Managing Financial Risks

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Understanding Financial Risks

A firm is exposed to financial risk when the value of its assets, liabilities, operating incomes and cash flows are affected by changes in financial parameters such as interest rates, exchange rates, stock indices, etc. Financial risk management aims to reduce the volatility of earnings and boosts the confidence of investors in the company. Since the 1970s, following the deregulation of financial markets in many countries, the importance of financial risk management has grown considerably.

In its earliest form, financial risk management concentrated on foreign exchange risk. The stability of currencies under the Bretton Woods Exchange rate system ensured that this risk was not serious. Following the breakdown of Bretton Woods by the mid–1970s, the scenario had changed dramatically as currency volatility increased. Also, with US interest rates touching double digits, interest rate risk management became more relevant. Gradually, the financial markets responded by coming up with a variety of over-the-counter as well as exchange-traded instruments. Today, financial risk management has become quite sophisticated. Many companies are moving away from *ad hoc* transaction driven financial risk management towards business process risk management, which considers the interconnectivity of risks and the way risks affect important business decisions and processes.

The real benefits of financial risk management must be understood in terms of what it tries to avoid than what it tries to do. By preventing undesirable situations, it ensures that management is not distracted from its core purpose of running its business efficiently. Financial risk management aims to maximise shareholders' wealth by avoiding costs associated with:

- Renegotiation of debt.
- Restructuring of capital.
- Legal fees.
- Loss of bargaining power vis á vis suppliers, due to delayed payment.
- Loss of reputation in the financial markets, due to failure to meet obligations.

Types of Financial Risks

Credit Risk

In simple terms, credit risk refers to the possibility of default by the borrower. More generally, it refers to the failure of the counterparty to honour its side of the contract. Credit risk is, by far, the biggest risk that financial institutions take and has been the root cause of many banking failures. A partner may not fulfil his obligations partially or fully on the due date. In day-to-day commercial transactions, a customer may not pay up. In derivative transactions, the counterparty may fail to honour the contract and a cost may be incurred for replacing the existing contract with a fresh contract. Similarly, losses may occur due to defaults in the case of letters of credit and loan guarantees.

Credit risk comes in two forms—Traditional credit (loans) risk and Trading credit risk. Traditional credit risk arises when a bank makes a loan and there is uncertainty about the borrower's ability to repay. Credit risk from trading involves both pre-settlement and settlement risks. Pre-settlement risk is the probability of loss due to a trading counter party defaulting before the settlement date. The risk is the sum of the replacement cost of the position[1] and the potential future exposure as a result of market movements. Settlement risk is the risk of loss due to a party defaulting at the time of settlement of the

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deal. On settlement day, the exposure is the value of cash flows to be received on the securities.

The degree of credit risk varies depending on the stage of financial distress. For example, even if there is no default, the price of a bond may fall if the credit rating is downgraded. The next stage is a default by the borrower. Then, there could be bankruptcy if the borrower declares his inability to meet his obligations. The last stage is liquidation when receivers are called in to dispose off the asset.

The traditional approach to credit risk measurement consisted of making credit checks on the party before the deal, setting limits on loans and passing risk to third parties through factoring and credit insurance. Today, the approach has become more sophisticated, thanks to the availability of credit derivatives. Banks can analyze credit exposure in terms of concentration by sector, geographical region or a group of clients and optimize their portfolio accordingly.

Trading credit risks have to be handled differently. Corporations are not the major players in the trading market. Most trading deals involve banks and securities firms. These entities are unlikely to default, but when things go wrong, many parties may default simultaneously. In the case of traditional loans, the exposure is stable. So the focus shifts to the probability of default and recovery. In the case of credit risk for trading, the exposure is variable. Here, ongoing measurement of the risk becomes very important.

Equity risk is the uncertainty about the value of the ownership stakes, a firm has in other companies, real estate, etc.

Market Risk

This is the risk which results from adverse movements in the prices of interest rate instruments, stock indices, commodities, currencies, etc.

Interest rate risk arises when the income of a company is sensitive to interest rate fluctuations. Consider a company which is going to need funds, after a few months. If interest rates go up in the intervening period, the firm will be at a disadvantage. Similarly, if the company is going to have surplus funds a couple of months from now and interest rates fall, the firm will incur a loss.

Commodity risk is the uncertainty about the value of widely used commodities such as gold, silver, etc.

Broad Issues in Financial Risk Management

- What kind of internal expertise/experience is available to monitor risk?
- How frequently should positions be marked to market?
- What are the acceptable counterparty credit limits?
- What is the approach to stress testing and how frequently should stress testing be done?
- What are the variables that can result in large changes in positions, and which need to be carefully monitored?
- What are the variables which are most likely to change?
- Which of the variables will move but offset each other?

Currency risk is the uncertainty about the value of foreign currency assets, liabilities and operating incomes due to fluctuations in exchange rates. Consider an Indian importer who has to make a dollar payment a few weeks from now. If the dollar appreciates during the intervening period, the importer will incur a loss.

Equity risk is the uncertainty about the value of the ownership stakes, a firm has in other companies, real estate, etc.

Market risk is typically measured using *Value at Risk* (VaR) which quantifies the potential loss/gain in a position or a portfolio that is associated with a given confidence level for a specified time horizon. Conventional VaR models have the following limitations:

- They assume a normal distribution.
- They use past data to predict future returns.
- They use estimates based on end-of-day positions and do not take into account intra-day risk.
- They do not take into account risk arising due to exceptional circumstances.

Liquidity Risk

When there is a mismatch in the maturity of assets and liabilities, liquidity problems arise. Say, the company has invested heavily in long-term assets but has several short-term liabilities. It runs the risk of failing to meet its liabilities, even though it may be

[1] *The position of the defaulting counterparty has to be replaced. This results in a cost.*

profitable in the long run. Many small units are profitable if conventional accounting norms are applied. But, often they have their funds blocked in receivables and are unable to pay their suppliers. This working capital squeeze leads to their bankruptcy.

Borge[2] argues that liquidity risk is the least understood and the most dangerous financial risk. If a trader has difficulty in finding buyers when he wants to sell or a borrower has difficulty in finding a lender, then liquidity risk is encountered. This risk arises because even with a large number of buyers and sellers operating, the markets are not perfect, as is commonly assumed. While some markets are very liquid, others are not. Liquidity risk is dangerous because it reduces the control the companies have over existing risks and forces them to assume other risks which normally they avoid.

Steps in Financial Risk Management

Four steps are involved in financial risk management:

- Identification of risks.
- Quantification of risks.
- Framing of policies to transform the risk into a form, with which the company is comfortable.
- Implementation and control.

Companies can deal with financial risks in various ways:

Avoidance: The firm can avoid holding financial assets or liabilities whose values are uncertain.

Loss Control: When risks cannot be avoided, efforts can be made to limit the loss.

Diversification: Instead of concentrating assets in one place, the firm can distribute them across several locations or markets.

Transfer: The risk can be eliminated by transferring the asset/liability to another party. Alternatively, the asset/liability can be retained by the company but the risk can be transferred. Or the company may retain the risk but in the event of a loss, a third party assumes the liability.

Using Derivatives to Transfer Risk

Derivatives, as the name suggests, are derived from underlying instruments. Thus an interest rate future is derived from a bond, treasury bill, a deposit etc. A stock index future is derived from a stock index. Similarly, foreign currency futures are derived from the underlying spot market for that currency.

Derivatives have been around for quite some time now. Flemish traders used forward contracts in the 12th century. Less sophisticated versions of today's futures and options contracts were widely used in Amsterdam in the 17th century. Commodity futures exchanges came up in Chicago and New York in the middle of the 19th century. In fact, money whose value come from gold, is also a type of derivative.

In recent times, the use of derivatives has increased, following the freeing of currency and capital markets in the 1970s and the development of the Black & Scholes option pricing model. In 1994, the total outstanding value of derivative contracts was about $20 bn. Derivatives have become a cheap and efficient way of transferring risk from a party which does not want to retain it, to one which does not mind holding it. Though derivatives may look very complicated instruments, it is this simple risk-transfer function which they serve.

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The distinguishing characteristic of derivatives is the leverage they offer. The value of a position, which a derivative represents is far greater than the down payment made by the trader. This leverage makes derivatives cost effective in a positive sense and risky in a negative sense. Controls are necessary to ensure that derivatives are not misused. Besides, companies should understand the inherent limitations of derivatives. Many business risks cannot be hedged by using derivatives. The value of the derivative can change due to market influences. There can be basis risk[3] if the derivative does not move as much as the underlying asset. There is also counterparty risk, when the counterparty defaults and a cost is incurred

[2] *The Book of Risk.*

in replacing the position.

Barings, the famous investment bank collapsed after risky derivative trading due to the lack of effective control systems. The Orange County crisis in California was the result of poor risk measurement as well as ineffective communication of the risks involved to the investors. Hedge funds like Long Term Capital Management (LTCM) and corporates like Procter & Gamble have burnt their fingers as the potential for large profits tempted their managers to take unwarranted risks in derivative trades. But it is the stories, which do not get reported, where derivatives reduce risk that are more typical. More often than not, derivative disasters have been the result of fraud or misuse. Derivatives can also create problems if they are used in a piecemeal fashion, without an integrated perspective. Consider the German airline Lufthansa, which signed a $3 bn contract to purchase aircraft from Boeing. To protect itself from the appreciation of the dollar, the company booked a forward contract. Lufthansa generated much of its revenues in dollars and consequently had a natural hedge. It ended up making a big loss when the dollar instead of going up, moved down against the DM. In this case, Lufthansa pursued a hedge that was unnecessary.

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To minimise the misuse of derivatives, regulators in various parts of the world now insist on proper disclosure of derivative transactions on the balance-sheet, instead of treating them as off-balance-sheet transactions. But treasurers and traders have invented new ways of getting around accounting rules. Moreover, the prices of some derivatives can change so fast that the value indicated on the balance-sheet may be completely different from the market value. So, many regulators now insist on marking to market, i.e., showing derivatives on the balance-sheet at market value. But this method has its drawbacks. Let us say the value of the underlying asset moves favorably and we incur a loss on the derivative used to hedge the position. If the derivative is marked to market, but not the underlying hedge, the picture would get completely distorted. This is exactly what happened in the case of Metallgesellschaft.

Since derivatives can be dangerous weapons in the hands of inexperienced or reckless traders, companies must establish a framework for effectively managing and controlling derivatives trading activities. The various issues to be considered are the role of senior management, risk measurement, operating guidelines and control systems and accounting and disclosures. The use of derivative instruments should be guided by the company's risk strategy and after undertaking necessary market simulation exercises and stress tests. When using financial derivatives, organizations must be careful to use only those instruments that they understand and which are consistent with their corporate risk management philosophy. Exotic instruments should be avoided without having a good appreciation of the risk return tradeoffs involved. Proper safeguards should be built into trading practices. Appropriate incentives must be provided so that corporate traders do not take disproportionate risks.

Credit Derivatives

Developed in the early 1990s, credit derivatives are used to separate and transfer the credit risk of underlying instruments such as loans and bonds. In spite of their best efforts to diversify risk, banks are often heavily exposed to specific geographical regions or industries. If a particular region or industry is going through a bad phase, widespread defaults may occur. While the mechanics of a credit swap can be quite complicated, the objective is fairly simple. The bank, which is trying to transfer risk, pays a small fee to its counterparty at regular intervals. In case of a default, the counterparty compensates the bank for its losses. Credit derivatives have created interesting possibilities. Consider an American bank wanting to diversify its portfolio by lending to clients in Europe. It can tie up with a French bank, which has a much better

[3] *Basis is the difference between the price of the derivative and the price of the underlying asset.*

understanding of local customers. While the French bank does the actual lending, the American bank can be the counterparty in a credit swap. The increasing sophistication of banks' approach to credit risk management has created tremendous potential for credit derivatives. Today, banks can quantify their exposures and use credit derivatives to make potentially illiquid loans more liquid.

Using Insurance to Transfer Risk

Insurance is a powerful and efficient technique for managing a wide range of risks. In general, a risk must meet the following requirements before it can be insured:

- There must be many independent and identically distributed exposure units. The person or entity exposed to the loss is the exposure unit.
- The premium should be economically feasible, significantly less than the expected loss for the client and must offer reasonable returns for the insurer.
- Only accidental or unintentional losses must be covered. Losses that occur over time, like the wear and tear to an automobile are not insurable.
- Losses should be easily verifiable and quantifiable. This means the cost of verifying the loss details should be reasonably low.

Derivatives, in particular, are double-edged swords. If used well, they can mitigate risk but if used indiscriminately, they can land the company in trouble

Though finance and insurance are considered to be two different fields, they have much in common. They both look at risk in terms of variations in future cash flows. They use similar valuation techniques. Both depend on risk pooling and risk transfer. Moreover, the linkage between finance and insurance has strengthened in recent times. For example, options and futures have been developed to deal with catastrophe risk. Life insurers have developed products with embedded options on stock portfolios. While life insurers have taken on investment risks traditionally managed by banks, some banks have assumed mortality risk. Swiss life insurers for example offer a savings-oriented product where the principal grows at the higher of a pre-defined fixed rate or the stock index. This is effectively an embeded call option. There has been integration of financial and insurance products because of securitization.

Concluding Note

In this age of deregulated financial markets, companies have to manage their financial risks carefully. While the ways of managing risk have multiplied, thanks to the availability of a plethora of derivative instruments, life has also become more complicated for treasurers. Treasurers have to invest a lot of time and effort in understanding the pros and cons of different instruments and choosing the right one in a given situation. Derivatives, in particular, are double-edged swords. If used well, they can mitigate risk but if used indiscriminately, they can land the company in trouble. In India, the range of financial instruments available is still limited and the markets lack depth. But, in the near future, we can expect to see more and more instruments. Already, trading of options and futures on stock exchanges has taken off. Restrictions on currency swaps have also been removed. Corporate treasurers in India are truly headed for exciting times in the years to come. ■

Reference # 15-02-06-08