



Module 5

Managing Financial Risk

Introduction



Outcomes

Upon completion of this module you will be able to:

- *identify* business risk and its types.
- *measure* financial risk.
- *differentiate* between hedging and insurance.
- *describe* financial risks faced by organisations.
- *explain* the risk management techniques used to reduce the financial risk within an organisation.
- *describe* asset securitisation.



Terminology

Risk:	A chance at the time of taking decision having possibilities to turn into a failure.
Business risk:	The risks of harmful collisions on the process or effectiveness of operations of a company.
Marketing risk:	The risk of failure of marketing strategy or any advertising campaign.
Financial risk:	The risk that an organisation will be unable to satisfy its financial obligations.
Operational risk:	The risk arising from execution of a company's business functions.
Compliance risk:	The current and prospective risk to earnings or capital arising from violations of, or non-conformance with, laws, rules, regulations, prescribed practices, internal policies, and procedures, or ethical standards.
Strategic risk:	The type of risk that is associated with the future bus

	plans and strategies of financial institutions.
Systematic risk:	The risk inherent to the entire market or entire market segment and is non-diversifiable.
Unsystematic risk:	Company or industry specific risk that is inherent in each investment and is diversifiable.
Investment risk:	The risk of failure of yielding desired return of an investment.
Human factor risk:	It is really a special form of operational risk.
Country risk:	Risk associated with investing in a foreign country.
Risk management:	A means of execution of systematic application of management policies, procedures and practices to the tasks of identifying, analysing, evaluating, treating and monitoring risk.
Risk avoidance:	Management strategies are used to avoid situational risk as much as possible. While the eradication of all risk is seldom possible, in many situations it is sensible to develop methods where risk can at least be avoided.
Loss prevention:	It is the work of reducing the amount of theft and shrinkage within a business.
Risk retention:	A famous strategy for small risks where the cost of insuring against the risk would be greater over time than the total losses sustained.
Risk transfer:	Shifting of risk from one party to another; for example purchase of insurance contract or issuance of debt.
Capital asset pricing model:	It is an equilibrium model of the trade-off between expected portfolio return and unavoidable risk.

What is risk?

Risk is a chance at the time of taking a decision having possibilities to turn into a failure. Risk can also be defined as a chance of occurrence of different results or outcomes from expected results or outcomes is called risk. In business and especially in finance it is defined as “the chance that the actual



outcome from the investment will differ from expected outcome.” Most of the investors are concerned that the actual outcome will be less than the expected outcome.

Business risk

Business risks arise at the very beginning when decisions are taken. Business risks are situations and issues that could be harmful on the process or effectiveness of operations of a company. A business risk can be the result of outside factors, as well as inner conditions.

The major risks from outside the company are that demands for goods and services changes. If these changes are constructive, and demand increases, then the amount of risk is decreased and it is a good sign. But, if customer demand decreases, due to any change in economic conditions or competitors, the risk increases to investors.

Inner risk factors are another issue for investors, but the company has the ability to overcome. They can be corrected easily to regain the trust of investors. If the weakness is in marketing we may change the way of marketing from sales person to media. If the problem is in the production department and there is the option of automatic production by machine we may move to install new machines or hire more labour. In this way we can minimise the risk and attract the potential investors.

It is not sensible to talk about investment returns without talking about risk because investment decisions involve a trade-off between the two returns and risk are opposite sides of the same coin. Investors must constantly be aware of the risk they are assuming, know what it can do to their investment decisions, and be prepared for the consequences.

It is the chance that the actual outcome from an investment will differ from the expected outcome. Specifically, most investors are concerned that the actual outcome will be less than the expected outcome. The more variable the possible outcomes that can occur (the broader the range of possible outcomes), the greater the risk will be.

Investors should be willing to purchase a particular asset if the expected return is adequate to compensate for the risk, but they must understand that their expectation about the asset's return may not materialise. If not, the realised return will differ from the expected return. In fact, realised returns on securities show considerable variability. Sometimes they are larger than expected and other times they are smaller than expected, or even negative. Although investors may receive their expected returns on risky securities on a long-run average basis, they often fail to do so, on a short-run basis. It is a fact of investing life that realised returns often differ from expected returns.

Sources of risk

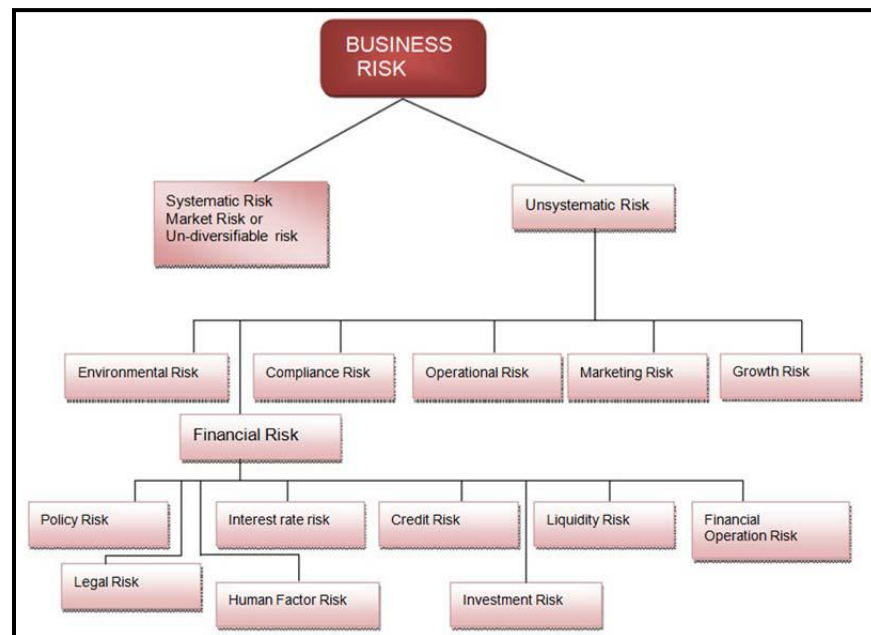
What makes a financial asset risky? In this text we equate risk with variability of returns. One-period rates of return fluctuate over time. Traditionally, investors have talked about several sources of total risk, such as interest rate, liquidity, operations of a company, political conditions of a country and foreign exchange risk and so on. All factors contribute in creating a business risk in any way; level of risk depends on their inferences in business.

Business risk

All business opportunities are associated with some risk; the main risk is to miss these opportunities. Following are some major types of business risks:

- **Growth risk or strategic risk:** What industry you're in or where your business is positioned. What is the growth potential of your business and what are the threats your business may have presently or in future?
- **Marketing risk:** The risk of failure of marketing strategy or any advertising campaign is called marketing risk.
- **Financial risk:** Financial risk is the risk that an organisation will be unable to satisfy its financial obligations. It is risk that a company will not have adequate cash flow to meet financial obligations.
- **Operational risk:** The admin functions of your business – how you actually run it.
- **Compliance risk:** Can include trade association regulations as well as laws like tax, accounting and health and safety.
- **Environmental risk:** Can be routine, like local council regulations on waste disposal, but can be more complex if your business has a direct influence on the environment.

Typology of business risk



Financial Risk varies from business to business in its nature; a financial institution faces more interest rate risk exposure than a manufacturing concern which has equity-based capital structure.

Systematic risk

If the entire market system falls down and collapses, this collapse of financial system is called systematic risk in finance. If only the individual or a group falls down it is not called an unsystematic risk. In systematic risk entire market falls down. The last economic recession of Europe and Middle East is the best example of systematic risk.

Unsystematic risks

Risk that is only associated with a single industry or firm is called unsystematic risk. For example, risk from labour and other environment of business or natural risk like weather. These types of risks can be overcome by arranging assets in a way that a single incident can only affect a small number of assets. By putting the stock in different portfolio the unsystematic risk can be easily overcome. It decreases the chances of risk. Unsystematic risk makes companies different from each other. Unsystematic risk is more common in small companies where there may not be proper recording of data. As a result risk is difficult to forecast and the chances of unsystematic risk increase. The unsystematic risk can be overcome by SWOT analysis. If we work on strengths, weaknesses, opportunities and threats within a company the chances of risk reduce.

Strategic risk

The type of risk associated with the future business plans and strategies of financial institutions. It includes risk associated with entering in a new business, the expanding of business by mergers or new infrastructures, for example, introduction of information technology or merger of two firms. The market expansion or introduction of new product increases risks for financial institutions.

Compliance risk

It is the present and potential risk when earning or capital gain occurs from breach of, or against, rules, regulations, and procedures, or ethical standards. Compliance risk also occurs in circumstances where the rules of the central bank are vague or untried. These types of violation result in fines and penalties in payment of damages. These risks reduce the goodwill of firms and their value.

Operational risk

The risks a corporation or firm takes when it attempts to work inside a known field or industry. Operational risk includes risks resulting from breakdowns in internal procedures, people and systems.

Financial risk

These risks are associated with financial investments. There is always a possibility that a bond issuer will fail to pay back the amount or the interest in the specified time. The main purpose is to secure investment to the level that it gives to the investor a return and minimises the risk as much as possible.

Financial risk is the risk that an organisation will be unable to satisfy its financial obligations. It is risk that a company will not have adequate cash flow to meet financial obligations. The financial manager needs to be aware of what situations cause the level of this risk to increase, that is, what risks exist that would reduce the financial resources of an organisation.

- High leverage
- Short-term financing of strategic assets
- Level of inventory / Inventory shortages
- Unproductive financial and tax strategy for generating cash inflow
- Increase in overhead costs.



Investment risk

The risk of failure of yielding desired return of an investment is called investment risk. When an investor plans to invest in the stock market the following investment related risks must be kept in view:

1. **Market risk:** Market rises and falls on the basis of prices of individual securities. The day to- day changes and the overall trend of the markets are the results of investor attitudes, economic conditions, global events and many other factors. Fixed income securities and bond markets are more stable because they do not fluctuate as widely and rapidly as equity securities and the stock market do. Some additional risk factors are involved in international markets for those investors who invest outside their home stock market. The trends of fluctuation of stock markets in recent years are dramatic; that is why, markets have become more unpredictable. Generally, market risk involves anticipations of market decline, and its related impact on the prices of individual securities and shares.
2. **Issuer risk:** This risk is associated with the market position or goodwill of the issuer of security that the issuer will not be able to operate the business according to the investor's expectations which will cause a decrease in the value of the investment.
3. **Credit risk:** This is a risk of issuer's default on any obligation.
4. **Interest rate risk:** The risk of decline in value of investment due to an increase in interest rates.
5. **Prepayment risk:** The risk that a security will be prepaid before maturity and that the earnings can be reinvested only in projects offering a lower return.
6. **Inflation risk:** The risk of decrease in value of an investment due to inflation.
7. **Liquidity risk:** The risk that within the desired timeframe the market cannot accommodate the size of an order to buy or sell a security.
8. **Political risk:** The risk that a foreign investment in any security or fund will be adversely affected as a result of unfavourable political developments.
9. **Currency risk:** The risk of decrease in value of investment resulted due to devaluation of currency or unfavourable foreign exchange rate change.
10. **Leverage risk:** The risk of exceeding the cost of borrowed capital such as preferred stock or debt than the earnings of the underlying asset, and the risk of higher price volatility of shares.

Human factor risk

It is really a special form of operational risk. It relates to the losses that may result from human errors such as pushing the wrong button on a computer, inadvertently destroying a file, or entering the wrong value for the parameter input of a model.

Country risk

Risk associated with investing in a foreign country is known as country risk. Country risk includes political risk, exchange rate risk, economic risk, and transfer risk, which is the risk of capital being locked up or frozen by government action. Country risk varies from one country to the other. Some countries are highly risky and discourage foreign investment.

Meaning and forms of political risk

There is no precise definition of political risk. However, according to Thunell (1977), political risk is said to exist when sudden and unanticipated changes in political set-up in the host country lead to unexpected discontinuities that bring about changes in the business environment and corporate performance. For example, if a rightist party wins election in the host country and the policy towards foreign investment turns liberal, it would create a positive impact on the operation of the MNCs. On the other hand, if a leftist party comes to power, it will have a negative impact on the operation of the MNCs. It is the negative impact that is normally the focus of attention of transnational investors.

Management of political risk

The political risk management strategy depends upon the type of risk and the degree of risk the investment carries as well as the timing of the steps taken. For example, the strategy adopted before the investment will be different to that adopted during the life of the project. Again, it will be different if it is adopted after expropriation of assets.

Management before investment

Investment will prove feasible if political risk is managed from the very beginning even before the investment is made in a foreign country. There are three ways to manage it at this stage.

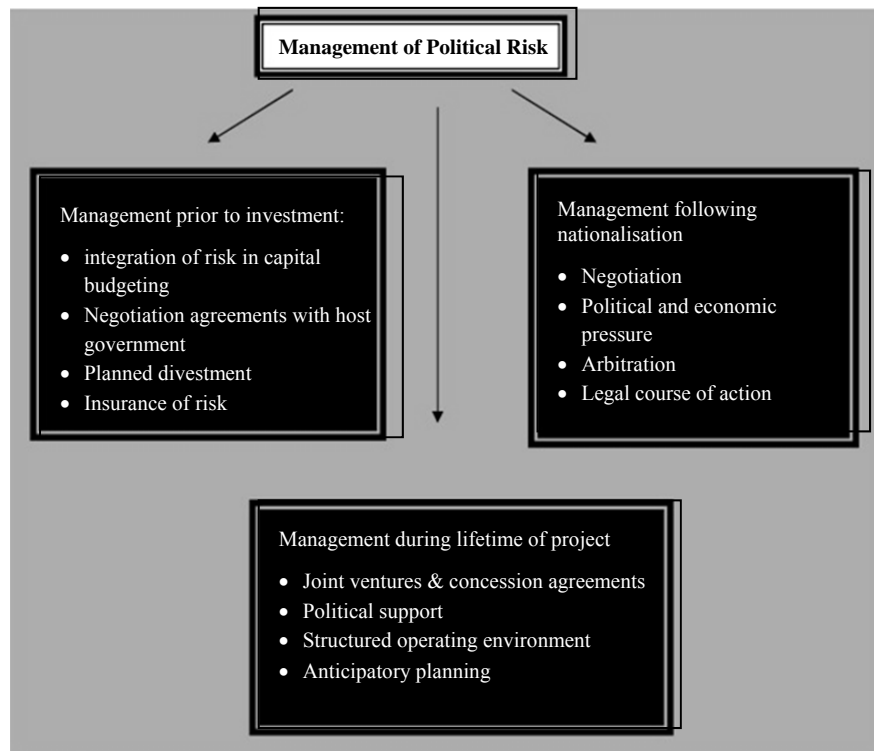


Diagram of managing political risk is given here to make the reader understand the ways of managing political risk faced by any organisation in its operation in any country of the world. This diagram is adapted from Sharan, Vyuptakesh (2009): *International Financial Management* (5th Edition) New Delhi, PHI Learning Private Limited, New Delhi, India. pp-280.

Business vs. financial risk

The main distinguishing point between business risk and financial risk are:

Basics

Business risk involves a company's strategic decisions except finance. Business risk deals the dangers of operational options, such as reactions to competition from other firms or entering into a new product line or business sector. Measures of in-house efficiency, such as whether production is meeting preferred level, is a key determinant of business risk.

By comparison, financial risk deals with a company's capital structure. Specially, financial risk involves the use of corporate debt and issuance of capital stock; financial risk is shifted to company's stakeholders who buy its stock or debt instruments.

Significance

Both business risk and financial risk have elements of leverage. Demand for a company's products may weaken, for example. To gain high levels of operating leverage, a company will want to work with fixed costs, or costs that are unlikely to fluctuate much. Business risks like falling demand can be mitigated somewhat by this ability to predict costs, especially in the long term.

Financial leverage, by contrast, is measured by the firm's mix of debt, such as corporate bonds and shares. Companies that have a relatively high level of debt are referred to as being financially highly leveraged and risky.

Policies

For the formulation of strategies and to gain competitive advantage companies can use more accurate measurement of risk. For instance, high operating leverage means that a company is dealing largely in fixed costs; such a firm may be able to manufacture substantial amounts of additional products at low cost to the firm.

Similarly, a company with a higher return on assets may be able to get away with higher debt burdens, just as long as returns are improved and interest paid on debt. In periods of low interest rates, such a risk tactic may be especially attractive.

Outcomes

Business risk has the effect of forcing companies to constantly reassess the business environment. Because new products and competitors are constantly coming onto the market, companies must continually re-examine demand and competitors' products and services. This is especially true in industries with low barriers to market, or fewer government regulations to entry.

Managing financial risk

Risk management

It is a means of systematic application of management policies, procedures and practices to the tasks of identifying, analysing, evaluating, treating and monitoring risk.

This module provides information on the various types of financial risk that exist in organisations and what alternative solutions are available to management to assess these risks and determine a solution for minimising the risk. It is important to note that organisations do not aim to eliminate all the risks that exist in their operations. This would be very costly as well as not feasible and would essentially eliminate the reason for being in business. What organisations should do is identify the risks that exist and have plans to



manage the risk. In any organisation there will be some level of risk that management and owners feel is acceptable in their operations.

In the next section we will see what general options are available for managers to deal with risk.

Once a risk is identified there are four approaches we can take to manage this risk. These are:

1. Risk avoidance
2. Loss prevention and control
3. Risk retention
4. Risk transfer.

We will demonstrate what each of these approaches would look like using illustrative examples.

Risk avoidance

Risk avoidance – Management strategies are used to avoid situational risk as much as possible. While the eradication of all risk is seldom possible, in many situations it is sensible to develop methods where risk can at least be avoided.

Risk avoidance is a term used in risk management to describe a decision to avoid activities that lead to the possibility of the risk being realised. Along with risk acceptance, risk reduction and risk transfer, risk avoidance is one of the options for risk treatment. Risk avoidance is a management decision which can be seen in operating policies to avoid the operation risk. For example Brentax Inc. has an opportunity to manufacture a product, which involves using sizable quantities of copper and silver.

One risk they face is the financial risk of changes in the price for copper and silver. If the prices decrease, Brentax will benefit from the lower price through lower cost to produce their product. However, if prices were to increase, Brentax would have higher product cost and therefore less profit on the sale of each product.

To avoid the risk of losses arising from fluctuation in the price of copper and silver, Brentax declines to manufacture the product. This is risk avoidance as they are putting themselves in a position where they are not exposed to the risk of price fluctuations. Although there is no outlay of resources by avoiding this risk, there is an opportunity cost. Assuming this product would have been profitable, Brentax has lost the chance to manufacture this product and therefore has missed the opportunity to earn the profits it could have generated. Hence Brentax has made a “risk-return” decision and concluded

that they did not want this level of risk for the enterprise, at least at the expected level of return.

Loss prevention and control

Loss prevention – It is the work of reducing the amount of theft and shrinkage within a business.

Quality Superstores Inc. has a substantial dollar value of inventory at its central warehouse in Markham, Ontario. One element of the financial risks that Quality is facing is the risk of theft or vandalism to their products at this site. Quality constructs a special security zone in its warehouse and implements new security procedures to reduce the risk of theft.

These procedures are attempting to control the risk. Quality recognises that they run a risk by having products in one location, but this is a risk that cannot be avoided, as they need to store their products. They are incurring a cost to attempt to protect products. These prevention and control measures have a cost that in effect increases the cost of doing business for Quality. What Quality must do in implementing these measures is determine what level of cost is acceptable to control the risk of theft.

Why loss prevention fails?

Many business entities have attempted to discontinue their losses. Some have been successful, while others have failed. So, what is that big secret?

The truth is that, senior executives do not understand the differences between strategies and tactics. Without a clear understanding of these differences, you will not be a tactful manager. Short-term policies and plans always yield short-term benefits while long term provide long-term and strategic leadership in the business world. That is why some companies are more successful than others. The trade of loss prevention is simple as well as complex. The simple part is that successful loss prevention is little more than a business of human behaviour, motives, opportunities and consequences. The complex part is the implementation of the loss prevention plan.

Risk retention

Risk retention – Risk retention is a famous strategy for small risks where the cost of insuring against the risk would be greater over time than the total losses sustained. All risks that are not avoided or transferred are retained by default.

Apex Distribution Corp. has a trucking fleet of more than 100 vehicles. Apex is exposed to the possibility of fire, theft and collision during the operation of this fleet. Apex decides to carry this risk itself as it feels that this will be more cost effective than purchasing insurance on a large fleet operation. In this case, Apex has analysed the risk-return characteristics of these occurrences



and the impact from both an operations perspective and the cost of repair and replacement of any damaged vehicles against the cost of insurance.

Presumably, they have determined that the cost of insurance is greater than the cost they are likely to incur for replacing any damaged or lost vehicles.

Risk transfer

Risk transfer – Shifting of risk from one party to another; for example purchase of insurance contract or issuance of debt.

Transfer of risk is the requirement that is always met in any insurance contract formed to transfer risk to some other party. Now a day's transfer of risk is very famous in financial markets because every investor wants to hedge his investment from unwanted negative return. In the financial marketplace, insurance instruments have grown more and more complicated. Even then insurance is the best tool for the transfer of risk to some other party.

Galahad Corp. uses variable rate financing extensively to try to reduce its financing costs. Due to the fact that their rates are variable, they are exposed to changes in interest rates having a significant impact on their net income through increased interest expense. The company buys interest rate caps (which we will learn more about later in this module) from its bank to eliminate the risk of loan rates going above 8 per cent. The impact of these interest rate caps is that if interest rates go above 8 per cent Galahad will pay 8 per cent interest regardless of how much higher interest rates go. Galahad is transferring its risk to a bank, and the purchase of the caps is effectively acting as insurance against increases in interest rates.

Management of systematic or un-diversifiable risk

The relationship between expected return and unavoidable risk, and the valuation of securities that follows, is the essence of the work of William F. Sharpe (1990 Nobel Prize winner in economics) and John Linter in the 1960s, and it has had important implications for finance ever since.

Capital asset pricing model (CAPM)

Capital asset pricing model (CAPM) – It is an equilibrium model of the trade-off between expected portfolio return and unavoidable risk.

This model was based on the idea that investors always like positive return and not risk and the stock return is normally distributed. The model was developed on the basis of this idea showing how increasing diversification lowers a portfolio's standard deviation and variance. The capital asset pricing model states that the price of a stock is associated with two variables – the time value of money and the stock risk. When we look at some of the

formulas used in the CAPM later on, we'll see that the time value of money is represented by risk-free rate of interest (r_f).

Formula:

The way CAPM helps investors calculate their return is by using a simple formula which explains the relationship between expected return and risk:

$$\text{Expected Rate of Return} = R = R_f + \beta (R_m - R_f)$$

Where:

- R_f = The risk-free interest rate is the interest rate the investor would expect to receive from a risk-free investment. Usually, Government Treasury Bills are used as risk free rate.
- β = A stock beta is used to describe the relationship between the movements of an individual stock versus the market itself. It is the level of sensitivity of stock return with respect to market changes.
- R_m = Expected market return is the return the investor would expect to receive from a broad stock market indicator such as the S&P 500 Index. For example, over the last 17 years or so, the S&P 500 has yielded investors an average annual return of around 8.10 per cent.

So what exactly is this CAPM formula telling us? The formula states that the expected return of a stock is equal to the risk-free rate of interest plus the risk associated with all common stocks (market premium risk) adjusted for the risk of the common stock we're examining.

This means the investor can expect a rate of return on this asset that compensates them for both the risk-free rate of interest, the stock market's risk and this particular stock's risk – it all makes sense.

Illustration

Aarif Habib group has beta 1.9. The risk free rate prevailing is 8 per cent and market rate of return is 11 per cent. Calculate the expected return for the next year on security of Aarif Habib:

Solution:

$$R = R_f + \beta (R_m - R_f)$$

$$R = 8\% + 1.9 (11\% - 8\%)$$

$$R = 8\% + 1.9 (3\%)$$

$$R = 8\% + 5.7\%$$

$$R = 13.5\%$$



Assumptions

The Capital Asset Pricing Model (CAPM) attempts to quantify the relationship between the beta of an asset and its corresponding expected return. In describing this relationship several assumptions are made:

1. Investors care only about expected returns and volatility. Therefore, expected returns are maximised for any given level of expected volatility.
2. All investors have homogeneous beliefs about the risk/reward trade-offs in the market.
3. There is only one risk factor that is common to a broad-based market portfolio, called systematic market risk. Investors are assumed to hold diversified portfolios. As a result, the CAPM model states that if an asset's beta is known, the corresponding expected return can be predicted.
4. Negligible restrictions on investment.
5. No taxes.
6. No investor is large enough to affect the market price of the stock.
7. We assume also that investors are in general agreement about the likely performance and risk of individual securities and that their expectations are based on a common holding period, say, one year.

Under these conditions, all investors will perceive the opportunity set of risky securities in the same way and will draw their efficient frontiers in the same place.

Security Market Line as graphical representation of CAPM



The systematic risk as measured by beta

The second most important measure with which we are concerned is the beta. The beta is simply the slope of the characteristic line. It depicts the sensitivity

of the security's excess return to that of the market portfolio. If the slope is 1, it means that excess returns for the stock vary proportionally with excess returns for the market portfolio. In other words, the stock has the same unavoidable or systematic risk as the market as a whole. A slope steeper than 1 means the stock's excess return varies more than the variations in excess return of the market portfolio. Put another way, it has more systematic risk than the market as a whole. This type of stock is often called an "aggressive" investment. A slope less than 1 means the stock has less unavoidable or systematic risk than does the market as a whole. This type of stock is often called a "defensive" investment.

Formula:

$$\text{Beta} = \beta_i = \frac{\text{Covariance of stock to the market}}{\text{Variance of the market}}$$

Calculation of Beta

$$\text{Beta} = \beta_i = \frac{\text{Cov}(R_i, R_m)}{\text{Var}(R_m)}$$

Adapted from Investopedia: <http://www.investopedia.com/exam-guide/cfa-level-1/portfolio-management/capm-capital-asset-pricing-model.asp>. Date accessed /31/01/2010

Amplification of risk

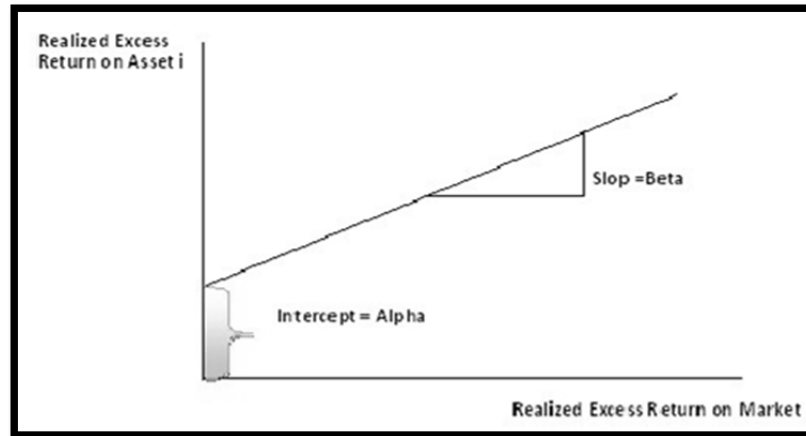
The greater the slope of the characteristic line for a stock, as depicted by its beta, the greater is its systematic risk. This means that for both upward and downward movements in market excess returns, movements in excess returns for the individual stock are greater or less, depending on its beta. This risk cannot be diversified away by investing in more stocks because it depends on such things as changes in the economy and in the political atmosphere, which affect all stocks. In summary, the beta of a stock represents its contribution to the risk of a highly diversified portfolio of stocks.

Empirical work on the stability of historical beta information over time suggests that past betas were useful in predicting future betas; however, the ability to predict seems to vary with the size of the portfolio. The larger the number of securities in a portfolio, the greater will be the stability of the beta for that portfolio over time. Even for the individual stock, however, past beta information has been found to have reasonable predictive value. In addition to portfolio size, betas tend to show greater stability as longer time intervals are studied.



Unsystematic risk

The last of the three measures with which we are concerned is the unsystematic, or avoidable, risk of a security. Unsystematic risk derives from the variability of the stock's excess return not associated with movements in the excess return of the market as a whole. This risk is described by the dispersion of the estimates involved in predicting a stock's characteristic line.



In the above figure, the unsystematic risk is represented by the relative distance of the dots from the solid line. The greater the dispersion, the greater the unsystematic risk of a stock. By diversification of stocks in our portfolio, however, we can reduce unsystematic risk.

Total Risk =	Systematic risk (non-diversifiable or unavoidable)	+	Unsystematic risk (diversifiable or avoidable)
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The first part is due to the overall market risk – changes in the nation's economy, tax reforms by Congress, a change in the world energy situation – risks that affect securities over all and, consequently, cannot be diversified away. In other words, even the investor who holds a well-diversified portfolio will be exposed to this type of risk. The second risk component, however, is unique to a particular company, being independent of economic, political, and other factors that affect securities in a systematic manner. A wildcat strike may affect only one company; a new competitor may begin to produce essentially the same product; a technological breakthrough can make an existing product obsolete. However, by diversification this kind of risk can be reduced and even eliminated if diversification is efficient. Therefore, not all of the risk involved in holding a stock is relevant; part of it can be diversified away.

The CAPM assumes that all risks other than systematic risk have been diversified away. In other words, if capital markets are efficient and investors at the margin are well diversified, the important risk of a stock is its un-diversifiable or systematic risks (betas) of the stock comprising that portfolio. Unsystematic or diversifiable risk plays no role.

Limitations of Risk Management

If risks are imperfectly assessed and prioritized, time can be wasted in dealing with risk of losses that are not likely to occur. Spending too much time assessing and managing unlikely risks can divert resources that could be used more profitably. Unlikely events do occur but if the risk is unlikely enough to occur it may be better to simply retain the risk and deal with the result if the loss does in fact occur. Qualitative risk assessment is subjective and lacks consistency. The primary justification for a formal risk assessment process is legal and bureaucratic.

Prioritising the risk management processes too highly could keep an organisation from ever completing a project or even getting started. This is especially true if other work is suspended until the risk management process is considered complete.

Hedging and insurance

In this section we will examine hedging and insurance and the difference between the two. If we wish to transfer a business risk to another party, we can do this by buying an insurance contract and transferring the risk to an insurer. Alternatively, we can go to the financial markets and try to hedge our exposure by being a party to a variety of contracts. For example, mining companies such as Noranda sometimes sell their output; say copper, forward at a fixed price to eliminate the risk of future declines in the value of this commodity. What selling forward means is that they agree to a price today for a sale that will occur at some point in the future. This selling forward activity by Noranda is termed hedging.

The essential difference between hedging and an insurance type activity is that with hedging, the opportunity to profit on the upside is removed (in Noranda's case, if they have sold copper forward at say USD1.00 per pound, they will receive USD1.00 per pound regardless of the current market price per pound of copper). If the market (spot) price suddenly jumps to US \$1.20, they do not get to benefit from the higher market price. With an insurance contract you accept a penalty up front (the insurance premium). However, you get to participate in upside potential.

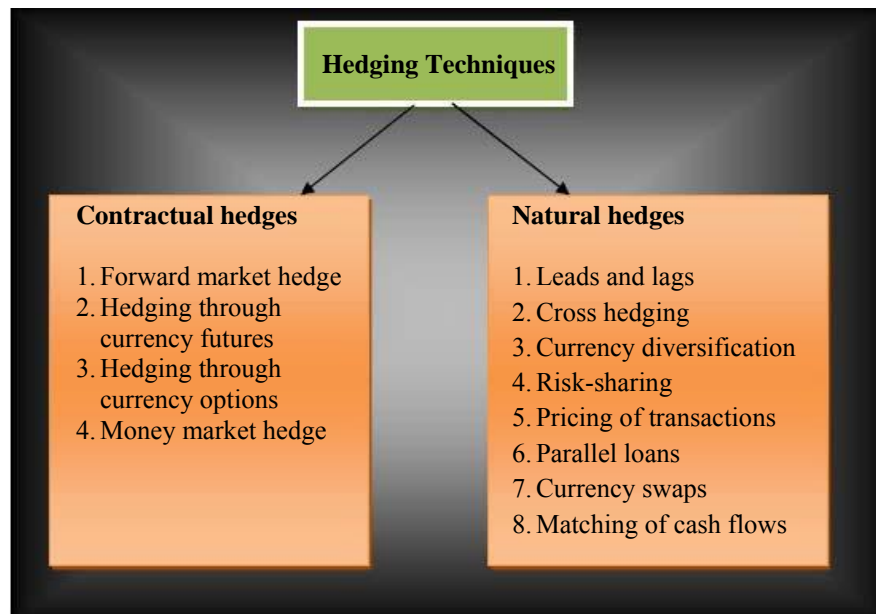


Hedging vs. insurance example

Triton Software Corp. pays a licence fee to its German-based parent on an annual basis. The fee is set at 500,000 Euros per annum payable on September 30 each year. It may be possible to buy the necessary Euros forward at CAD1.40 = 1 euro. If Triton purchased the Euros on a forward contract, the cost of the fee would be fixed at $500,000 \times 1.40 = \$700,000$ and the foreign exchange risk would be eliminated. If the euro dipped to CAD1.30, Triton would not benefit. However, Triton could try to take advantage of a potential weakening in the euro by buying a so-called call option (an option to buy) at CAD1.40. A premium would have to be paid. However, if the euro dips below 1.40 then it would be advantageous to let the option expire. Using call options in this way is equivalent to insurance even though the options are purchased on an exchange as opposed to from an insurance company. The reason they are insurance is that they protect your foreign exchange exposure by ensuring that you will not be paying more than CAD1.40, but you are not obligated to buy at that price. The option can be left to expire.

Hedging tools

In this section we will describe different tools available for hedging purposes. Organisations may use any combination of these tools in managing their various financial risks. Each tool has both costs and benefits associated with it that must be considered before you use the tool. It is important to remember that as a financial manager the goal is to increase shareholder wealth. This involves balancing the cost of these tools with an acceptable risk level.



Hedging using forward and futures contracts

Forward currency market - A Currency market is a market where the actual delivery of currency is made on some future date.

As explained in our Noranda example above, forward and future contracts are commonly used as hedges to eliminate the risk of changes in both commodity prices and exchange rates. These contracts are an agreement to buy or sell a commodity at the current market price for delivery at a date in the future. Below, we provide some terminology that you might come across with respect to forward and futures contracts.

Terminology of forward contracts

What follows are definitions for terms that you will see when you read the financial sections of the newspaper:

- Forward price is the future specified price at some future date agreed by two parties for an exchange in the future.
- Spot price is the price for immediate delivery of an item (e.g., copper, silver, or Euros.)
- Face value of the contract is the quantity of the item times the forward price (for example, a forward contract to purchase 500,000 pounds of copper at USD1.00 would have a face value of USD500,000).
- Long position: the party who agrees to buy is taking a long position.
- Short position: the party who agrees to sell is taking a short position.

It is possible to enter into a forward contract with any other party. While this can work well with institutions like banks, there can be contractual enforcement issues. We can get around this issue by entering into a futures contract, a standard form of contract issued through an exchange. In Canada, the Montreal exchange offers interest rate futures plus options on individual stocks and stock indices. Canadian markets are very small. Trading volumes are much greater on US exchanges such as Chicago.

Difference between forward and future contract

The discussion of the features of currency futures contracts reveals that they are different from forward contracts at least on a few counts. For example, the daily settlement procedure in the futures market enables the less credit-worthy investors to participate. Forward contracts, on the other hand, witness cash flow only on the date of maturity that makes the contract more risky. Nevertheless, forward contracts are widely used because they are available at many financial centres, their amount can be tailored to individual needs as they have no standard size and maturity. The size and the maturity of thousands of transactions taking place daily are not necessarily compatible



with those of the futures. The distinction between forward and futures contracts is shown in the table.

Characteristics	Forward contract	Futures contract
Size of contract maturity	Tailored to individual needs	Standardised
Maturity	Tailored to individual needs	Standardised
Method of transaction	Over-the-counter deal	Dealing on the floor of the exchange
Volume of transaction	Very large	Very low, say around 1 percent of forex market
Bid-offer spread	Tighter	Greater than in forex market
Commission	Spread between the banks buying and selling price	Brokerage fee
Security deposit	Not required except compensating bank balances	Margin money to be deposited with the clearing house
Clearing operation access	No clearing house limited	Clearing house for daily settlement
Access	Limited to very large customers who deal in foreign trade	Hedging or speculation
Regulation	Self-regulating	Regulated by the rules of stock exchange
Liquidation	Mostly settled by actual delivery; a few by offsetting contract	Mostly by offsetting contract and a few by actual delivery

Swap contracts – for currency and interest rates

To see how swap contracts work for foreign exchange, let us return to the example of Triton we introduced earlier. Triton requires 500,000 euros per annum to pay a licence fee to its parent company. If the fee is required over a long period and the amounts payable are fixed, then it is possible for Triton to enter into a currency swap arrangement, which is effectively a whole series of forward contracts designed to provide Triton with the necessary 500,000 euros each year as required. Assuming it was possible to make such an arrangement at a fixed rate of $\$1.50 = 1$ euro for a ten-year period, and then Triton would pay exactly \$750,000 for each of the next ten years (and acquire the necessary 500,000 euros $\times 1.50$). No premium or fee is required up front. It is just a question of what the market is asking for swaps for this period.

Each year Triton would purchase the euros in the market and it would be up to the other party in the swap (the company's bank) to deal with differences between the spot rate paid by Triton and the fixed rate of the swap

arrangement. In the first year of the agreement, if the spot exchange rate on the day the funds were required was \$1.55, then Triton would buy 500,000 euros for a cost of $500,000 \times 1.55 = \$775,000$. However, Triton's bank, as the counter-party to the arrangement, would be required to pay \$25,000 to Triton ($775,000 - 750,000$) to fix their overall cost at \$750,000. In the second year, maybe the rate is \$1.43, so when Triton purchases the 500,000 euros in the market, its cost would be \$715,000 ($500,000 \times 1.43$). However, it would have to pay the bank \$35,000 ($750,000 - 715,000$) to comply with the swap agreement.

Interest rate swaps are also very common in the market place. They are used as a way to remove the risk arising from a loan with a variable interest rate and create effectively a fixed rate contract. In these types of arrangements, the bank provides a loan with interest linked to the prime rate. A swap contract is added to eliminate the interest rate risk. Let's say Triton negotiated a three-year interest rate swap with an 8 per cent fixed rate. Prime rate at the date the contract was set up was 7.5 per cent. Assuming a \$1 million loan, annual interest payments, and no repayments of principal for three years, the details would be as shown in the table below:

Triton Interest Rate Swap

Year	Interest @ Variable rate	Interest paid	Interest @ Fixed rate	Payment (to) / from bank
1	7.5%	75,000	80,000	(5,000)
2	8.5%	85,000	80,000	5,000
3	9.0%	90,000	80,000	10,000
Total		250,000	240,000	10,000

Typically, the arrangement is set up so that the borrower is charged interest at the prime rate (the variable rate). The swap partner is then responsible for refunding any excess over the agreed fixed rate of 8 per cent. If the prime falls below the 8 per cent rate, then the borrower must make up the difference. Therefore, in year one, the borrower has to pay an additional \$5,000 to the bank. In years two and three, the bank is required to make adjusting payments to the borrower. The overall cost of the loan at \$240,000 is exactly what we would have paid on a traditional fixed interest product (offering a fixed rate of 8 per cent). The example makes this look very tidy, but in practice it may well become more involved as the interest charge will probably be rendered monthly and the adjustments may be on a less frequent basis, say quarterly.

Currency swap

There are many definitions of currency swaps one of them is "A swap that involves the exchange of principal and interest in one currency for the same in another currency. It is considered to be a foreign exchange transaction and



is not required by law to be shown on the balance sheet.” A currency swap is different from the interest-rate swap insofar as it involves two different currencies. This is the reason that the two currencies are exchanged in the beginning; again, at maturity, the two currencies are re-exchanged. The exchange of currencies is necessitated by the fact that counter-party is able to borrow a particular currency at a lower interest rate than the other counter-party is able to borrow.

Features of currency swap

Following are the features of currency swaps:

- **Flexibility**

Currency swaps give companies extra flexibility to utilise their advantage in their respective borrowing markets. Currency swaps allow companies to exploit advantages across a matrix of currencies and maturities.

- **Exposure**

Because of the exchange and re-exchange of theoretical principal amounts, the currency swap produces greater credit exposure than the interest rate swap.

- **Pricing**

The pricing process for currency swaps is the same as for the interest rate swaps. Generally, currency swaps transact at inception with a net present value of zero.

- **Interest rate swap**

Interest-rate swap involves the exchange of interest payments. It usually occurs when a person or a firm needs fixed-rate funds. Interest rate swaps allow companies to focus on their comparative advantage in borrowing in a single currency in the short end of the maturity spectrum vs. the long-end of the maturity spectrum. It is the swap dealer, usually a bank that brings together the two counter-parties for the swap. The essential condition for the interest-rate swap is that the amount of loan is identical in the two cases and periodic payment of interest takes place in the same currency. At the same time, there must be synchronisation of interest between the two parties – one getting cheaper fixed-rate funds and the other getting cheaper floating-rate funds.

Equity swap

Equity swap allows the investor of a security to swap the future cash inflows with any other party. It can be defined as “An exchange of cash flows between two parties that allows each party to diversify its income, while still

holding its original assets.” Equity swap is used when the return from investment in equity is highly volatile. The recipients of the dividend go for swapping their receipt with the swap dealer. The fluctuating receipt of dividend is passed on to the swap dealer. The swap dealer in exchange pays a fixed rate of dividend to the shareholder.



In some cases, the swap dealer passes on its risk to those shareholders who are interested in higher dividend even if the risk is greater. In this case, the swap dealer’s position is not naked, rather it is covered,



Techniques of managing interest-rate exposure

There are different techniques to hedge the interest-rate risk. A particular technique is practised, depending on the circumstances and the cost involved. Broadly speaking, the techniques can be grouped under three heads:

1. Yield curve-based techniques such as mismatched borrowings and forward rate agreement.
2. Derivative-based techniques, for example, interest-rate futures and interest-rate swap.
3. Option-based techniques, for instance, options on forward rate agreements, caps, floors, collars and corridors.

One can also group the various techniques of interest-rate management on the basis of whether they are practised in over-the-counter market or they are adopted through the organised stock exchanges. In the first category come the mismatched borrowings, forward rate agreements, interest rate and currency swaps, caps, floors and collars; while the interest-rate futures come under the second category.

Hedging by matching assets to liabilities

A tool that does not involve contracts with outside parties is the matching of assets and liabilities. What you are trying to achieve using this tool is a zero cost and effective hedge. The way this tool works is to attempt to match a liability that has risk associated with it with an asset that is subject to the



same risk over the same period and for the same dollar amount. We will see some more complex examples of this in the coming paragraphs but here is a simple example of what this means. If a company has a loan with variable interest for a three-year period, it will be exposed to changes in interest rates during that period. That same company may have an investment to be made. If it were to invest the same amount of money as the loan balance for a three-year period as a variable interest rate, this would be a matching of liabilities and assets. Both the loan and the investment would be impacted by changes in the interest rates. An increase in interest rates will cause your interest expense to increase and at the same time it will cause your investment interest income to increase.

Assuming these items are perfectly matched, the difference between the interest received and the interest paid would be the same; therefore, the company is in the same net interest position regardless of the rates being charged and received. The loan is in effect "immunised" against changes in the interest rate.

Spot market – Currency market where transactions require immediate delivery of traded currency.

Value date/settlement date – The term is used for the date of delivery of traded money in spot market.

Value-next-day contract – The term is used when delivery is made on next working day.

Value-same-day contract – If the currency is delivered on the same day of transaction, it is called value-same-day contract.

Matching example

Controlex Instrumentation Corp. (Controlex), a supplier to the oil industry, exports 40 per cent of its annual output to the U.S. Billings are in U.S. dollars to accommodate customer requirements. In the course of a year, accounts receivable from U.S. customers range from USD800,000 to USD1,350,000. Consequently, Controlex has a major foreign exchange risk. It could attempt to deal with this by setting up a series of futures contracts. One of the downsides in this method is the increased administration of setting up the contracts and accounting for them.

An alternative is to match the receivable assets with a U.S. dollar liability. This can be achieved by borrowing in U.S. dollars, securing the loan on the U.S. receivables. A line of credit facility (LOC) is usually convenient as this can be made to match the receivables level quite closely. When receivables increase, a draw is made against the LOC. These U.S. dollars can then be sold for spot to pay off other borrowings denominated in Canadian dollars. A perfect hedge would be achieved by having the LOC track the receivables (i.e., go from \$800,000 to \$1,350,000 during the course of the year). Smaller

businesses can run into issues with their banks insisting that the U.S. receivables be covered with credit insurance in order to qualify for financing. This problem can be avoided by dealing with a U.S. institution.

Interest rate caps

We saw in the previous section how we could use an interest rate swap to achieve a fixed rate of interest on a loan. However, a financial manager may wish to benefit from falling interest rates. On the other hand, it is more than his job is worth to have all the company's financing in variable rate debt. A product known as an interest rate cap can be purchased from a financial institution. A cap sets a maximum that has to be paid on a variable rate loan. A loan for say \$5,000,000 could be taken out with interest at prime for a term of three years. A cap could then be purchased, say at a cost of \$50,000 that would fix the maximum interest rate at say 9 per cent. Let's assume that there are no repayments of principal during the term and that interest payments are made annually. The interest charges on this loan might look something like the figures outlined in following table:

Interest Rate Cap

Year	Interest @ Variable rate	Interest paid	Interest @ Fixed rate	Payment (to) / from bank
1	8.0%	400,000	450,000	-
2	10.5%	525,000	450,000	75,000
3	8.5%	425,000	450,000	-
Total		1,350,000	1,350,000	75,000

Notice that annual interest expense is capped at \$450,000 ($5,000,000 \times 9$ per cent). Therefore the maximum interest over the term of the loan is \$1,350,000 ($3 \times 450,000$). Interest rates in year 1 are up over the level when the deal was signed (7.5 per cent). No payment is due from the cap issuer because the cap isn't reached. However, in year two, prime averages 10.5 per cent. Therefore, the cap issuer must pay over \$75,000 ($525,000 - 450,000$) as the interest rate exceeds the cap. Did we win on the deal? Yes, since the savings (\$75,000) exceeded the premium paid up front of \$50,000. Moreover you have achieved the level of risk you wanted on this loan.

If you have it in mind to buy a cap, remember that the premium is payable up front but may be amortised over the period of the loan. Thus, there will be an annual amortisation charge of \$16,667 ($50,000/3$). This is added to the interest expense on the loan. The financial statements in year one would show total financing expenses of \$416,667 in respect of this particular loan ($400,000 + 16,667$).

While interest rate caps are not inexpensive, they can be used to either achieve lower interest cost than by setting up a fixed rate loan or swap or



manage the risk on the loan. The popularity of this product has been low over the past couple of years given the prevailing very low interest rate climate.

Options – insurance

In Module 4 we learned the basics of options with respect to share transactions and the fact that they are not used in raising capital for an organisation. Where management has an interest in options is in the use of options as insurance – thereby transferring risk to another party. These can sometimes be used to cover risks arising from commodity prices, exchange rates and interest rates. In particular, exchange rate options are an alternative to forward and futures contracts. Similarly, interest rate options are alternatives to interest rate caps and swaps. Interest rate and exchange rate options work within the same basic premise as share options. The purchaser pays an agreed amount for the purchase of the option which gives them the right to buy or sell currency at a specified price for a specified period. If you can achieve a better rate in the market during the option period, you will buy/sell your required funds on the option market and let your option expire without exercising it.

Securitisation

Comptroller of the Currency Administrator of National Banks (USA) defines the asset securitisation as “Asset securitisation is the structured process whereby interests in loans and other receivables are packaged, underwritten, and sold in the form of ‘asset-backed’ securities. From the perspective of credit originators, this market enables them to transfer some of the risks of ownership to parties more willing or able to manage them. By doing so, originators can access the funding markets at debt ratings higher than their overall corporate ratings, which generally gives them access to broader funding sources at more favorable rates. By removing the assets and supporting debt from their balance sheets, they are able to save some of the costs of on-balance-sheet financing and manage potential asset-liability mismatches and credit concentrations.”

Asset-backed security

A financial security backed by a loan, lease or receivables against assets other than real estate and mortgage-backed securities. For investors, asset-backed securities are an alternative to investing in corporate debt.

We will touch briefly on securitisation, which is a hedging technique used most commonly by financial institutions. Securitisation converts loans into marketable securities. What financial institutions will do is to “bundle” loans with similar terms and risks into what are called pools. These pools are sold to an investor as an investment that is secured by the bundled loans, that is, by the underlying security of the loans being bundled. Securitisation is used for both liquidity and hedging purposes.

An institution that has higher loan balances than deposit balances may “sell” its loans to provide cash needed for operations. The process of selling these loans may also allow for better matching of assets and liabilities on the company’s balance sheet thereby reducing interest rate risk. Securitisation agreements will vary as to how payments are made and what occurs if the underlying loans are paid in full earlier than expected. Also, there are terms in the contract that deal with the default risk and what rights each party has in the event of a loan default. Typically, the original borrowers are not aware that the loans have been bundled and sold to a third party as they continue to deal with their financial institution as if nothing has occurred.

Benefits of asset securitisation

Benefit of asset securitisation for the parties involved in it:

For originators

Securitisation improves returns on capital by changing an on-balance-sheet lending business into an off-balance-sheet free income stream where low amount of capital is required. Securitisation may also lower

- Borrowing costs,
- Release additional capital for expansion or reinvestment purposes
- Improve asset/liability and credit risk management.

For investors

Securitized assets offer a:

- Combination of attractive yields (compared with other instruments of similar quality), increasing secondary market liquidity.
- Generally more protection by way of collateral averages and/or guarantees by entities with high and stable credit ratings.

For borrowers

Borrowers benefit from the increasing availability of credit on terms that lenders may not have provided had they kept the loans on their balance sheets.

Module summary



Summary

In this module you learned:

- Financial risk is the risk that an organisation will be unable to satisfy its financial obligations. It is a risk that a company will not have adequate cash flow to meet financial obligations.
- Financial risks exist in all organisations. The key is to know what risks exist and to select a strategy to deal with the risks.
- Four ways of dealing with risk are: to avoid risk, to take steps to control and/or prevent risk, to retain risk, or to transfer risk to a third party.
- Hedging can eliminate the impact of negative changes in rates/prices but it also eliminates the participation in positive changes in prices/rates.
- Forward price is the future specified price at some future date agreed by two parties for an exchange in the future.
- Currency swap is a swap that involves the exchange of principal and interest in one currency for the same in another currency. It is considered to be a foreign exchange transaction and is not required by law to be shown on the balance sheet.
- Equity swap allows the investor of a security to swap the future cash inflows with any other party.
- Insurance protects against losses but also allows an organisation to participate in gains that occur as a result of positive changes.
- A variety of hedging tools exist, including forward contracts, swap contracts, rate caps, and internal hedges, i.e., matching your own assets and liabilities.
- A company may purchase options (similar to an insurance policy) to protect against interest rate changes or changes in exchange rates.
- Securitisation is the pooling and reselling of loans to an investor.
- Asset-backed security is a financial security backed by a loan, lease or receivables against assets other than real estate and mortgage-backed securities. For investors, asset-backed securities are an alternative to investing in corporate debt.

Assignment



Assignment

1. Discuss how hedging can eliminate the impact of negative changes in rates/prices. How it also eliminates the participation in positive changes in prices/rates.
2. If a firm is selling a futures contract on lumber as a hedging strategy, what must be true about the firm's exposure to lumber prices?
3. Discuss why futures contract is more common than forward contract?
4. A U.S. oil producer would like to hedge against adverse movements in the price of oil because this is the firm's primary source of revenue. What should the firm do?
5. Explain why a swap is effectively a series of forward contracts. Suppose a firm enters into a swap agreement with a swap dealer. Describe the nature of the default risk faced by both parties.
6. Suppose a financial manager buys call options on 50,000 barrels of oil with an exercise price of \$40 per barrel. She simultaneously sells a put option on 50,000 barrels of oil with the same exercise price. Consider her gains and losses if oil prices are \$35, \$37, \$40, \$43, and \$45. What do you notice about the payoff profile?



Assessment



Assessment

1. Levesque Distribution Inc., a Canadian company based in Montreal, operates a very large fleet that operates throughout Quebec. The company plans to significantly reduce its insurance coverage on the fleet. This policy change is an example of which of the following:
 - a. Loss prevention and control
 - b. Risk transfer
 - c. Risk avoidance
 - d. Risk retention.
2. Petsunlimited.com, a Canadian company based in Toronto, exports 50 per cent of its sales to customers located in the United States. U.S. customers are billed in U.S. dollars. The company uses foreign exchange futures to protect itself from foreign exchange risk. Indicate whether the following statement is true or false: Since Petsunlimited.com has a futures programme; company management should not be concerned with the Cdn/US dollar exchange rate.
 - a. True
 - b. False.
3. False rate swap agreement. The swap rate is 10 per cent and the loan carries interest at prime plus 1 per cent. In 2000 prime rate averages out at 7 per cent. Which of the following statements is true for Nebula B in that year?
 - a. The interest rate swap allows Nebula B to profit from drops in the prime rate.
 - b. Nebula B will receive swap payments from its bank in 2000 as prime plus 1 per cent is lower than the swap rate.
 - c. In 2000 the total interest charges on the loan will be independent of the prime rates recorded during the course of the year.
 - d. None of (a) through (c) is true.
4. Gamma Technologies has a major export business in Europe, particularly in the Euro-zone. The company bills export customers in Euros, pounds sterling, and U.S. dollars. Which of the following statements is not true regarding Gamma Technologies?
 - a. The company can protect itself from exchange risk by setting up futures contracts in Euros, pounds sterling and U.S. dollars.
 - b. Gamma can protect itself against its exposure to sterling by

- borrowing against its sterling receivables.
- c. Gamma's profitability will be influenced by the CDN \$/sterling exchange rate.
 - d. Interest rates on sterling loans will not be a factor in any policy Gamma sets to reduce exchange risk.
5. Gallic Wars Inc. is considering the use of interest rate caps with respect to a \$10 million variable rate loan with interest at the prime rate. Maturity of the loan is three years and no principal is repaid until maturity. The cap is set at 9 per cent for the term of the loan. Which of the following statements is not true regarding this arrangement:
- a. If prime averages 11 per cent in year 1, then Gallic Wars will have to make a compensating payment of \$200,000 to the bank.
 - b. Interest rate caps limit risk on loans but allow companies to benefit from falling rates.
 - c. In order to obtain an interest rate cap, Gallic Wars will have to pay a premium at the point the loan is drawn down.
 - d. The cost of an interest rate cap should be amortised over the period the loan is outstanding.
6. Brilliant Discoveries Inc. (BDI) utilises interest rate caps to control financing costs. It paid \$60,000 to cap a five-year \$5 million loan at 10 per cent. Prime rate was below 10 per cent every year the loan was outstanding and averaged 8 per cent p.a. The average level of annual finance costs associated with the loan was:
- a. \$412,000
 - b. \$460,000
 - c. \$400,000
 - d. insufficient data to calculate.
7. Caesar Corp., a company based in Toronto, has purchased a piece of manufacturing equipment from a French supplier. The cost of the equipment is 1,200,000 Euros. Would it be possible to protect this contract against foreign exchange risk by buying a put option?
- a. Yes
 - b. No.
8. Lysistrata Corp., a company based in Halifax, Canada, has an outstanding call option for 1,000,000 pounds sterling at a rate of CAD2.27 = one pound sterling. The company requires a million in sterling to pay a royalty to its parent in the United Kingdom at a time when the spot rate for the pound is CAD2.34. Which of the following statements is not true:



- a. Call options are a valid form of insurance to protect against foreign exchange risk.
 - b. The option should be allowed to expire as it is not worth exercising.
 - c. The option should be exercised.
 - d. Lysistrata could have used foreign exchange futures to protect against foreign exchange risk but this would have eliminated the benefit of a potential depreciation in sterling.
9. Which of the following is not a hedge to avoid losses:
- a. Purchase a put option to sell a stock you already own.
 - b. Enter into a swap contract to exchange fixed interest payments for floating rate payments because you have floating rate assets.
 - c. Agree to purchase a warehouse in one year's time for \$1,000,000.
 - d. As a canola grower, enter into a futures contract (long) to sell your crop in six months.
10. Which of the following statements is untrue:
- a. Forward contracts for commodities are very similar to futures in that they are standard form contracts which are available from a commodity exchange such as the Chicago Board of Trade.
 - b. Futures contracts require that the contract holder post cash deposit with a commodity broker (margin).
 - c. The nature of futures is that the holder of a contract may be required to pay amounts into their account (margin calls) depending upon price movements in the underlying commodity on which the contract is based.

Problem:

11. Jaffar Enterprises has a beta of 1.45. The risk-free rate is 8 per cent and the expected return on the market portfolio is 10 per cent. What is the stock's required rate of return according to the CAPM

Answer Key to Assessment Questions

1. d – Levesque is retaining a greater proportion of the risk from fleet operations.
2. b – The futures program protects against exchange rate risk that arises from the timing of the collections from customers. The profitability of Petsunlimited's US business is a function of revenues and corresponding costs. Revenues depend to a major degree on the exchange rate. Therefore a weakening Canadian dollar will increase profitability and a strengthening dollar will reduce it.
3. c – A swap agreement effectively fixes the rate on a loan, in this case at 10% p.a.
4. d – If Gamma uses sterling loans to offset the FX exposure on sterling receivables it must consider interest payable on such loans. If the sterling interest rates were much higher than those on C\$ loans, it may decide not to use this method but instead rely on futures or indeed to retain the risk itself.
5. a – If prime goes above the cap rate then the bank will be required to make a payment to Gallic Wars of \$200,000: $(11-9\%) \times 10,000,000$.
6. a – Average interest p.a. = $8\% \times 5 \text{ million} = \$400,000$.
Amortization of cap = $60,000/5 = \$12,000$ p.a. Total financing costs = $400,000 + 12,000 = \$412,000$.
7. b – A put option would be an option to sell euros. A call option would be required to buy euros and hence fix the cost of the equipment.
8. b – The option should be exercised as the cost of exercise = $1,000,000 \times 2.27 = \text{C}\$2,270,000$ compared to a spot purchase of 2,340,000 ($1,000,000 \times 2.34$).
9. a – Purchase of a put option is equivalent to buying an insurance policy. All the others are hedges as they fix the cost of a transaction.
10. a – is untrue, the terms of a forward contract may be customized to the parties involved.



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