

Managing risk has ushered a new philosophy to acknowledge, analyse, review and manage business and market risks with the basic objective to reduce risk as far as practicable. Read on to know the tricks of the trade.



# MANAGING RISK: A challenging task

Risk Management is a systematic approach in identifying, analysing, and controlling areas or events with a potential for causing unwanted change. It is through risk management that risks to any specific programme are assessed and systematically managed to reduce risk to an acceptable level. Risk Management signifies the basic ideology to identify, analyse, evaluate and treat the different business and financial risks that are frequently tackled in day-to-day business operations. Risk is an all-pervasive feature. Risk Management is the act or practice of controlling risk. It includes risk planning, assessing risk areas, developing risk-handling options, monitoring risks to determine how risks have changed, and documenting overall risk management programme.

There is no standard approach for risk management. However, there are some common elements of successful risk management efforts:

- Recognition that risk management is a programme management responsibility
- The risk management process includes:
  - Planning for risk management;
  - Continuously identifying and analyzing programme events;



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- Assessing the likelihood of their occurrence and consequences;
- Incorporating handling actions to control risk events;
- Monitoring a programme's progress toward meeting programme goals.

## Risk and Opportunity

Risk is not bad in itself; risk is essential to progress, and failure is often a key part of learning. But we must learn to balance the possible negative consequences of risk against the potential benefits of its associated opportunity. Risk and opportunity go hand in hand. The line of demarcation between the terms 'risk' and 'uncertainty' is very thin.

## Types of Risk

Risks are of two types-- Market risk and Unique risk. They are also termed as systematic risk and unsystematic risk respectively. Market risk is the general risk prevalent in the economy and is not attached to any specific organisation or its activities like the general market situations, government's attitudes in public spending, taxation policy and structure, fluctuations in interest rates, impact of global and economic liberalization policy etc. Market risk is a type of risk that can-

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not be diversified away as it affects all securities in the market and in most of the cases tends to remain uncontrolled and untamed. Unique risk is a specific risk which stems from the particular nature of the security- viz. the development of a new competitive product, labour strike etc. Events of this nature affect the specific organisational activities of a firm. The unique risk is easily identifiable and can be avoided or diversified while the market risk is very sporadic and relatively less unidentifiable and as such not easily controllable.

### Risk Management Process

Risk management process refers to the process of measuring, or assessing risk and then developing strategies to manage the risk. In ideal risk management, a prioritization process is followed whereby the risks with the greatest loss and the greatest probability of occurring are handled first, and risks with lower probability of occurrence and lower loss are handled later. In practice the process is somehow very difficult to achieve, and the balancing between risks with a high probability of occurrence but lower loss vs. a risk with high loss but lower probability of occurrence may be misleading too.

### Strategies of Risk Management Process

**Identification and Assessment-** The first step in the process of managing risk is identifying the potential risks involved in the instant case. The risks must then be assessed as to their potential severity of likely losses that might have to be suffered and to the probability of occurrence, time and again. Risk is a measure of the inability to achieve overall programme objectives within the defined cost and time schedule, and technical constraints that may be embedded therein and has two components: a) the probability of failing to achieve a particular outcome and b) the consequences of failing to achieve that outcome.

**Possible Alternative Actions -** Once risks have been identified and assessed, the next strategy is to devise plans how to deal with the risks so identified and analysed as to their outcomes. There cannot be any ready-made solution that will match every finding. The techniques to manage the risk usually fall into one or more of the four major categories as may be envisaged -- **Avoidance, Retention, Transfer, Hedging**

Ideal use of all these strategies at any particular point of time and in respect of any specific risk problem

The phrase 'Higher is the risk higher is the return' also signifies the true inter-relationship between return and risk. In present era of globalization and abstract technological advancements, risks abound and as such a conscious and deliberate attempt is highly needed towards risk synchronization, risk reduction, risk transfer, risk diversification and risk hedging.

may not be possible in real life situations for various reasons. These strategies are not mutually exclusive rather they are exhaustive. Some of them may involve trade offs that are not acceptable to the organization or person making the risk management decisions. A judicious combination of these may at best help better risk management.



**Risk Avoidance:** It includes deliberate attempt on part of the person taking risk decision not to perform an activity or not to accept a proposal, which is risk prone. An example would be not buying a property or business in order to not undertake the liability that comes with it. Another would be not flying in order to averse the risk that the plane may be hijacked. But avoiding risks also means losing out potential opportunities of gaining something.

**Risk Retention:** It involves accepting the loss when it occurs by taking risky proposal or risky assignment where there are no other alternatives to avoid risk. Various government proposals or projects are undertaken in national interests despite their high vulnerability to risk and loss making.

**Risk Transfer:** It means causing another party to accept the risk, typically by contract. It involves a process of shifting risk responsibility on others. The risk, which should have been borne by one, is deliberately shifted on the shoulders of others. Insurance is one type of risk transfer, which is widely used in common parlance. Some ways of managing risk fall into

multiple categories. Risk retention pools are technically retaining the risk for the group, but spreading it over the whole group, involves transfer among individual

members of the group. This is different from traditional insurance, in that no premium is exchanged between members of the group.

**Risk Hedging:** Risk hedging is a systematic process of reducing risk associated with an investment proposal or in some other assignments where risk is inevitable i.e. the risk is of such nature that it cannot be avoided altogether. The business

world, the households, the social institutions etc.

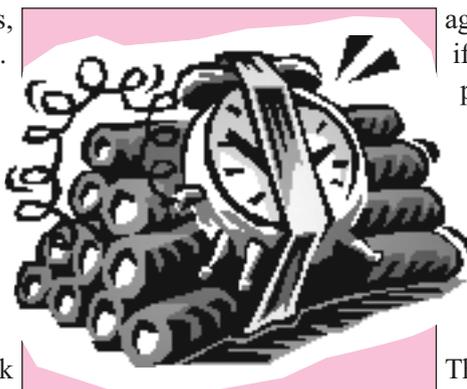
are under sheer pressure to deal with risk and its grueling impact on them by devastating their normal propensity to grow and survive. Risk hedging with the objective to risk reducing is a challenging task and is more a journey than

a destination- a promise rather than a list of achievements. To one who has the unflinching aptitude to grow and prosper amid all disappointments and hazards, risk hedging is an oasis in the desert. The evolution of modern risk management tools like Hedging Contracts and Derivative Trading like Forwards, Futures, Options, and Swaps etc. have a dominating impact in reducing risks to a considerable extent although not in its entirety.

### Derivatives and Derivative Trading

Derivatives are specific financial instruments having high liquidity and flexibility with an intent of contingent claims. Derivatives are those financial instruments which do not have an intrinsic value in themselves but whose value depends on the values of basic underlying variables/assets and are derived from the underlying variables and are so called as 'Derivatives'.

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The derivatives are usually Forwards, Futures, Options and Swaps. The business financial risk can be reduced or avoided system-

atically with the help of derivative tradings.

**Forwards:** A forward or more commonly a forward contract is an agreement to buy or sell an asset at a certain future time for a certain price. This contract is generally entered into between two financial institutions or between a financial institution and one of its corporate clients. It is not normally traded on an exchange.

One of the parties of the forward contract who agrees to buy the underlying asset on a certain specified date for a certain specific price is in the long position and is called long. The other party who agrees to sell the underlying asset on the same date for the same price is *in short position and is called short*. The specific price so mentioned in the forwards is termed as 'delivery price'.

At the time the contract is entered into, the delivery price is so chosen that the value of forward contract to both parties becomes zero. This implies that it costs nothing at the date of contract to take either a long position or a short position.

A forward contract is settled at maturity. The holder of the short position delivers the underlying asset at the delivery price in cash amount to the holder of the long position. Although a forward contract is worth zero at the initiation, later it may become positive or negative depending on the price fluctuations of the underlying asset. The value of the long position will be positive and the short position negative if the market value of the underlying asset rises sharply after initiating contract. The forward buyer (long position holder) is obliged to purchase the underlying asset at the specified contract price or enter into an offsetting transaction. When in future, the spot or market price becomes higher than the contract price, the forward buyer's gain is the difference between the spot price and the contract price and forward seller's loss is the difference between the contract price and spot price.

Thus in the condition of upward price fluctuations i.e. in the inflationary situations, the forward buyer gets an opportunity to reduce his risk of loss owing to price rise by exercising his right of buying an asset at a price lower than the spot price and ultimately gains. Similarly in conditions of deflation when prices of goods/assets fall, the forward seller gets the opportunity to reduce his risk of loss owing to falling price by exercising his right of selling an asset at a price higher than the spot price and ultimately gains. This way forward contracts help the parties to the contract to reduce their risk of loss to a great extent.

**Futures Contract/Futures:** A futures contract or simply futures is an agreement between two parties to buy or sell an asset at a certain time in future for a certain price. Unlike forward contracts, futures contracts are normally traded on an exchange. The futures prices are determined on the floor of the exchange on the simple basic rule of demand and supply. If more investors/traders on a particular day want to go on long position than to go short, the price will go up and if the reverse is true, the price will go down. However, in futures the parties to the contract may settle the contract without buying or selling the asset with the differences of prices and this way they can reduce their risk of loss during price fluctuations, although it is obvious that when the futures buyer gains, the futures seller incurs loss and the vice-versa.

**Options:** An option is a contract conveying the right but not obligation to buy or sell a specified financial instrument at a fixed price before or after a certain future date. An option gives the owner the right to buy or sell an underlying asset on or before a given date at a fixed price. The Option Holder is the buyer of the option who has the right but no obligation to buy or sell a specified quantity of underlying asset at a specified price (exercise price or striking price i.e. the price at which the option holder agrees to sell or buy the underlying asset) on or before a specific date (expiration date or maturity date i.e. the date when the option expires or matures) in the future.

*Options are of two types-* Call Option and Put Option. A call option gives the holder of the option the right to buy an underlying asset. Thus the buyer of a call option may choose whether or not it will be profitable to him to buy the underlying asset and act accordingly. If

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the strike price becomes higher than the market price of the underlying asset as on the maturity date of the option, the holder of the call option can simply allow to the option to expire. A put option gives the holder of the option the right to sell an underlying asset. Thus the

buyer of a put option may choose whether or not it will be profitable to sell the underlying asset and act accordingly. This way the option holders can have the opportunity to substantially reduce the risk of loss of buying or selling the underlying asset at a specific date.

**Swaps:** Swaps are usually specific techniques involving the exchange of one set of financial obligation for payment with another set. Swaps are entered into between two parties to exchange

the designated cash flows in future according to a predetermined schedule with the basic objective to reduce the risk of loss due to fluctuations in interest rates or foreign currency payments. Swaps are basically of two types- Interest Rate Swap and Currency Swap.

In Interest Rate Swaps, an agreement is entered involving the exchange of one stream of interest schedule with another set previously arranged in a manner that the parties to the agreement do not suffer much in spite of frequent fluctuations in market interest rates.

Currency Swap is another type of popular swap. In its simplest form, currency swap involves exchanging principal and fixed-rate interest payments on a loan in one currency for principal and fixed-rate interest payments on an approximately equivalent loan



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in another currency. With this mechanism the parties involved get an opportunity to reduce their risk of loss due to wide fluctuations in currency exchange rates while paying and receiving the agreed installments in a loan agreement.

### Portfolio and Managing Portfolio Risk

A portfolio is simply a combination of different investment proposals having separate risk and return patterns. Portfolio theory demonstrates how an investor can reach his optimal portfolio position such that risk is minimized and return is optimized. It has resemblance to the strategy of the egg sellers not to put all the eggs in a single basket but to put them in different baskets to minimize risk of loss by accident, mishandling etc. Portfolio management is a systematic and judicious process of tackling risks of a portfolio investment comprising several securities/investment opportunities coupled with individual risk and return schedule in an objective and efficacious manner to optimize return and to minimize risk of the portfolio investment.

### Managing Unique Risk of Portfolio

The risk management strategy plays a magnificent role to minimize portfolio risk. Whereas unique risk of a portfolio can be tackled and reduced substantially with the help of diversification of fund, market risk of portfolio cannot be reduced by diversification of fund. For

reducing market risk, some other techniques like Beta Estimation, Hedging etc. may be resorted to get the optimum results.

The most common statistical measure of portfolio risk is the standard deviation of the expected value of portfolio returns. The variance of a probability distribution ( $\sigma^2$ ) is the sum of the squares of the deviations of actual returns from the expected returns, weighted by the associated probabilities and is expressed as-

$$\sigma^2 = \sum P_1 (R_1 - R)^2$$

Where  $P_1$  = Probability of the return of the portfolio,  $R_1$  = Actual return and

$R$  = Expected return

### Managing Market Risk of Portfolio

It is really difficult and rather a futile attempt to try to reduce market risk of a portfolio because of the inherent distinctiveness of market risks. Market risk is typical in character and is highly sensitive as well as vulnerable to respond to market ups and downs, economic conditions, global threats and many other factors most of which are imperceptible in common parlance and are not to be easily estimated.

The sensitivity of a portfolio security to market movements or market volatility is called beta ( $\beta$ ) of the security. Practically beta of a security gives an idea how the security return tends to be affected by the fluctuations in market rate of return. Considering the wide and sharp responsiveness of individual security to market return of portfolio, the beta estimation ( $\beta$ ) of a security is usually done applying the simple linear regression equation model by the OLS (Ordinary Least Square) method to highlight the degree of inter-relationship between the return of security and the market return of portfolio. The line of best fit of the regression equation is:  $R = \alpha_S + \beta_S P + U$

Where,  $R$  (Dependent Variable) = Rate of Return of Security

$P$  (Explanatory Variable) = Market Rate of Return of Portfolio

$U$  (Random Variable) = Stochastic Disturbance or Error Term

$d_S$  (Regression Parameter) = Intercept Term

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$\beta_S$  (Regression Parameter) = Regression Co-efficient  
i.e. the beta estimate of the Security

The regression parameters can be estimated as below:

i.  $\beta_S = \frac{\sum(r_i p_i)}{\sum p_i^2}$

Where,  $r_i = (R_i - R^-)$ ;  $p_i = (P_i - P^-)$ ;  $R^- = \sum R/n$  and

$P^- = \sum P/n$ ;  $n = \text{No. of observations}$

ii.  $\alpha_S = R^- - \beta_S P^-$

### Hedging Market Risk

The most sophisticated and effective way of controlling market risk is hedging scheme. Hedging is a systematic and procedural attempt to reduce risk. Through hedging an investor can have the opportunity to augment better rate of return than the market rate of return in a less risky manner.

### Hedging using Futures

A company or an investor who is currently assigned to sell a particular asset at a future point of time can hedge the risk by taking a short futures position. This is known as a *short hedge*. If the price of the asset goes down, the seller's loss on sale is offset by the gain for occupying the short futures position. Alternatively, if the price of the asset goes up, the seller's gain due to higher sale price is matched by the loss on the futures position. In the same fashion, a buyer of an asset at a future point of time can hedge his risk by taking a long futures position. This is termed as a *long hedge*. However, this philosophy of controlling risk through hedging does not always become really fruitful in real life situations because of various reasons viz. the asset whose price is to be hedged may not be exactly the same as the asset underlying the futures contract; the hedger may be uncertain as to the exact date when the asset will have to be sold or bought; the hedge may require the futures contract to be closed out well before the expiration date.

### Hedging using Options

Another important refinement in the effective attainment of hedging risk through options is delta ( $\nabla$ ) hedging. The delta of a stock option is the ratio of change in the price of a stock option to the change in the price of the underlying stock. It is the number of units of the

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stock that one should hold for each option desired to be a riskless hedge. The idea of achieving a riskless hedge is referred to as *delta hedging*.

### Conclusion

Risk is all-pervasive. The philosophy of treating risk has gained wide popularity because risk is not just a threat but also a powerful device to combat fierce competitions and ultimately to learn how to grow and survive amid all adversities of risk. There is always a trade-off between return and risk. The trite phrase "Higher is the risk higher is the return" also signifies the true inter-relationship between the return and the risk. In the present era of globalization and abstract techno-



logical advancements, risks abound and as such a conscious and deliberate attempt is highly needed towards risk synchronization, risk reduction, risk transfer and above all risk diversification and risk hedging. A number of sophisticated and deliberate mechanisms have been evolved like Derivative Trading, Hedging by Futures, Hedging by Options, Diversification of Fund for Portfolio Investment, various estimates like *beta*, *delta*, *gamma*, *vega* etc. to reduce or to hedge risk as far as practicable or at best to achieve risk immunization since amid all attempts risk cannot be avoided in its entirety. ■