional risk,
5. Basis risk and
6. Volatility risk.

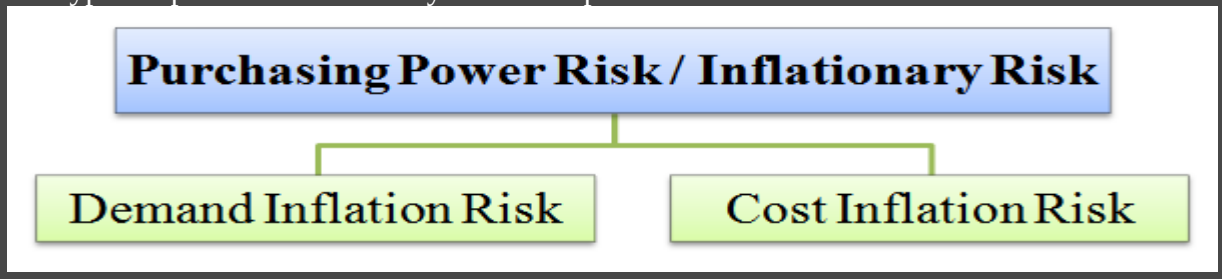
The meaning of different types of market risk is as follows:

1. Absolute risk is without any content. For e.g., if a coin is tossed, there is fifty percentage chance of getting a head and vice-versa.
2. Relative risk is the assessment or evaluation of risk at different levels of business functions. For e.g. a relative-risk from a foreign exchange fluctuation may be higher if the maximum sales accounted by an organization are of export sales.
3. Directional risks are those risks where the loss arises from an exposure to the particular assets of a market. For e.g. an investor holding some shares experience a loss when the market price of those shares falls down.
4. Non-Directional risk arises where the method of trading is not consistently followed by the trader. For e.g. the dealer will buy and sell the share simultaneously to mitigate the risk
5. Basis risk is due to the possibility of loss arising from imperfectly matched risks. For e.g. the risks which are in offsetting positions in two related but non-identical markets.
6. Volatility risk is of a change in the price of securities as a result of changes in the volatility of a risk-factor. For e.g. it applies to the portfolios of derivative instruments, where the volatility of its underlying is a major influence of prices.

3. Purchasing power or inflationary risk

Purchasing power risk is also known as inflation risk. It is so, since it emanates (originates) from the fact that it affects a purchasing power adversely. It is not desirable to invest in securities during an inflationary period.

The types of power or inflationary risk are depicted and listed below.



1. Demand inflation risk and
2. Cost inflation risk.

The meaning of demand and cost inflation risk is as follows:

1. Demand inflation risk arises due to increase in price, which result from an excess of demand over supply. It occurs when supply fails to cope with the demand and hence cannot expand anymore. In other words, demand inflation occurs when production factors are under maximum utilization.
2. Cost inflation risk arises due to sustained increase in the prices of goods and services. It is actually caused by higher production cost. A high cost of production inflates the final price of finished goods consumed by people.

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B. Unsystematic Risk

Unsystematic risk is due to the influence of internal factors prevailing within an organization. Such factors are normally controllable from an organization's point of view.

It is a micro in nature as it affects only a particular organization. It can be planned, so that necessary actions can be taken by the organization to mitigate (reduce the effect of) the risk.

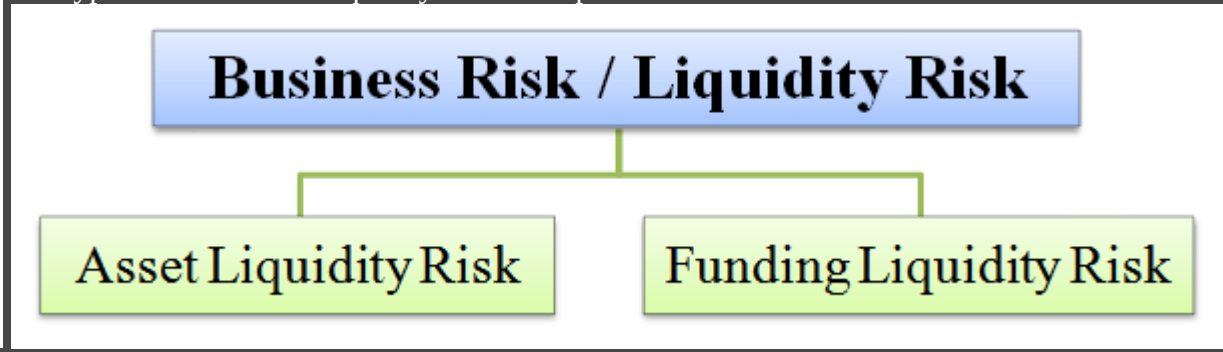
The types of unsystematic risk are depicted and listed below.

1. Business or liquidity risk,
2. Financial or credit risk and
3. Operational risk.

Now let's discuss each risk classified under this group.

1. Business or liquidity risk

Business risk is also known as liquidity risk. It is so, since it emanates (originates) from the sale and purchase of securities affected by business cycles, technological changes, etc.
The types of business or liquidity risk are depicted and listed below.



1. Asset liquidity risk and
2. Funding liquidity risk.

The meaning of asset and funding liquidity risk is as follows:

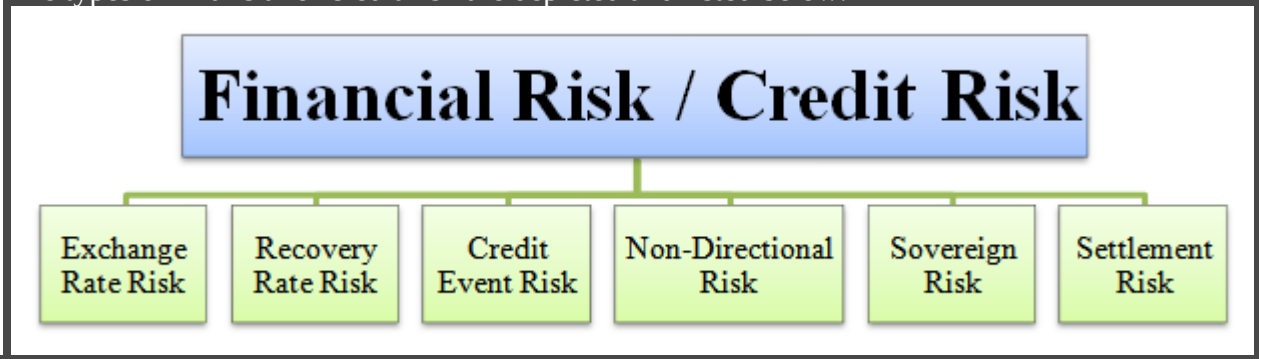
1. Asset liquidity risk is due to losses arising from an inability to sell or pledge assets at, or near, their carrying value when needed. For e.g. assets sold at a lesser value than their book value.
2. Funding liquidity risk exists for not having an access to the sufficient-funds to make a payment on time. For e.g. when commitments made to customers are not fulfilled as discussed in the SLA (service level agreements).

2. Financial or credit risk

Financial risk is also known as credit risk. It arises due to change in the capital structure of the organization. The capital structure mainly comprises of three ways by which funds are sourced for the projects. These are as follows:

1. Owned funds. For e.g. share capital.
2. Borrowed funds. For e.g. loan funds.
3. Retained earnings. For e.g. reserve and surplus.

The types of financial or credit risk are depicted and listed below.



1. Exchange rate risk,
2. Recovery rate risk,
3. Credit event risk,
4. Non-Directional risk,
5. Sovereign risk and
6. Settlement risk.

The meaning of types of financial or credit risk is as follows:

1. Exchange rate risk is also called as exposure rate risk. It is a form of financial risk that arises from a potential change seen in the exchange rate of one country's currency in relation to another country's currency and vice-versa. For e.g. investors or businesses face it either when they have assets or operations across national borders, or if they have loans or borrowings in a foreign currency.
2. Recovery rate risk is an often neglected aspect of a credit-risk analysis. The recovery rate is normally needed to be evaluated. For e.g. the expected recovery rate of the funds tendered (given) as a loan to the customers by banks, non-banking financial companies (NBFC), etc.
3. Sovereign risk is associated with the government. Here, a government is unable to meet its loan obligations, reneging (to break a promise) on loans it guarantees, etc.
4. Settlement risk exists when counterparty does not deliver a security or its value in cash as per the agreement of trade or business.

3. Operational risk

Operational risks are the business process risks failing due to human errors. This risk will change from industry to industry. It occurs due to breakdowns in the internal procedures, people, policies and systems.
The types of operational risk are depicted and listed below.

1. Model risk,
2. People risk,
3. Legal risk and
4. Political risk.

The meaning of types of operational risk is as follows:

1. Model risk is involved in using various models to value financial securities. It is due to probability of loss resulting from the weaknesses in the financial-model used in assessing and managing a risk.
2. People risk arises when people do not follow the organization’s procedures, practices and/or rules. That is, they deviate from their expected behavior.
3. Legal risk arises when parties are not lawfully competent to enter an agreement among themselves. Furthermore, this relates to the regulatory-risk, where a transaction could conflict with a government policy or particular legislation (law) might be amended in the future with retrospective effect.
4. Political risk occurs due to changes in government policies. Such changes may have an unfavorable impact on an investor. It is especially prevalent in the third-world countries.

The risk-return tradeoff is the balance between the desire for the lowest possible risk and the highest possible returns. In general, low levels of risk are associated with low potential returns and high levels of risk are associated with high potential returns. Each investor must decide how

much risk they're willing and able to accept for a desired return. This will be based on factors such as age, income, investment goals, liquidity needs, time horizon, and personality.

The following chart shows a visual representation of the risk/return tradeoff for investing, where a higher standard deviation means a higher level or risk – as well as a higher potential return.

It's important to keep in mind that higher risk doesn't automatically equate to higher returns. The risk-return tradeoff only indicates that higher risk investments have the possibility of higher returns – but there are no guarantees. On the lower-risk side of the spectrum is the risk-free rate of return – the theoretical rate of return of an investment with zero risk. It represents the interest you would expect from an absolutely risk-free investment over a specific period of time. In theory, the risk-free rate of return is the minimum return you would expect for any investment because you wouldn't accept additional risk unless the potential rate of return is greater than the risk-free rate.

Risk and Diversification

The most basic – and effective – strategy for minimizing risk is diversification. Diversification is based heavily on the concepts of correlation and risk. A well-diversified portfolio will consist of different types of securities from diverse industries that have varying degrees of risk and correlation with each other's returns.

While most investment professionals agree that diversification can't guarantee against a loss, it is the most important component to helping an investor reach long-range financial goals, while minimizing risk.

There are several ways to plan for and ensure adequate diversification including:

1. Spread your portfolio among many different investment vehicles – including cash, stocks, bonds, mutual funds, ETFs and other funds. Look for assets whose returns haven't historically moved in the same direction and to the same degree. That way, if part of your portfolio is declining, the rest may still be growing.

2. Stay diversified within each type of investment. Include securities that vary by sector, industry, region, and market capitalization. It's also a good idea to mix styles too, such

as growth, income, and value. The same goes for bonds: consider varying maturities and credit qualities.

3. Include securities that vary in risk. You're not restricted to picking only blue-chip stocks. In fact, the opposite is true. Picking different investments with different rates of return will ensure that large gains offset losses in other areas.

Keep in mind that portfolio diversification is not a one-time task. Investors and businesses perform regular “check-ups” or rebalancing to make sure their portfolios have a risk level that’s consistent with their financial strategy and goals.

Risk management is a crucial process used to make investment decisions. The process involves identifying and analyzing the amount of risk involved in an investment, and either accepting that risk or mitigating it. Some common measures of risk include standard deviation, beta, value at risk (VaR), and conditional value at risk (CVaR).

Measurement of Risk:

Standard Deviation

Standard deviation measures the dispersion of data from its expected value. The standard deviation is used in making an investment decision to measure the amount of historical volatility associated with an investment relative to its annual rate of return. It indicates how much the current return is deviating from its expected historical normal returns. For example, a stock that has high standard deviation experiences higher volatility, and therefore, a higher level of risk is associated with the stock.

Beta

Beta is another common measure of risk. Beta measures the amount of systematic risk an individual security or an industrial sector has relative to the whole stock market. The market has a beta of 1, and it can be used to gauge the risk of a security. If a security's beta is equal to 1, the security's price moves in time step with the market. A security with a beta greater than 1 indicates that it is more volatile than the market.

Conversely, if a security's beta is less than 1, it indicates that the security is less volatile than the market. For example, suppose a security's beta is 1.5. In theory, the security is 50 percent more volatile than the market.

Value at Risk (VaR)

Value at Risk (VaR) is a statistical measure used to assess the level of risk associated with a portfolio or company. The VaR measures the maximum potential loss with a degree of confidence for a specified period. For example, suppose a portfolio of investments has a one-year 10 percent VaR of $5 million. Therefore, the portfolio has a 10 percent chance of losing more than $5 million over a one-year period.

Conditional Value at Risk (CVaR)

Conditional value at risk (CVaR) is another risk measure used to assess the tail risk of an investment. Used as an extension to the VaR, the CVaR assesses the likelihood, with a certain

degree of confidence, that there will be a break in the VaR; it seeks to assess what happens to investment beyond its maximum loss threshold. This measure is more sensitive to events that happen in the tail end of a distribution—the tail risk. For example, suppose a risk manager believes the average loss on an investment is $10 million for the worst one percent of possible outcomes for a portfolio. Therefore, the CVaR, or expected shortfall, is $10 million for the one percent tail.

Operating portfolio risk :

The Risk Management Association (RMA) has been at the forefront of the development of the operational risk discipline in financial institutions since 2003.

The definition of operational risk is: *the risk of loss resulting from inadequate or failed internal processes, people, and systems, or from external events, but is better viewed as the risk arising from the execution of an institution's business functions.* Operational risk exists in every organization, regardless of size or complexity from the largest institutions to regional and community banks.

Examples of operational risk include:

- Risks arising from catastrophic events (e.g., hurricanes)
- Computer hacking
- Internal and external fraud
- The failure to adhere to internal policies

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For much of the past decade, the industry has been focused on measuring operational risk losses for capital allocation purposes, but in recent years has increased the focus on the process of managing operational risk.

The Risk Management Association serves operational risk practitioners in large financial institutions, as well as regional, mid-tier, and community banks, at both the corporate level and the business line. RMA provides peer sharing, professional development and networking opportunities for our members through discussion groups, conferences, round tables, classroom training events and courses, and Web seminars.

OPERATIONAL RISK FRAMEWORK

Enterprise Risk Management (ERM) is defined as an organization's ability to understand, control, and articulate the nature and level of risks taken in pursuit of business strategies, coupled with accountability for risks taken and activities engaged in. One of the main benefits of ERM is an enhanced perspective and focus on risk management across the institution.

ERM can help answer three basic business questions:

- Should we do it? This aligns with strategy, risk appetite, culture and ethics.

- Can we do it? This aligns people, processes, structure, and technology capabilities, i.e., operational risk.
- Did we do it? This is the assessment of expected results, continuous learning and a robust system of checks and balances.

ERM promotes strategies that help institutions manage their risk holistically. ERM is not a separate risk discipline, it is the governance structure that provides the horizontal view of the risk disciplines and operational risks of an institution.

Operational Risk is defined as the risk of loss resulting from inadequate or failed internal processes, people, controls, systems or from external events. It is better viewed as the risk arising from the execution of an institution's business functions. Breech of any of those functions or failure to execute effectively may lead to institution's reputational loss.

RMA has developed a framework that demonstrates how an organization uses ERM as the governance construct manages the various risk disciplines – Strategic Risk, Reputation Risk, Credit Risk, Interest Rate Risk, Liquidity Risk, Compliance Risk – while also managing the operational risks from the people, processes, controls and external events that support the risks an institution takes.

The Governance Framework is underpinned by the organization's ethical decisions which flows from the most important aspect, an organization's culture, i.e., tone from the top, and echo from the bottom.

Governance of the risk disciplines, and the operational risks that arises from the execution of an institution's business functions, are part of, and work together with, the institution's culture and ethics to protect and promote its valuable reputation.

The tools used for each of the risk disciplines, the scope of work as well as the complexity of frameworks may vary based on the size of the institution as well as the business model and strategic initiative (risk appetite) of the institution.

Portfolio theory & Markowitz theory:

Modern Portfolio Theory, also known as MPT, can help investors choose a set of investments that comprise one portfolio. Together, the investment securities combine in such a way as to reduce market risk through diversification while achieving optimal returns in the long run. Find out how learning the basics of MPT can help you become a better investor.

Modern Portfolio Theory: MPT Definition

Modern Portfolio Theory (MPT) is an investing model where the investor attempts to take minimal level of market risk to capture maximum-level returns for a given portfolio of investments. However, although widely used within the financial industry, there are recent criticisms and variations of style to consider before applying MPT to your own investment portfolio and strategy.

Investing Strategies and Example of MPT

At the core of investment philosophy, every investor would like to achieve the highest possible long-term returns possible without taking extreme levels of short-term market risk. But how can this be done? The short answer is diversification.

According to MPT, an investor can hold a particular asset type, mutual fund, or security that is high in risk individually but, when combined with several other asset types or investments, the whole portfolio can be balanced in such a way that its risk is lower than some of the underlying assets or investments.

For example, as an asset class, stocks are generally higher in market risk than bonds. However, a portfolio consisting of stocks *and* bonds may accomplish a reasonable return for a relatively lower level of risk. On the investment level, foreign stocks (aka international stock) and small-cap stocks are generally higher in risk than large-cap stocks but all three can combine for above average returns for average risk, as compared to a benchmark such as the S&P 500, over long periods of time.

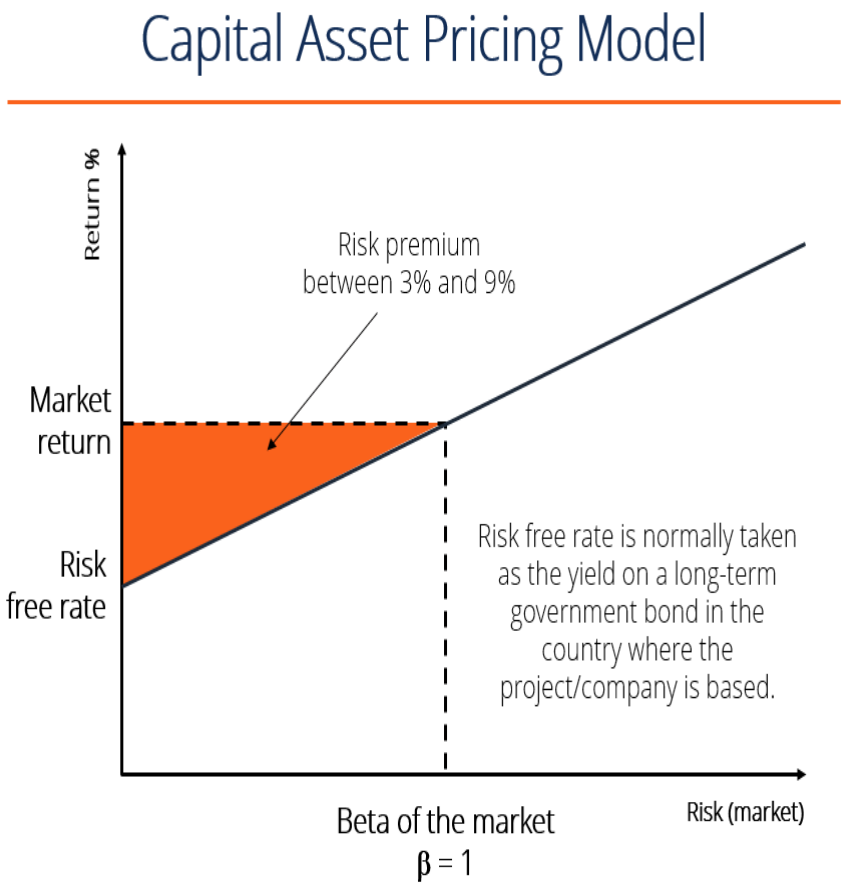
A typical example might be this moderate portfolio of mutual funds types:

40% Large-cap stock (Index)
10% Small-cap stock
15% Foreign Stock
30% Intermediate-term Bond
05% Cash/Money Market

Many investors and investment advisers employ a type of nuanced MPT investment style called Tactical Asset Allocation, which applies elements of Modern Portfolio Theory. With Tactical Asset Allocation, the investor can use the three primary asset classes (stocks, bonds and cash) and actively balance and adjust the weights (percentages) of the portfolio with the goal of maximizing portfolio returns and minimizing risk compared to a benchmark, such as an index.

CAPM : The Capital Asset Pricing Model

What is CAPM?
The Capital Asset Pricing Model (CAPM) is a model that describes the relationship between the expected return and risk of investing in a security. It shows that the expected return on a security is equal to the risk-free return plus a risk premium, which is based on the beta of that security. Below is an illustration of the CAPM concept.



CAPM Formula and Calculation

$$Ra = Rrf + [Ba \times (Rm - Rrf)]$$

Where:

Ra = Expected return on a security
Rrf = Risk-free rate
Ba = Beta of the security
Rm = Expected return of the market

Note: "Risk Premium" = (Rm – Rrf)

The CAPM formula is used for calculating the expected returns of an asset. It is based on the idea of systematic risk (otherwise known as or non-diversifiable risk) and that investors need to be compensated for it in the form of a risk premium. A risk premium is a rate of return greater

than the risk-free rate. When investing, investors desire a higher risk premium when taking on more risky investments.

Expected Return

The "Ra" notation above represents the expected return of a capital asset over time, given all of the other variables in the equation. "Expected return" is a long-term assumption about how an investment will play out over its entire life.

Risk-Free Rate

The "Rrf" notation is for the risk-free rate, which is typically equal to the yield on a 10-year US government bond. The risk-free rate should correspond to the country where the investment is being made, and the maturity of the bond should match the time horizon of the investment. Professional convention, however, is to typically use the 10-year rate no matter what, because it's the most heavily quoted and most liquid bond.

Beta

The beta (denoted as "Ba" in the CAPM formula) is a measure of a stock's risk (volatility of returns) reflected by measuring the fluctuation of its price changes relative to the overall market. In other words, it is the stock's sensitivity to market risk. For instance, if a company's beta is equal to 1.5 the security has 150% of the volatility of the market average. However, if the beta is equal to 1, the expected return on a security is equal to the average market return. A beta of -1 means security has a perfect negative correlation with the market.

Market Risk Premium

From the above components of CAPM, we can simplify the formula to reduce "expected return of the market minus the risk-free rate" to be simply the "market risk premium". The market risk premium represents the additional return over and above the risk-free rate, which is required to compensate investors for investing in a riskier asset class. Put another way, the more volatile a market or an asset class is, the higher the market risk premium will be.

References :

https://www.managementstudyguide.com/

www.wikipedia.com

https://www.accountingcoach.com/

www.cleartax.in

https://www.mathsisfun.com/

https://www.myaccountingcourse.com/

https://corporatefinanceinstitute.com/

https://www.investopedia.com/

https://kalyan-city.blogspot.com/2012/01/types-of-risk-systematic-and.html

https://www.thebalance.com/what-is-mpt-2466539

https://corporatefinanceinstitute.com/resources/knowledge/finance/what-is-capm-formula/

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- Corporate Communication
- Personality Development
- Leadership Development
- Entrepreneurship
- G Suite
- MS Office Suite
- Digital Marketing
- Art of Networking
- Tally ERP 9 Certification
- HR Analytics

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