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DERIVATIVES FOR MANAGING FINANCIAL RISK

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ABSTRACT

The term derivatives can simply be understood as those items that do not have their own independent values, rather they have derived values. Derivatives have a significant place in finance and risk management .A Derivative is a financial instrument whose pay off is derived from some other Asset which is called an underlying asset. Ex: In case of a stock option, the underlying asset is share (stock) of company.

The value of stock option depends on the value of share options are more complicated derivatives .There are large number of simple derivatives future or forward contracts or swaps.

Firms always look for ways and means of reducing their risk .Derivatives are tools to reduce a firm's risk exposure. A firm can do away with unnecessary parts of risk exposure and convert exposure. A firm can do away with un-necessary parts of risk exposure and even convert exposures into quite different forms by using derivatives.

INTRODUCTION

Hedging is the term, term used for reducing risk by using derivatives.There are several advantages of better risk management through hedging.

- Debt capacity enhancement.
- Increased focus on operations.
- Isolated managerial performance

Risk Hedging with Options:

Option is a right to buy or right to sell an asset at a specified exercise price at a specified period of time. Option is a right and does not constitute any obligation on the part of buyer or seller of the option to buy or sell the underlying asset.

A foreign currency option is a handy method of reducing foreign exchange risk. Similarly, options on interest rates and commodity are quite popular with manages to reduce risk. Many options trade on option exchanges. However in practice banks and companies strike private option deals.

Forward Contracts:

We do frequently enter into arrangements or understanding now for buying or selling items in future. These arrangement when formalized, are referred to as forward contracts.

A forward contract is an agreement between two parties to exchange an asset for cast at a predetermined future date for a price that is specified today.

Future contracts vs. Forward contracts:

Future contracts originated for hedging risk of agricultural commodities and later on many more commodities were covered under future contracts. In terms of the basic nature, forward contracts and future contracts are same.

Future and Spot prices of financial future:

The price of commodity or financial asset for immediate delivery is known as the spot price. The future price and spot price will not be the same. Let us first explain the futures and spot prices of financial asset. The difference in the price will be on account of the financial cost and dividend or interest associated with a financial security. Suppose a person owns a share that he can sell immediately for cash or sell at a later date at the futures price. If he sells the financial asset at the spot price immediately instead of selling shares futures, he will earn interest on the amount received, but he will have to forgo any dividend on the share that he would received by holding the asset.

Spot and future prices of commodity future:

There is a difference between the spot and futures prices of financial assets and commodities. In case of commodity futures, there is no dividend forgone. Further the buyer of commodity futures does not need to store commodity as delivery will be in the future. There for, he avoids storage cost. Also the buyer does not have commodity on hand which does not give

him a comfort or convenience of meeting sudden requirements. Thus he buyer saves storage cost but loses in terms of convenience yield.

Swaps:

Swaps are similar to futures and forwards contracts in providing hedge against financial risk. A swap is an agreement between two parties, called counter parties to trade cash flows over a period of time. Swaps arrangements are quite flexible and are useful in many financial situations. Two most popular swaps are currency swaps and interest rate swaps. These two swaps can be combined when interest on loans in two currencies are swapped. The development of the swaps in the eighties is a significant development. The interest rate and currency swaps markets enable firms to arbitrage the differences between capital markets. They make use of their comparative arranging swaps for interest rates or currencies that they cannot easily access.

Currency swaps:

Currency swap involves an exchange of cash payment in one currency for cash payment in another currency most of international companies require foreign currency for making investment abroad. These firms find difficulties in entering new markets and raising capital at convenient terms. Currency swap is an easy alternative for these companies to overcome this problem.

Currency swaps are allows a company to borrow capital at fixed (or floating rate) and exchange its interest payments with interest payments at floating rate (or) fixed rate.

Use of Derivatives:

The opportunities to use derivatives to hedge risks are not available to all companies, in many countries, particularly the developing countries, no derivatives or very few types of derivatives are available. Even in developed, all companies do not make full use of derivatives. Most surveys on the use of derivatives reveal that derivatives are popular among the large listed companies in us.

Effective risk management is a critical success factor for delivering projects in predefined cost, time, and quality. Bartramet.al.(2011) provided strong evidence that the use of financial derivatives reduces both total risk and systematic risk. They used a new, larger data set that includes 6,888 nonfinancial firms headquartered in 47 different countries. The effect of derivatives use on firm value is positive yet sensitive to endogeneity and omitted variables concerned.Choi (2010) stated that every transaction taking place between economic agents of different countries requires an accompanying currency exchanges. However, exchange rates

are often fluctuating and seriously volatile in the floats. This brings the currency risk to agents. Currency risk will arise once there are transactions between two different currencies. Firms which are exposing to this type of risk have to do something to hedge against it in order to avoid suffering losses from the exposure. In analysis of the purposes of using derivatives, Nguyen and Faff (2010) pointed out that despite the public concern about the use of financial derivatives to increase firm risk, the evidence shows that in most cases, financial derivatives are used for hedging purposes. They concluded that the public concern regarding the corporate use of derivatives to expose firms to undue levels of risk appears to be largely unfounded.Mahmood and Kashif (2010) stated that the main factors affecting derivative usage included tread of derivative usage, risk level, awareness with modern finance, correlation between hedging and firm's value, firm's performance and business cycle effect, and correlation between nature of business and financial risk. In their study, they analyzed listed companies in Pakistan and found that the most popular derivatives in the country are financial futures.Ojo(2010) noted that all regulatory strategies should take into consideration of the importance of management responsibilities –both on individual and corporate levels. Meta-risk regulation has assumed such a prominent position in regulation through its application in Basel II, and it is preferred to risk-based regulation –not only because of the element of ambiguity which risk-based regulation introduces into its assessment (i.e., through a consideration of the external environment of the firm), but also because of its impact on the use of external auditors in regulation and supervision.

Rainer (2009) showed different models applied in the valuation of interest rate derivatives, which included direct models for the probability density, short-rate models, and forward market rate models. He pointed out that in practice society with complicated optimization problems and larger portfolios of trades, model calculation can increase performance of calibration as much as possible. As argued by Clark and Judge (2008), hedging instruments depend on the type of exposure. Different 8 instruments have to be used to hedge risks with different natures. For example, a short-term risk should be hedged by a short-term instrument, while a long-term risk has to be hedged with a long-term instrument. Short-term instruments such as foreign currency forwards and/or options are used to hedge short-term exposure generated from export activities, while foreign currency debt and foreign currency swaps into foreign currency (but not into domestic currency) are used to hedge long-term exposure arising from assets located in foreign locations. Risks can be effectively hedged only when the right hedging instruments are chosen. Linet.al.(2009) suggested that the information asymmetry index is significantly lower for derivatives users than for non-users. Besides, Reynoldset.al.(2009) argued that using derivatives may be financially constrained, and thus firms may use risk management instruments to smooth out cash flows and ensure internal funds are available for investment.

Yiet.al.(2008) showed that derivative use does not improve bond issuers' credit ratings, nor affect their cost of debt. As stated by Gibson (2007), a commercial bank can use credit

derivatives to manage the risk of its loan. Credit derivatives can create counterparty credit risk that itself must be managed. Complex credit derivatives rely on complex models, leading to model risk. Credit rating agencies interpret this complexity for investors, but their ratings can be misunderstood, creating rating agency risk. The settlement of a credit derivative contract following a default can have its own complications, creating settlement risk. Papaioannou (2006) reported that the larger the size of a firm, the more likely it is to use derivative instruments in hedging its exchange rate risk exposure. The primary goal of US firms' exchange rate risk hedging operations is to minimize the variability in firms' cash flow and earning accounts (mainly related to payables, receivables, and repatriations). The choice of 9 foreign exchange derivatives instruments is concentrated in OTC currency forwards (over 50% of all foreign exchange derivatives used), OTC currency options (around 20%), and OTC currency swaps (around 10%).

Judge (2006) found that the size of the firm is positively related to the foreign currency hedging decision, indicating that larger firms are more likely to hedge as compared with smaller firms. This finding is consistent with significant information and transaction cost scale economies of hedging that discourages smaller companies from hedging. According to Sheedy(2006),derivatives are used more extensively in Hong Kong and Singaporethanin the US. They are particularly popular for managing foreign exchange risk. However, their use is more speculative in these places than in the US. As showed in the study of SmithsonandMengle (2006), probably the most important issues are the considerablebasis risk and the associated prospect of earnings volatility that come with the use of such derivatives to manage the firm's credit exposures.El-Masry (2006) highlighted that the most important reason for using derivative for hedging purposes is managing the volatility in cash flows, and the market value of the firm is considered to be the second most important reason. Aabo(2006) suggested that more than half of the firms regard the use of foreign debt equally important as,or more important than,the useof currency derivatives in hedging exchange rate exposures.

According to Stulz (2005), 28 percent of firms use derivatives to reduce earnings volatility. The most common derivatives the companies used are foreign exchange derivatives, interest rate derivatives, and commodity derivatives. After using different derivatives, the volatility of the stocks, interest rate exposure, and foreign exchange exposure of the companies has reduced by 5%, 22%, 11%, respectively. Adedeji and 10 Baker (2002) pointed out that the motivation of using interest rate derivatives may be due to the risk of financial distress and economies of scale. However, foreign exchange risk, dividend payout ratio, liquidity, institutional share ownership, expected growth, tax rate, industry classification, and the existence of hybrid securities (e.g., preference shares and convertible loans), do not have any significant influence on the use of the instruments.

In the analysis of the derivatives usage in different countries, Yuet.al.(2001) noted that it is a common practice for the Hong Kong firms using derivatives for risk management to engage in foreign exchange and interest rate derivatives. Moreover, the most widely accepted risk measurement technique for these firms is the value-at-risk model. Scenario analysisis also used by some companies due to its ease of implementation.Leeet.al.(2001) found that a number of inter-regional differences in the organization of risk management, that is, a greater emphasis on decentralized structures in the Asia-Pacific region and less formal board control over risk management in U.S. multinational corporations. In terms of the tools of risk management, there were also regional differences in the concerns in choosing derivatives, driven to some extent by differences in the accounting treatment internationally.DaDaltet.al. (2001) provided evidence that both the use of derivatives and the extent of derivatives usage are associated with lower asymmetric information. Specifically, for firms using derivatives (notably currency derivatives),they found that analysts' earnings forecasts have significantly greater accuracy and lower dispersion. These findings support the conjecture of DeMarzo and Duffie (1995) and Breeden and Viswanathan (1998) who argued that hedging reduces noise related to exogenous factors,and hence decreases the level of asymmetric information regarding 11 a firm's earnings.

Bodnar and Gebhardt (1998) found that German firms are more likely to use derivatives than US firms, with 78% of German firms using derivatives compared to 57% of US firms. Wysocki (1998) reported that derivatives use is increasing along with the number of lines of business and the number of overseas operation. Derivatives use is found to be decreasing in inside ownership, but is unaffected by the riskiness of CEO compensation, the level of insider wealth vested in equity, or CEO retirement. He further found that derivatives use is increasing in firm size and decreasing in regulation. According to Oldfield and Santomero (1997), many institutions heavily involved in the fixed income market attempt to track interest rate risk closely and more rigorously as compared to those that have little rate risk in their portfolio. They measure and manage the firm's vulnerability to interest rate variation, even though they cannot do so perfectly. Likewise, international investors are aware of foreign exchange risk and try to measure and restrict their exposure to it.Duangployet.al.(1997) stated that since all the companies are risk averse, they would hedge their potential risk. Some of them are highly averse to risk, who would totally hedge it.Othercompanies'hedge risk selectively, based on their own view to the future changes in the market. Olson (1997) suggested that measuring the interest rate risk is necessary in order to manage it. For most analysts and bankers, interest-rate-risk measurement includes fair values, duration, net-income forecasts, and rate-shock simulations. Scott and Sharma (1995) contended that swaps occur because the swap market incorporates information about the firm more quickly than the open debt market. Hence, managers of firms whose credit risk has improved may capture the lower default risk premium more quickly in the swap market than they can 12

In the open market. The lower default risk premium benefits the owners and managers of firms, whose compensation depends largely on the value of the firm.

Conclusion:

→ Investors, including firms are risk averse. They aim at reducing risk by hedging through derivatives,
→ Derivatives are instruments that derive their value and payment from another asset, called underlying asset.
→ Derivatives include options, forward contracts, futures contracts and swaps.

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