Project Dissertation Report On

RISK MANAGEMENT IN DERIVATIVES MARKET – HOW TO MINIMIZE RISK IN DERIVATIVES

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CERTIFICATE

This is to certify that Dissertation Report titled 'Risk Management in Derivatives Market-How to Minimize Risk in Derivatives' is an original and bonafide work carried out by Mr. Prashant Kumar of MBA 2016-2018 batch and was submitted to Delhi School Of Management ,Delhi Technological University,Bawana Road ,Delhi-110042 in partial fulfillment of the requirement for the award of the Degree of Masters of Business Administration.

Signature of Guide	Signature of HOD (DSM)
(Prof. G.C. Maheshwari)	(Prof. Rajan Yadav)

DECLARATION

I Prashant Kumar, student of MBA 2016-18 of Delhi School of Management, Delhi Technological University, hereby declare that Dessertation report on **"RISK MANAGEMENT IN DERIVATIVES MARKET – HOW TO MINIMIZE RISK IN DERIVATIVES"** submitted in partial fulfillment of Degree of **Masters** of Business Administration is the original work conducted by me. The information and data given in the report is authentic to the best of my knowledge.

This report is not being submitted to any other University for award of any Degree, Diploma and Fellowship.

(Prashant Kumar)

Place:

Date:

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Prashant Kumar

EXECUTIVE SUMMARY

The use of financial derivatives requires special expertise, experience and rigorous controls. Critical management systems should be in place commensurate with each institution's use of derivative products. Derivatives should not be executed without the proper systems and internal controls necessary to monitor and analyze the performance of the instruments. An institution needs to ensure that the rewards associated with derivatives are commensurate with the risks being taken and that these risks are understood by the board of directors and senior management.

This does not mean simply enumerating an endless list of theoretical possibilities, but quantifying risks so that the trivial and the significant are appropriately considered. In order to do this, there must exist real incentives that come from quantifying risks, tying these measures to compensation and business unit evaluation, and proper accountability. It is imperative that management understand what they are attempting to accomplish in making use of the various derivative products in the marketplace.

When used properly, derivative products can become effective tools in managing business risks. In the marketplace, derivatives can be used to expand product offerings to customers, manage capital and funding costs, and alter the risk-reward profile of a particular item or an entire balance sheet. Most importantly, derivative transactions offer the opportunity for financial institutions to reduce risks in the marketplace. An optimal risk management process works more at getting relevant risks on the radar screen than measuring what already appears on the radar screen more precisely. Derivatives have become an integral part of the financial markets because they can serve several economic functions. The counterparty must be an investment grade credit and the agreement must be marked to market no less frequently than monthly.

TABLE OF CONTENTS

CHAPTER -1

INTRODUCTION

INTRODUCTION

BACKGROUND

Derivatives are financial contracts whose values are derived from the value of an underlying primary financial instrument, commodity or index, such as: interest rates, exchange rates, commodities, and equities. Derivatives include a wide assortment of financial contracts, including forwards, futures, swaps, and options. The International Monetary Fund defines derivatives as "financial instruments that are linked to a specific financial instrument or indicator or commodity and through which specific financial risks can be traded in financial markets in their own right. The value of financial derivatives derives from the price of an underlying item, such as asset or index. Unlike debt sis advanced to be repaid and no investment income accrues." While some derivatives instruments may have very complex structures, all of them can be divided into basic building blocks of options, forward contracts or some combination thereof. Derivatives allow financial institutions and other participants to identify, isolate and manage separately the market risks in financial instruments and commodities for the purpose of hedging, speculating, arbitraging price differences and adjusting portfolio risks.

The emergence of the market for derivatives products, most notable forwards, futures, options and swaps can be traced back to the willingness of risk-averse economic agents to guard themselves against uncertainties arising out of fluctuations in asset prices. By their very nature, the financial markets can be subject to a very high degree of volatility. Through the use of derivative products, it is possible to partially or fully transfer price risks by locking-in asset prices. As instruments of risk management, derivatives products generally do not influence the fluctuations in the underlying asset prices. However, by locking-in asset prices, derivatives products minimize the impact of fluctuations in asset prices on the profitability and cash flow situation of risk-averse investors.

Factors generally attributed as the major driving force behind growth of financial derivatives are :

- Increased Volatility in asset prices in financial markets,

- Increased integration of national financial markets with the international markets
- Marked improvement in communication facilities and sharp decline in their costs
- Development of more sophisticated risk management tools, providing economic agents a wider choice of risk management strategies, and
- Innovations in the derivatives markets, which optimally combine the risks and returns over a large number of financial assets, leading to higher returns, reduced risk as well as transaction costs as compared to individual financial assets.

Financial markets are, by nature, extremely volatile and hence the risk factor is an important concern for financial agents. To reduce this risk, the concept of derivatives comes into the picture. Derivatives are products whose values are derived from one or more basic variables called bases. These bases can be underlying assets (for example forex, equity, etc), bases or reference rates. For example, wheat farmers may wish to sell their harvest at a future date to eliminate the risk of a change in prices by that date. The transaction in this case would be the derivative, while the spot price of wheat would be the underlying asset.

Market deregulation, growth in global trade, and continuing technological developments have revolutionized the financial marketplace during the past two decades. A by-product of this revolution is increased market volatility, which has led to a corresponding increase in demand for risk management products. This demand is reflected in the growth of financial derivatives from the standardized futures and options products of the 1970s to the wide spectrum of over-the-counter (OTC) products offered and sold in the 1990s.

Many products and instruments are often described as derivatives by the financial press and market participants. In this guidance, financial derivatives are broadly defined as instruments that primarily derive their value from the performance of underlying interest or foreign exchange rates, equity, or commodity prices. Financial derivatives come in many shapes and forms, including futures, forwards, swaps, options, structured debt obligations and deposits, and various combinations thereof. Some are traded on organized exchanges, whereas others are privately negotiated transactions. Derivatives have become an integral part of the financial markets because they can serve several economic functions. Derivatives can be used to reduce business risks, expand product offerings to customers, trade for profit, manage capital and funding costs, and alter the risk-reward profile of a particular item or an entire balance sheet.

Although derivatives are legitimate and valuable tools for banks, like all financial instruments they contain risks that must be managed. Managing these risks should not be considered unique or singular. Rather, doing so should be integrated into the bank's overall risk management structure. Risks associated with derivatives are not new or exotic. They are basically the same as those faced in traditional activities (e.g., price, interest rate, liquidity, credit risk). Fundamentally, the risk of derivatives (as of all financial instruments) is a function of the timing and variability of cash flows.

Derivatives are high-risk instruments and hence the exchanges have put up a lot of measures to control this risk. The most critical aspect or risk management is the daily monitoring of price and position and the margining of those positions.

DERIVATIVES

Derivatives Market is the market for financial instruments whose value is derived from an underlying stock, commodity or currency. Derivatives trading is expected to start with index futures followed by index options and security options as per the recommendations of the SEBI appointed L. C. Gupta Committee. The Derivatives segment is expected to take off shortly.

Derivatives market has the following roles:

1) Derivatives allow hedging of market risk.
2) It allows for a separate market to be developed for lending of funds and securities to the market.
3) It helps in making the underlying cash market more liquid.
4) It helps in innovations and the creation of new financial products.

Commodities whose value is derived from the price of some underlying asset like securities, commodities, bullion, currency, interest level, stock market index or anything else are known as “Derivatives”. In more simpler form, derivatives are financial security such as an option or future whose value is derived in part from the value and characteristics of another security, the underlying asset. It is a generic term for a variety of financial instruments. Essentially, this means you buy a promise to convey ownership of the asset, rather than the asset itself. The legal terms of a contract are much more varied and flexible than the terms of property ownership. In fact, it’s this flexibility that appeals to investors. Derivatives have probably been around for as long as people have been trading with one another. Forward contracting dates back at least to the 12th century, and may well have been around before then. Merchants entered into contracts with one another for future delivery of specified amount of commodities at specified price. A primary motivation for pre-arranging a buyer or seller for a stock of commodities in early forward contracts was to lessen the possibility that large swings would inhibit marketing the commodity after a harvest. To summarize the definition, a derivative security is a financial contract whose value is derived from the value of something else, such as a stock price, a commodity price, an exchange rate, an interest rate, or even an index of prices.

Derivatives may be traded for a variety of reasons. A derivative enables a trader to hedge some preexisting risk by taking positions in derivatives markets that offset potential losses in the underlying or spot market. In India, most derivatives users describe themselves as hedgers (Fitch Ratings, 2004) and Indian laws generally require that derivatives be used for hedging purposes only. Another motive for derivatives trading is speculation (i.e. taking positions to profit from anticipated price movements). In practice, it may be difficult to distinguish whether a particular trade was for hedging or speculation, and active markets require the participation of both hedgers and speculators.

When a person invests in derivative, the underlying asset is usually a commodity, bond, stock, or currency. He bet that the value derived from the underlying asset will increase or decrease by a certain amount within a certain fixed period of time. ‘Futures’ and ‘options’ are two commodity traded types of derivatives. An ‘options’ contract gives the owner the right to buy or sell an asset at a set price on or before a given date. On the other hand, the owner of a ‘futures’ contract is obligated to buy or sell the asset. The other examples of derivatives are warrants and convertible bonds (similar to shares in that they are assets). But derivatives are usually contracts. Beyond this, the derivatives range is only limited by the imagination of investment banks. It is likely that any person who has funds invested, an insurance policy or a pension fund that they are investing in, and exposed to, derivatives – wittingly or unwittingly. Shares or bonds are financial assets where one can claim on another person or corporation; they will be usually be fairly standardised and governed by the property of securities laws in an appropriate country. On the other hand, a contract is merely an agreement between two parties, where the contract details may not be standardised. Derivatives securities or derivatives products are in real terms contracts rather than solid as it fairly sounds.

The need for a derivatives market

The derivatives market performs a number of economic functions:

1. They help in transferring risks from risk averse people to risk oriented people
2. They help in the discovery of future as well as current prices
3. They catalyze entrepreneurial activity
4. They increase the volume traded in markets because of participation of risk averse people in greater numbers
5. They increase savings and investment in the long run

The participants in a derivatives market

⇒ Hedgers use futures or options markets to reduce or eliminate the risk associated with price of an asset.

⇒ Speculators use futures and options contracts to get extra leverage in betting on future movements in the price of an asset. They can increase both the potential gains and potential losses by usage of derivatives in a speculative venture.

⇒ Arbitrageurs are in business to take advantage of a discrepancy between prices in two different markets. If, for example, they see the futures price of an asset getting out of line with the cash price, they will take offsetting positions in the two markets to lock in a profit.

TYPES OF DERIVATIVES

Forwards: A forward contract is a customized contract between two entities, where settlement takes place on a specific date in the future at today's pre-agreed price.

Futures: A futures contract is an agreement between two parties to buy or sell an asset at a certain time in the future at a certain price. Futures contracts are special types of forward contracts in the sense that the former are standardized exchange-traded contracts

Options: Options are of two types - calls and puts. Calls give the buyer the right but not the obligation to buy a given quantity of the underlying asset, at a given price on or before a given future date. Puts give the buyer the right, but not the obligation to sell a given quantity of the underlying asset at a given price on or before a given date.

Warrants: Options generally have lives of up to one year, the majority of options traded on options exchanges having a maximum maturity of nine months. Longer-dated options are called warrants and are generally traded over-the-counter.

LEAPS: The acronym LEAPS means Long-Term Equity Anticipation Securities. These are options having a maturity of up to three years.

Baskets: Basket options are options on portfolios of underlying assets. The underlying asset is usually a moving average or a basket of assets. Equity index options are a form of basket options.

Swaps: Swaps are private agreements between two parties to exchange cash flows in the future according to a prearranged formula. They can be regarded as portfolios of forward contracts. The two commonly used swaps are:

Interest rate swaps: These entail swapping only the interest related cash flows between the parties in the same currency.

Currency swaps: These entail swapping both principal and interest between the parties, with the cash flows in one direction being in a different currency than those in the opposite direction.

Swaptions: Swaptions are options to buy or sell a swap that will become operative at the expiry of the options. Thus a swaption is an option on a forward swap. Rather than have calls and puts, the swaptions market has receiver swaptions and payer swaptions. A receiver swaption is an option to receive fixed and pay floating. A payer swaption is an option to pay fixed and receive floating.

Disadvantages of Derivatives:

If derivatives are misused, they can boomerang on the company.

1. **Credit Risk:** While derivatives cut down on the risks caused by a fluctuating market, they increase credit risk. Even after minimizing the credit risk through collateral, you still face some risk from credit protection agencies.

2. **Crimes:** Derivatives have a high potential for misuse. They have been the caused the downfall of many companies that used trade malpractices and fraud.

3. **Interest Rates**: Wrong forecasts can result in losses amounting to millions of dollars for large companies; it can wipe out small businesses. You need to accurately forecast the long term and short term interest rates, something that many businesses cannot do.

Factors driving the growth of financial derivatives

1. Increased volatility in asset prices in financial markets,

2. Increased integration of national financial markets with the international markets,

3. Marked improvement in communication facilities and sharp decline in their costs,

4. Development of more sophisticated risk management tools, providing economic agents a wider choice of risk management strategies, and

5. Innovations in the derivatives markets, which optimally combine the risks and returns over a large number of financial assets leading to higher returns, reduced risk as well as transactions costs as compared to individual financial assets.

DYNAMICS OF DERIVATIVE MARKET IN INDIA

The first step towards introduction of derivatives trading in India was the promulgation of the Securities Laws (Amendment) Ordinance, 1995, which withdrew the prohibition on options in securities. The market for derivatives, however, did not take off, as there was no regulatory framework to govern trading of derivatives. SEBI set up a 24–member committee under the Chairmanship of Dr. L. C. Gupta on November 18, 1996 to develop appropriate regulatory framework for derivatives trading in India. The committee submitted its report on March 17, 1998 prescribing necessary pre–conditions for introduction of derivatives trading in India. The committee recommended that derivatives should be declared as 'securities' so that regulatory framework applicable to trading of 'securities' could also govern trading of securities. SEBI also set up a group in June 1998 under the Chairmanship of Prof. J. R. Varma, to recommend measures for risk containment in derivatives market in India. The report, which was submitted in October 1998, worked out the operational details of margining system, methodology for charging initial margins, broker net worth, deposit requirement and real–time monitoring requirements.

A distinctive feature of the reforms of the 1990s has been the accent on financial sector reforms. Financial sector reforms in India were brought to the front burner owing to the fixed income and stock market Scam of 1992; this luckily enabled a policy focus in India upon the financial sector well in advance of the East Asian debacle of 1997. The first three inputs in reforms on the securities markets are now well in place: a new electronic exchange (NSE), reforms to clearing (NSCC) and the depository (NSDL). NSE commenced equities trading in November 1994, the clearing corporation was started in April 1996 and the depository was inaugurated in November 1996. Of these steps, the depository was much delayed and many critics have highlighted the policy failures in these delays. Yet, from November 1994 to November 1996, India's policy makers undeniably achieved a remarkably rapid transformation of securities markets in the country.

On June 9, 2000, the Bombay Stock Exchange (BSE) introduced India's first derivative instrument - the BSE-30 (Sensex) index futures. It was introduced with three month trading cycle - the near month (one), the next month (two) and the far month (three). The National Stock Exchange (NSE) followed a few days later, by launching the S&P CNX Nifty index futures on June 12, 2000. The plan to introduce derivatives in India was initially mooted by the National Stock Exchange (NSE) in 1995. The main purpose of this plan was to encourage greater participation of foreign institutional investors (FIIs) in the Indian stock exchanges. Their involvement had been very low due to the absence of derivatives for hedging risk. However, there was no consensus of opinion on the issue among industry analysts and the media. The pros and cons of introducing derivatives trading were debated intensely. The lack of transparency and inadequate infrastructure of the Indian stock markets were cited as reasons to avoid derivatives trading. Derivatives were also considered risky for retail investors because of their poor knowledge about their operation. In spite of the opposition, the path for derivatives trading was cleared with the introduction of Securities Laws (Amendment) Bill in Parliament in 1998.

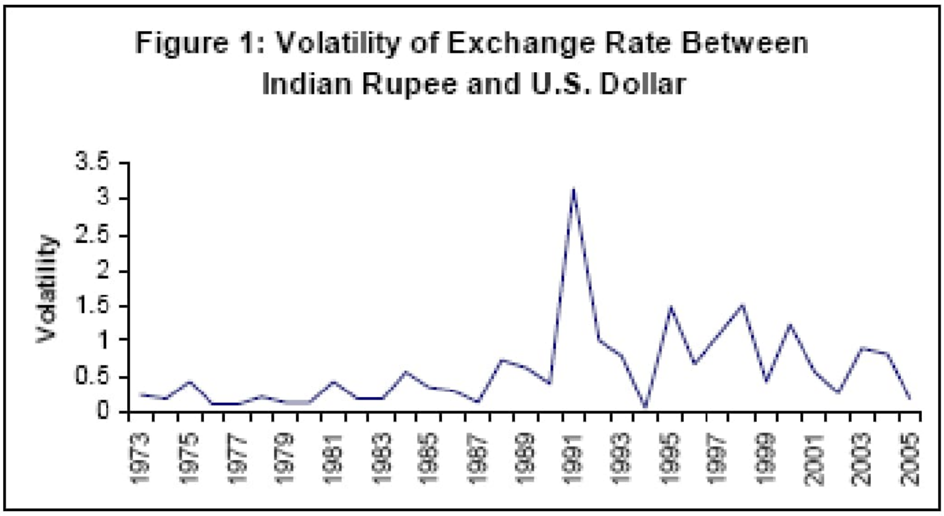


Figure No. 1.1

The initial steps to launch derivatives were taken in 1995 with the introduction of the Securities Laws (Amendment) Ordinance, 1995 that withdrew the prohibition on trading in options on securities in the Indian stock market. In November 1996, a 24-member committee was set up by the Securities Exchange Board of India (SEBI) under the chairmanship of LC Gupta to develop an appropriate regulatory framework for derivatives trading. The committee recommended that the regulatory framework applicable to the trading of securities would also govern the trading of derivatives. Following the committee's recommendations, the Securities Contract Regulation Act (SCRA) was amended in 1999 to include derivatives within the scope of securities, and a regulatory framework for administering derivatives trading was laid out. The act granted legality to exchange-traded derivatives, but not OTC (over the counter) derivatives. It allowed derivatives trading either on a separate and independent derivatives exchange or on a separate segment of an existing stock exchange. The derivatives exchange had to function as a self-regulatory organization (SRO) and SEBI acted as its regulator.

Those who opposed the introduction of derivatives argued that these instruments would significantly increase speculation in the market. They said that derivatives could be used for speculation by investors by taking large price positions in the stock market while committing only a small amount of capital as margin. For instance, instead of an investor buying stocks worth Rs.1 million (mn), he could buy futures contracts on Rs.1 mn of stocks by investing a few thousand rupees as margin. Thus, trading in derivatives encouraged investors to speculate - taking on more risk while putting forward less investment. They were quick to point out some of the disasters of the past that had occurred due to the mismanagement of trading in derivatives.

Once the basic structures of a cash market fall into place, the logical next step for market development is the commencement of exchange--traded financial derivatives. Derivatives give people the ability to manage and control risk. Today, in India, fluctuations in the stock market or in the dollar--rupee generate a political constituency which seeks government interventions into the market to prevent price fluctuations. This discomfort with price risk is a basic source of the political opposition to liberalisation, which inevitably exposes Indian citizens to greater price risk. Derivatives are hence a central part of the reforms process; by giving individuals and firms the power to make choices about what risks they are comfortable with and what risks are best hedged away, derivatives make individuals and firms more tolerant of price risk and hence liberalisation.

In addition, from a purely financial sector perspective, derivatives are important insofar as they are part and parcel of market development. Derivatives trading helps improve market liquidity, raises skills and knowledge among market players, and is a vital ingredient of market reforms such as the transition to rolling settlement. Hence, the commencement of derivatives trading at an exchange is of utmost important, from the perspective of financial sector development and with respect to the larger problem of creating a constituency for reforms. This step has unfortunately been plagued by delays, and is one where the policy establishment is not shown in good light. In terms of knowledge and capabilities, exchange--traded derivatives could have commenced in India in middle 1996. The story ever since has been one of delays that are reminiscent of pre--reforms India:

CHAPTER -2

Objective and scope

OBJECTIVES AND SCOPE

The study of derivatives market in India with special reference to risk management mechanism revolves around the following broad objectives:

⇒ To understand the dynamics of the Derivatives market in India,

⇒ To analyze the risks associated with the Derivatives ,

⇒ To explain the need for and the operation of an effective risk management mechanism for the financial derivative market in India.

CHAPTER -3

Limitations

LIMITATIONS

Derivatives risk management is difficult to model because its main concerns are securities that are not in equilibrium. Past securities that posed serious risks to a firm, such as range notes, may now have their risk precisely measured. Securities that currently pose serious risks, such as certain CMOs, can be expected in time to be adequately captured.

- Derivatives have become an integral part of the financial markets because they can serve several economic functions. When used properly, derivative products can become effective tools in managing business risks. In the marketplace, derivatives can be used to expand product offerings to customers, manage capital and funding costs, and alter the risk-reward profile of a particular item or an entire balance sheet.

- Despite their usefulness, financial derivatives may be used inappropriately. In recent years, there have been many examples of financial institutions and other companies losing large sums of money as a result of poorly controlled derivatives use.

- The primary intent of derivative security transactions should be to hedge risk in portfolios or to implement investment strategies more effectively and at a lower cost than would be possible in the cash market. In order to limit the financial risks associated with derivative applications, rigorous counterparty selection criteria and netting agreements shall be required to minimize counterparty risk for over the counter derivatives.

CHAPTER -4

THEORETICAL PERSPECTIVE

THEORETICAL PERSPECTIVE

Foreign Exchange Rates

The exposure from an adverse change in foreign exchange rates is a function of spot foreign exchange rates and domestic and foreign interest rates. Any forward premium or discount in the value of a foreign currency relative to the domestic currency is determined largely by relative interest rates. Foreign exchange rates can be and have been very volatile (e.g., EMS crisis of 1992).

Equity Prices

The exposure from an adverse change in equity prices is usually classified as either systematic or unsystematic (security-specific) risk. Systematic risk arises from an event (of any magnitude) that affects all equities simultaneously. For example, when the economy is growing, all equities will likely be affected either in a cyclical (e.g., luxury goods) or countercyclical (e.g., discount stores) fashion. Unsystematic risk represents price risk unique to the equity of a particular company (and its equity derivatives). Equity markets can be more volatile than other financial markets; therefore, equity derivatives can experience larger price fluctuations than other financial derivatives.

When assessing price risk arising from equity derivatives, the distinction between systematic and unsystematic risk is an important consideration. Unsystematic risk can be reduced by diversification. Because the returns of different instruments can be negatively correlated, the total volatility of a portfolio of instruments may be less than the summed volatility of the component instruments. Moreover, in a well-diversified portfolio, any one asset represents a small fraction of the total portfolio and, consequently, an insignificant portion of total portfolio variance. Systematic risk cannot be reduced by diversification, because a market move will affect all security prices in a similar way (albeit to varying degrees).

Commodity Prices

Like equity derivatives, commodity derivatives usually expose an institution to higher levels of price risk than other financial derivatives, because of the price volatility associated with uncertainties about supply and demand and the concentration of market participants in the underlying cash markets. Because of these market characteristics, the commodity derivative markets are generally much less liquid than the interest rate and foreign exchange markets (where there are a large number of market participants), and fluctuations in market liquidity often accompany price volatility. An evaluation of exposure to adverse changes in commodity prices should be performed on a market-by-market basis. Depending on the level and nature of commodity exposure, this evaluation may include an analysis of historical price behavior and an assessment of the structure of market supply and demand to evaluate the potential for unusually large price movements.

Basis Risk

Basis risk is the risk that the correlation between two prices may change. (Correlation is the relationship between mathematical or statistical variables.) For example, if a bank uses an interest rate swap priced off of Libor to hedge a prime-based loan portfolio, it is exposed to basis risk because changes in prime and Libor will not move exactly in tandem with each other. Similarly, changes in the values of certain foreign currencies can be correlated under normal market conditions but these correlations can be unstable during volatile market periods. For example, if a bank uses a derivative denominated in one foreign currency to hedge an asset denominated in another foreign currency, it exposes itself to basis risk even when those currencies have been historically closely correlated.

Price Risk Management

Dealers involved in derivative activities must establish an effective process for managing price risk. The level of structure and formality associated with this process should be commensurate with the level of risk in the bank's activities. Key components of price risk management systems include:

⇒ Reliable and independent pricing and revaluation systems.

⇒ Accurate and validated risk measurement processes.

⇒ Stress testing to show how the portfolio would perform under certain extreme events.

⇒ Meaningful processes for establishing price risk limits.

⇒ Timely and effective risk reporting, monitoring, and exception approval processes.

PRICING AND REVALUATION SYSTEMS

Derivative dealers need pricing and revaluation systems to effectively manage exposure to price risk factors. These systems (and price risk measurement systems discussed below) require similar input data that describe the derivative contract's terms, maturity, and expected cash flow. These systems may be the same, integrated, or separate. Pricing system(s) are used to determine reliable prices for derivative products being purchased and sold. Such pricing systems allow dealers to evaluate prices offered in the market, identify profits and losses on positions, and identify potential risks in the portfolio. A pricing system is often developed by the business using the system. In these situations, the systems should be maintained by an independent party and subject to a rigorous validation process. Validation is discussed later and in appendix D. Revaluation systems provide mark-to-market information for reporting positions and recording profits and losses. It is imperative that the input used for determining the fair value of positions and profits/losses be independent of risk-taking personnel (see the "Transaction Risk" section for further comments on periodic revaluations).

Banks should regularly review their pricing and revaluation models to ensure they provide a reasonable estimate of value. In addition, banks should continually monitor acceptance of the pricing model's results in the marketplace. If the model's results are inconsistent with the market, banks must decide whether to continue using the model. Although generally believed to reflect risk more precisely, the more sophisticated price risk measurement systems (as well as pricing and revaluation systems) can introduce the added risk that: (1) the algorithms and assumptions underlying the models are not valid; (2) the models are inappropriately applied; (3) the models are not well understood within the organization; and (4) the model's results are inconsistent with the market (applicable to pricing systems). This is sometimes termed model risk. Banks should regularly re-evaluate risk measurement models and assumptions to ensure they provide reasonable estimates of risks. Management should ensure that the models are used for their intended purpose and not as a proxy because the bank lacks a more appropriate model (see appendix C for more information on evaluating statistical models).

Interest Rate Risk (Active Position-Takers and Limited End-Users)

The following discussion of interest rate risk applies to banks that use derivatives as active position-takers or limited end-users. Dealers, in addition to trading derivatives, can also be categorized as active position-takers or limited end-users when they use derivatives to manage interest rate risk in their treasury units. Interest rate risk is the risk to earnings or capital arising from movements in interest rates. The economic (capital) perspective focuses on the value of the bank in today's interest rate environment and the sensitivity of that value to changes in interest rates. Interest rate risk arises from differences between the timing of rate changes and the timing of cash flows (repricing risk); from changing relationships among different yield curves affecting bank activities (basis risk); from changing rate relationships across the spectrum of maturities (yield curve risk); and from interest-related options embedded in bank products (options risk). The evaluation of interest rate risk must consider the impact of complex illiquid hedging strategies or products, and also the potential impact on fee income that is sensitive to changes in interest rates. When trading is separately managed, this impact is on structural positions rather than trading portfolios. Banks are exposed to interest rate risk through their structural balance sheet positions. Banks using derivatives in an active position-taker or limited end-user capacity may do so:

⇒ To limit downside earnings exposure.

⇒ To preserve upside earnings potential.

⇒ To increase return.

⇒ To minimize income or economic value of equity (EVE) volatility.

The primary difference between an active position-taker/limited end-user and a dealer is that an end-user, rather than seeking to profit from short-term price movements, tries to manage its structural interest rate risk profile. Both price and interest rate risk (e.g., changes in the term structure and volatility of interest rates) can be affected by many of the same variables. Hence there is overlap in the types of risk measurement systems, risk limits, and management information systems used for both. The primary differences in controls and MIS result from differences in the time horizons (shorter-term for dealers and longer-term for end-users) and the target accounts that management and the board focus on (trading revenue for dealers; earnings and the EVE for end-users).

INTEREST RATE RISK MANAGEMENT

Each institution using derivatives must establish an effective process for managing interest rate risk. The level of structure and formality in this process should be commensurate with the activities and level of risk approved by senior management and the board. Contributing to effective supervision of interest rate risk are:

⇒ Appropriate board and management supervision.

⇒ Well-formulated policies and procedures.

⇒ Reliable pricing and valuation systems.

⇒ Accurate risk identification and measurement processes.

⇒ Interest rate risk limits.

⇒ Timely and effective risk reporting, monitoring, and exception approval processes.

Limited end-users and active position-takers are not expected to have the same degree of sophistication in their pricing systems as dealers. By definition, end-users are not quoting prices to customers. However, end-users must understand the factors affecting the price of derivatives to be able to effectively measure and manage potential risks to earnings and capital. In addition, end-users should have access to several pricing sources to ensure the reasonableness of the prices being quoted. Because active position-takers use derivatives to alter their interest rate risk profile, they should have valuation and risk measurement systems comparable to the standards described for dealers (see the "Price Risk" section for more information). Limited end-users do not need the same sophisticated systems as those used by dealers or active position-takers. Nevertheless, they must be able to obtain market valuations and thoroughly assess the risks of the derivatives they hold. Independent third parties may be used for market values. However, any issues affecting independence (e.g., obtaining market values from the same dealer who sold the derivatives) need to be assessed by management and balanced against mitigating factors. At a minimum, the risk measurement system (gap report, earnings, or EVE-at-risk analyses) should evaluate the possible impact on earnings and EVE (as applicable) that may result from adverse changes in interest rates and other market conditions. The measurement system should also allow management to monitor and evaluate the effectiveness of derivatives in the bank's overall interest rate risk profile. This system should include risk-adjusted return analyses.

LIQUIDITY RISK

Liquidity risk is the risk to earnings or capital from a bank's inability to meet its obligations when they come due, without incurring unacceptable losses. Liquidity risk includes the inability to manage unplanned decreases or changes in funding sources. Liquidity risk also arises from the failure to recognize or address changes in market conditions that affect the ability to liquidate assets quickly and with minimal loss in value. All institutions involved in derivatives face these two types of liquidity risk. For ease of discussion, these risks are referred to as funding liquidity risk and market liquidity risk. Controlling, measuring, and limiting both types of liquidity risk are vital activities and the sections that follow provide additional information on how to do so. In developing guidelines for controlling liquidity risk, banks should consider the possibility of losing access to one or more markets, either because of concerns about their own creditworthiness, the creditworthiness of a major counterparty, or because of generally stressful market conditions. At such times, the bank may have less flexibility in managing its price, interest rate, credit, and liquidity risks. Banks that are market-makers in OTC derivatives or that dynamically hedge their positions require constant access to financial markets, and that need may increase in times of market stress. A bank's liquidity plan should consider its ability to access alternative markets, such as futures or cash markets, or to provide sufficient collateral or other credit enhancements in order to continue trading under a broad range of scenarios.

Risk management systems for liquidity risk are intertwined with those used in the management of price and interest rate risk. Consideration of market depth and the cash flow characteristics of particular instruments are critical in the establishment of risk limits and construction of portfolio stress tests. The management of price, interest rate, and liquidity risk is not conducted in isolation. As such, the examination of risk management systems for these three risks should be conducted concurrently.

1. Types of Liquidity Risk
2. Market Liquidity Risk

Market liquidity risk is the risk that a bank may not be able to exit or offset positions quickly, and in sufficient quantities, at a reasonable price. This inability may be due to inadequate market depth, market disruption, or the inability of the bank to access the market. Some bond and exotic product markets lack depth because of relatively fewer market participants. Even normally liquid markets can become illiquid during periods of market disruption (e.g., the stock market crash of October 1987, when there were more sellers than buyers). Market liquidity risk can also arise when a bank finds it difficult to access markets because of real or perceived credit or reputation problems of its own or of a major counterparty.

In dealer markets, the size of the bid/ask spread of a particular instrument provides a general indication of the market's depth. Market disruptions, a contraction in the number of market-markers, or the execution of large block transactions are some factors that may cause bid/ask spreads to widen. Market disruptions may be limited or broad and can be created by a sudden and extreme imbalance in the supply and demand for products. In the OTC markets, the decision of only a few major market-makers to reduce participation in specific markets may decrease market liquidity, resulting in widening of the bid/ask spreads. The liquidity of certain markets may depend on the active presence of large institutional investors. If these investors pull out of the market or cease to trade actively, liquidity in the market will decline.

Market liquidity risk also involves the possibility that large transactions in particular instruments may have a significant effect on the transaction price. Large transactions can also strain liquidity in thin markets. An unexpected and sudden exit of market participants as a result of a sharp price movement or jump in volatility could lead to illiquid markets, and increased transaction costs, price, and interest rate risk.

FUNDING LIQUIDITY RISK

Funding liquidity risk is the possibility that a bank may be unable to meet funding requirements at a reasonable cost. Such funding requirements arise each day from cash flow mismatches in swap books, the exercise of options, and the implementation of dynamic hedging strategies. The rapid growth of financial derivatives in recent years has focused increasing attention on the cash flow impact of such instruments. Additional liquidity demands can result from collateral or margin calls and from early termination requests. Funding requirements can also result from adverse changes in the market's perception of the bank. Therefore, these issues should be incorporated into regular liquidity measurement, monitoring, and control processes.

Bank-specific weaknesses as well as systemic factors can impair the ability of a bank to access credit lines in the wholesale market. If the market perceives that the credit standing or reputation of the bank has deteriorated, customers may wish to reduce or eliminate their exposures to a bank by unwinding their in-the-money positions. Although the bank may not be contractually obligated to unwind positions, it may feel compelled to accommodate its counterparties if it perceives that refusal to do so would result in deterioration of a customer relationship or a further worsening of market perception. Similarly, the bank may have entered into credit-enhanced transactions containing margin and/or collateral provisions. Given these circumstances, the bank may be legally obligated to provide cash or cash-equivalent collateral to in-the-money counterparties. See the “Liquidity Risk Limit” and “Credit Risk Management Issues” sections for more information.

LIQUIDITY RISK MANAGEMENT

The level of structure and formality in the liquidity risk management process should be commensurate with the activities and level of risk approved by senior management and the board. Liquidity risk is highest for dealers or active position-takers with significant unmatched derivative cash flows and significant foreign currency cash flows. These dealers and end-users should evaluate the cash flow impact of their off-balance-sheet activities in the context of the overall liquidity monitoring process. Tier II dealers and limited end-users with largely matched or relatively small positions may require less formal liquidity monitoring.

In dealer banks, market liquidity is controlled through price-risk-limit structures and risk management systems. Limits include restrictions on market participation, allowable tenors, and overall risk levels. In addition, the liquidity of markets and products should be considered when establishing the holding periods for price risk measurement. Management over these exposures should be monitored by the risk control function. For dealers and active position-takers with significant unmatched positions or foreign currency cash flows, the supervision of day-to-day derivative cash flows should be a part of a bank's daily cash management process. Essential components for the proper control of liquidity risk include: open communication between line management and persons responsible for cash management; contingency liquidity plans; adequate measurement processes; limits controlling exposure to market illiquidity and mismatched cash flows; and comprehensive management information systems.

Contingency liquidity plans should address how price, interest rate, and market and funding liquidity risk would be managed if the bank's financial condition were to decline. Methods to control such exposure should be discussed, as well as specific strategies to reduce risk before counterparty lines become unavailable. The contingency plan should discuss the impact of credit enhancement agreements, any early termination triggers, expected funding needs, collateral requirements, management responsibilities, and action triggers to institute the plan. Management information systems should be able to supply quick and accurate information on derivative exposures to support this plan. The contingency liquidity plan should identify authorized individuals and their responsibilities, circumstances that will trigger action, and alternative funding strategies for scenarios with successively deteriorating liquidity.

FOREIGN EXCHANGE RISK

Foreign exchange risk is the risk to earnings or capital arising from movement of foreign exchange rates. This risk is applicable to cross-border investing and operating activities. Market-making and position-taking in foreign currencies should be captured under price risk.

Foreign exchange risk is also known as translation risk. Foreign exchange translation risk arises from holding accrual accounts denominated in foreign currency, including loans, bonds, and deposits (i.e., cross-border investing). It also includes foreign-currency-denominated derivatives such as structured notes, synthetic investments, structured deposits, and off-balance-sheet derivatives used to hedge accrual exposures. Accounting conventions require periodic revaluation of these accounts at current exchange rates. This revaluation translates the foreign-denominated accounts into U.S. dollar terms. Banks should record these accrual-based products under appropriate systems that identify, measure, monitor, and control foreign exchange exposure.

CREDIT RISK

Credit risk is the risk to earnings or capital of an obligor's failure to meet the terms of any contract with the bank or otherwise to perform as agreed. Credit risk arises from all activities in which success depends on counterparty, issuer, or borrower performance. It arises any time bank funds are extended, committed, invested, or otherwise exposed through actual or implied contractual agreements, whether reflected on or off the balance sheet.

Credit exposure arising from derivative activities should be addressed within the same framework used to assess credit risk in traditional banking activities. Counterparty credit risk can be effectively managed through accurate measurement of exposures, ongoing monitoring, timely counterparty credit evaluations, and sound operating procedures. In addition, there are a growing number of mechanisms that can reduce credit exposure, such as netting arrangements, credit enhancements, and early termination agreements.

TYPES OF CREDIT RISK

Credit risk in derivative products comes in the form of pre-settlement risk and settlement risk.

Pre-settlement risk is the risk of loss due to a counterparty defaulting on a contract during the life of a transaction. Presettlement exposure consists of both current exposure (the replacement cost of the derivative transaction or its market value) and the add-on (an estimate of the future replacement cost of the derivative).

Calculating presettlement risk is more complex than assessing the credit risk of traditional lending products. The maximum credit exposure from traditional banking activities is generally limited to the amount of funds advanced or invested at the time of a customer default. For many off-balance-sheet derivatives, however, there is no advancement of funds or exchange of principal. Therefore, the risk of loss is conditional on the counterparty defaulting AND the derivative contract having positive value to the bank (an in-the-money contract) at the time of default. The level of this exposure varies throughout the life of the derivative contract. Even derivative contracts that are out-of-the-money (i.e., contracts where the bank has no current loss exposure because the mark-to-market is positive for the counterparty, not the bank) have potential credit risk, because changes in market factors can cause the value of the contract to become positive to the bank at any point prior to maturity. To manage credit risk effectively, a bank should develop a reliable method of estimating potential credit exposure. Settlement risk is the loss exposure arising when a bank meets its obligation under a contract before the counterparty meets its obligation. A failure to perform may be due to counterparty default, operational breakdown, or legal impediments.

Settlement risk lasts from the time an outgoing payment instruction can no longer be canceled unilaterally until the time the incoming payment is received with finality and reconciled. This risk arises because it is generally impractical to arrange simultaneous payment and delivery in the ordinary course of business. For example, settlement risk arises in international transactions because of time zone differences. This risk generally exists for a minimum of one to two days. It can take another one to two business days to confirm receipt through reconciliation procedures. As a result, settlement risk can often last more than three business days before a bank can be certain that a payment has been received. Depending on the delivery process for the instrument, settlement risk is usually greater than pre-settlement risk on any given transaction. Banks should monitor and control settlement risk separately from pre-settlement risk. Senior managers as well as sales, trading, operations, risk control, and credit management should understand the settlement process and be aware of the timing of key events in the process, when payment instructions are recorded, when they become irrevocable, and when confirmation of counterparty payment is received with finality. Knowledge of these items allows the duration and value of settlement exposure to be better quantified and controlled.

CREDIT RISK MANAGEMENT

Each institution must have an effective means of measuring and controlling derivatives credit risk. Examiners need to know whether the bank is a dealer or end-user and whether risk controls are appropriate. A prudently controlled environment will include the following:

⇒ Effective senior management and board oversight.

⇒ Policies and procedures.

⇒ Strong credit review, approval, and limit processes.

⇒ Accurate and validated risk measurement systems.

⇒ Timely and effective risk reporting, monitoring, and exception approval processes.

⇒ Proper credit documentation standards.

Counterparty credit risk should be strictly controlled through a formal and independent credit process. Credit activities must be guided by policies and procedures. To alleviate conflicts of interest, the credit approval function should be independent of the risk-taking unit and staffed by qualified personnel. Independence must be maintained for the initial credit assessment, establishment of counterparty credit lines, monitoring and reporting of exposure, and approval of exceptions. These functions are typically performed by the bank's credit division.

In order to effectively evaluate risk exposure and set appropriate credit limits, the personnel responsible for approving and monitoring credit exposure (e.g., relationship officers and loan review) must possess a basic understanding of derivative instruments, the source of credit exposure, and market factors that affect credit exposure. Credit personnel should receive ongoing training on derivative instruments, risk management techniques, and methods of measuring credit risk.

The credit department should periodically review the creditworthiness of derivative counterparties and assign risk ratings to them, as they would to customers buying traditional bank products. Good communication between the risk-taking unit and credit department are essential to ensure that all parties are informed of a change in the credit line or creditworthiness of a counterparty. Nonperforming contracts should be reported consistent with the bank's internal policy for nonperforming loans. The quality of derivative counterparty portfolio and the integrity of risk ratings should be periodically reviewed by the loan review function (or similar independent party).

CREDIT RESERVES

Dealers or end-users with significant derivative activity should maintain credit reserves for counterparty credit exposure. According to generally accepted accounting principles (GAAP), the allowance established for derivative credit exposure should be maintained separate from the allowance for loan and lease losses. Credit reserves should reflect the exposure adjusted for the probability of default. Ideally, it should be based on actual and potential exposures to counterparties (taking into account legally enforceable netting arrangements), estimated default rates over the life of the transactions, collateral arrangements, and recovery rates. As the current replacement costs and potential exposures change through time, the reserve should be adjusted. See the "Transaction Risk" section for additional information on reserves.

Customer Appropriateness

Derivative dealers must also establish controls that assess the appropriateness of specific transactions for customers. These controls are necessary to manage credit and reputation risk to the bank. A customer that engages in a transaction that it does not understand, is inconsistent with its policies, or is otherwise inappropriate, poses a credit risk because that customer may be unable to anticipate the risks these obligations entail. If that customer defaults, there is a greater potential for litigation and damage to the bank's reputation.

To ensure customer appropriateness, dealer banks need to understand the nature of each counterparty's business and the purpose of its derivative activities. The same level of knowledge about a customer as that required for traditional lending transactions is needed, and this understanding should be documented in the credit file. For customers considered to be dealers or sophisticated end-users, it is sufficient to note that these are market professionals who will be using derivative products for market-making or risk management purposes. For less sophisticated customers, dealers need to attempt to understand the particular risk that a customer is trying to manage and ascertain whether the derivative product under consideration is an appropriate tool for that customer. Usual and customary credit file information, including the customer's risk profile, business characteristics and plans, financial statements, and the type and purpose of credit facilities, should be sufficient to evaluate appropriateness. These appropriateness standards do not

require banks to obtain and review counterparties' policies or verify the data the counterparties used to identify and assess the risks they are seeking to manage. However, some transactions, by reason of their type, size, structure, or risk characteristics, may require the approval of the counterparty's senior management.
Consistent with safe and sound banking practices, the bank should not recommend transactions that management knows, or has reason to believe, are inappropriate for a customer. Similarly, if the bank believes that a customer does not understand the risks of a derivative transaction, the bank should consider refraining from the transaction. If the customer wishes to proceed, bank management should document its analysis of the transaction and any risk disclosure information provided to the customer.

TRANSACTION RISK

Transaction risk is the risk to earnings or capital arising from problems with service or product delivery. This risk is a function of internal controls, information systems, employee integrity, and operating processes. Transaction risk exists in all products and services. Derivative activities can pose challenging operational risks because of their complexity and continual evolution. The operations function, which is discussed in a later section, refers to the product support systems and related processes. As part of their fiduciary responsibility, the board and senior management must institute a sound internal control framework to prevent losses caused by fraud and human error. Fundamental to this framework is the segregation of the operations and risk-taking functions. Many well publicized financial mishaps (e.g., the Barings Bank, Daiwa Bank, and Sumitomo Corporation) have illustrated the peril of failing to segregate key risk-taking and operational functions.

Adequate systems and sufficient operational capacity are essential to support derivative activities. This is especially true for dealers and active position-takers who process large volumes of transactions daily. Just as trading systems have evolved, operational systems must keep pace with the rapid growth in both the volume and complexity of derivatives products. In today's fast-paced environment, trades must be processed quickly not only to service the counterparty but also to update position management and credit line monitoring systems. Skilled and experienced staff are integral to the efficient operation of back office systems. This is especially true for derivatives activities because of their complex nature. Management should regularly determine whether the staff members processing derivatives transactions have the knowledge and skills necessary for the job and whether their numbers are sufficient. Banks should not participate in derivative activities if their systems, operations, personnel, or internal controls are not sufficient to support the management of transaction risk.

TRANSACTION RISK MANAGEMENT

In order to effectively manage transaction risk, senior managers must fully understand the processing cycle and must change processes and technology when necessary. They should identify areas of transaction risk and estimate the loss a bank could suffer from a given exposure

To minimize transaction risk and ensure efficient processing, all personnel involved in derivatives activities should understand the differing roles played by sales, trading, risk control, credit, operations, and accounting. Operations personnel cannot adequately support a business activity they do not understand. Insufficient knowledge of derivatives prevents an understanding of the risks involved and may prevent effective internal controls from being implemented. The operations unit needs to evolve from a clerical processing room into a professional, value-adding division that is competent in derivative products. The staff must be self-reliant, knowledgeable of derivative products, and have technical abilities that enable them to communicate and work effectively with front office traders. Accordingly, a bank should provide back-office personnel with appropriate continuing education.

The degree of sophistication in an operations system should be commensurate with the level of risk. For derivative dealers and active position-takers, a system with extensive capabilities is generally needed to efficiently process, confirm, and record transaction details. Limited end-users may use a personal computer with spreadsheets or other devices to record transaction data. Regardless of the type of support system used, certain fundamental requirements for the processing and control functions remain the same.

These requirements are discussed later in this section.

Weak operational processes increase the possibility of loss from human error, fraud, or systems failure. Operational errors may affect the accuracy of management reports and risk measurement systems, thus jeopardizing the quality of management decisions. For example, losses can occur not only from settlement errors but also from managing incorrect positions or misstating credit exposure because trade data was input incorrectly. Further, operational errors and inefficiencies can harm a bank's reputation and cause a loss of business. A properly controlled transaction risk management function should include:

⇒ Effective board and senior management supervision.

⇒ Policies and procedures.

⇒ Segregation of risk-taking and operational duties.

⇒ Skilled and experienced operations personnel.

⇒ Timely financial, exposure, and risk reporting (as applicable).

⇒ Operational performance measures.

⇒ Technology commensurate with the level and complexity of activity.

COMPLIANCE RISK

Compliance risk is the risk to earnings or capital arising from violations, or nonconformance with, laws, rules, regulations, prescribed practices, or ethical standards. The risk also arises when the laws or rules governing certain bank products or activities of the bank's clients may be ambiguous or untested. Compliance risk exposes the institution to fines, civil money penalties, payment of damages, and the voiding of contracts. Compliance risk can lead to a diminished reputation, reduced franchise value, limited business opportunities, lessened expansion potential, and an inability to enforce contracts. The legal authority of national banks to enter into derivative transactions is well-established. The OCC has recognized that national banks may enter into derivative transactions as principal when the bank may lawfully purchase and sell the underlying instrument or product for its own account, as a dealer or market-maker; or when the bank uses the transaction to hedge the risks arising from legally permissible activities.

A national bank may also enter into derivative transactions as principal or agent when the bank is acting as a financial intermediary for its customers and whether or not the bank has the legal authority to purchase or sell the underlying instrument for its own account. Accordingly, a national bank may enter into derivative transactions based on commodities or equity securities, even though the bank may not purchase (or may be restricted in purchasing) the underlying commodity or equity security for its own account.

A METHODOLOGY FOR OPTIMAL DERIVATIVES RISK MANAGEMENT

Derivatives risk management is difficult to model because its main concerns are securities that are not in equilibrium. Past securities that posed serious risks to a firm, such as range notes, may now have their risk precisely measured. Securities that currently pose serious risks, such as certain CMOs, can be expected in time to be adequately captured. Given the many different dimensions new securities innovate, it is impossible to provide a precise, general, practicable model of the problems they present, their current measurement uncertainty, or the speed with which they will be fully understood. Nonetheless, there are useful general rules one can use in describing an optimal risk management objective for these environments.

It is useful to delineate two types of securities that exist in a trading portfolio. The first type, “A”, consists of securities where risk can be precisely defined, such as U.S. Treasury Bonds, simple options, or any security that can be confidently priced in-house. The second type of securities, “£“ consists of securities that have their risks vaguely defined, such as an unfamiliar type of asset-backed bond. If an independent risk oversight group does not have the capability of independently verifying a trader’s pricing model on a timely basis and cannot estimate a security’s price variance over the expected holding period, it should be in £. This may include instruments that theoretically are well known to the most knowledgeable in the field, but do not fit into the current trading operation’s risk management system because of local systems and personnel issues. That is, the set £ is different for different trading operations, depending on firm’s experience and expertise. Prices for these securities are computed primarily from external sources like broker quotes, or perhaps are only known with any confidence by the trader who holds them in his portfolio. The set of officially understood securities A is constantly expanding, while the components of £ are continually changing as new securities arise and are eventually moved to set A. Most of the current risk management literature consists of ways to help to improve the precision of VAR on well-known securities. Common issues include convexity adjustments, better covariance estimates, or accounting for sampling variation. This is partly because risk personnel are often academic in their outlook, and their objective is highly influenced by making an innovation that is correct and durable, such as coming up with a new ARCH estimator of variance that might be published in an academic journal.

The correct set of priorities, however, should be on getting securities from £ to A, from Greek into English. That is, cases where the securities are least understood, and controls are most imprecise, present the largest true risks, and there should be an incentive structure that encourages reducing the risks they present. This is often mundane work, rarely relevant to an academic journal, because the issues are usually too idiosyncratic or too briefly examined to be interesting to a general audience, even within the specialty of risk management. In the words of Emmanual Derman, as opposed to academia where one can spend a long time on a single issue, in the private sector quants "have to learn to do many things badly, but not too badly." Suppose the trading floor was charged for the economic capital it uses, and this capital charge was factored into trader, business unit senior management, and risk management compensation. Capital would be determined by VAR for securities within A, and would use an additive (i.e., no diversification effect) measure of risk for each of the securities within £ that used a worst case scenario of the securities in £. For example, a range note's risk could be proxy by its change in value if interest rates followed a path whereby the interest rate was always outside its range. Alternatively, one could take an extreme historic example, such as the price change of the security during the extreme interest rate movements of 1994, or the change in mortgage prepayment rates from their expected benchmark in 1993. Revaluing the securities under these scenarios gives a reasonably conservative estimate of risk. This implies that the measured risk of a security in £ should be considerably greater than the measured risk of that same security in A. And, because £ and A are directly in the remuneration function of the trading desk, traders will have an incentive to help the risk manager more precisely define the instrument in order to get the security from £ to A. This is important, because traders are often the most knowledgeable people on the security and their cooperation with the risk management is extremely valuable. Instead of being an adversarial arrangement, where risk managers are cops who keep traders from stepping over the line, they become partners in helping to reduce the costs of the trading operation. It is important to note that the capital used for charging the business line (which presumably would then be factored into individual compensation) may be different than the true amount of capital the business uses. This is because vague risks are intentionally measured consistently higher than the precise risks, leading to a bias that is positively related to the proportion of vague to precise risks in the business. Because operating risk is not a straightforward function of vagueness, this bias may be inappropriate when making strategic decisions about business performance. Nonetheless, there should still be an incentive for the traders to help risk managers get these products understood as completely as possible. This system alone, however, is susceptible to abuse. There is a direct monetary incentive to get the risk managers to push securities from £ into A in order to lower capital costs for the business unit. Furthermore, capital costs can be reduced by fraudulently underestimating the worst case scenarios for securities in £. Therefore one should invoke the following rule: If a security experiences a large deviation from it's estimated VAR or worst case scenario, culpability resides with senior managers of the business unit if that security is within £, and risk managers if it is within.

Because it is impossible to perfectly anticipate risk, having a robust rule for dealing with failures is just as important as anticipating the known risks. The punishment can take a variety of forms, but it must be significant and not a slap on the wrist. With this rule, risk managers will only sign off on putting a security in A if they feel comfortable with it: otherwise, they would be exposing themselves to personal liability. Unknown securities in £ are given conservative risk estimates, but in some cases they too will be underestimated. By explicitly making senior management culpable for securities in £(and perhaps internally distributing a weekly listing of the offending securities to make accountability unambiguous) and holding risk management personnel responsible for securities in A, there will be a clear incentive to move securities from £ to A as soon as possible, although not too soon. For example, if a plain vanilla swap (which should be in A for every trading desk) experiences a loss much greater than its VaR, given the large literature and data on these simple instruments this is not the trader's fault. Risk management would have botched this job, or a truly unforeseeable event would have occurred. If a trader put on a LIBOR-squared swap and risk management admitted they could not calculate the position's VAR and this position's risk was calculated using a worst-case scenario that turned out to be quite wrong, senior management is at fault and should be held directly accountable. This mechanism should minimize these occurrences because it creates an environment that does not become complacent, and generates an incentive for incremental improvement in controlling all risks, especially the poorly understood ones.

Any measure to introduce a market for over-the-counter (OTC) derivatives in India must be implemented carefully. The exchange-traded derivative market in India is transparent in price discovery, has strict controls on market wide open exposures and individual investor exposure, and has tight mechanisms in place to control margins of individual participants, with minimal counterparty exposure. However, it operates within a rigid framework and is not suited for all types of contracts, especially within the credit and interest rate markets. An individual investor in India has very limited choice of product beyond equities. The fixed income market is illiquid, investors have limited avenues to invest in structured notes, or to invest conveniently in commodities. On the other hand, market participants have limited ability to either mitigate their risk or disperse risk in the credit markets. In such an environment, there is a case to be made for introducing OTC derivatives. Simultaneously, there is also a need to further develop the exchange-traded derivative market, with trading in contracts with longer maturities and contracts in other asset classes to be introduced. OTC derivatives, however, lack transparency both from the perspective of the investor as well as the regulator. Given the infinite permutations and combinations possible in the creation of such instruments and the limited reporting requirements, it is difficult for the regulator to assess the systemic risk and the risk to individual participants from such exposure. OTC derivative transactions also result in the creation of bilateral counterparty exposures, with assessment of this exposure made increasingly complex given the variety of structures and asset classes available to a market participant. OTC derivatives can also be subject to higher levels of leverage, given limited regulatory oversight on transactions. The creation of a vibrant OTC derivative market can, therefore, expose the Indian financial system and the Indian investor to a fair amount of risk, and trading in such instruments must be permitted only with checks and balances that compensate for the relatively nascent stage of evolution of the Indian financial markets. Developed markets operate with multiple levels of regulation. In addition to regulatory oversight by the regulator, firms regulate their own conduct through compliance officers, risk managers and financial controllers. With the exception of a few of the largest firms in India, our financial system is yet to attain this level of self-governance, risk management and financial control. So, while creating a market for OTC derivatives, it is important in the initial stages to permit only a small, manageable set of firms to carry on OTC derivative business for customers. Firms should also be required to report all OTC derivative exposures on a monthly basis, so that the regulator has a record of exposure levels of the financial system and of individual firms. It is a cliché to say that in risk management proper quantitative techniques do not imply that sound judgment is no longer necessary, but the above delineation of market risks shows why. One sign of good judgment is the ability to make wise decisions when information is incomplete. Prime examples of important senior management decisions are what securities are acceptable within £, the unknown new products, and the creation of a mechanism that discourages complacency. Note, however, that while the above mechanism greatly mitigates the most relevant risks to a derivatives operation, it does not eliminate them all. The details of the incentive structure will vary depending on the particular situation, and in the end the incentives of the shareholders and their agents can rarely be perfectly aligned. The safe and sound use of derivatives is contingent upon effective senior management and board oversight. It is the responsibility of the board to hire a competent executive management team, endorse the corporate vision and the overall business strategy (including the institutional risk appetite), and hold executive management accountable for performance. The board must understand the role derivatives play in the overall business strategy. It is the responsibility of senior management to ensure the development of risk management systems. This entails developing and implementing a sound risk management framework composed of policies and procedures, risk measurement and reporting systems, and independent oversight and control processes. The formality of senior management and board oversight mechanisms will differ depending on the derivatives activities conducted by the bank. However, the board and senior management must provide adequate resources (financial, technical expertise, and systems technology) to implement appropriate oversight mechanisms.The management of derivative activities should be integrated into the bank's overall risk management system using a conceptual framework common to the bank's other businesses. For example, the price risk exposure from derivative transactions should be assessed in a comparable manner to and aggregated with all other price risk exposures. Risk consolidation is particularly important because the various risks contained in derivatives and other market activities can be interconnected and may transcend specific markets.

INSTRUMENTS AVAILABLE IN INDIA

Financial derivative instruments:

The National stock Exchange (NSE) has the following derivative products:

Table No. 4.1

Products	Index Futures	Index Options	Futures on Individual Securities	Options on Individual Securities
Underlying Instrument	S&P CNX Nifty	S&P CNX Nifty	30 securities stipulated by SEBI	30 securities stipulated by SEBI
Type		European		American
Trading Cycle	maximum of 3-month trading cycle. At any point in time, there will be 3 contracts available : 1) near month, 2) mid month & 3) far month duration	Same as index futures	Same as index futures	Same as index futures
Expiry Day	Last Thursday of the expiry month	Same as index futures	Same as index futures	Same as index futures
Contract Size	Permitted lot size is 200 & multiples thereof	Same as index futures	As stipulated by NSE (not less than Rs.2 lacs)	As stipulated by NSE (not less than Rs.2 lacs)
Price Steps	Re.0.05	Re.0.05		
Base Price-First day of trading	previous day closing Nifty value	Theoretical value of the options contract arrived at based on Black-Scholes model	previous day closing value of underlying security	Same as Index options
Base Price-Subsequent	Daily settlement price	daily close price	Daily settlement price	Same as Index options
Price Bands	Operating ranges are kept at + 10 %	Operating ranges for are kept at 99% of the base price	Operating ranges are kept at + 20 %	Operating ranges for are kept at 99% of the base price
Quantity Freeze	20,000 units or greater	20,000 units or greater	Lower of 1% of marketwide position limit stipulated for open positions or Rs.5 crores	Same as individual futures

BSE also offers similar products in the derivatives segment.

DERIVATIVES MARKETS:

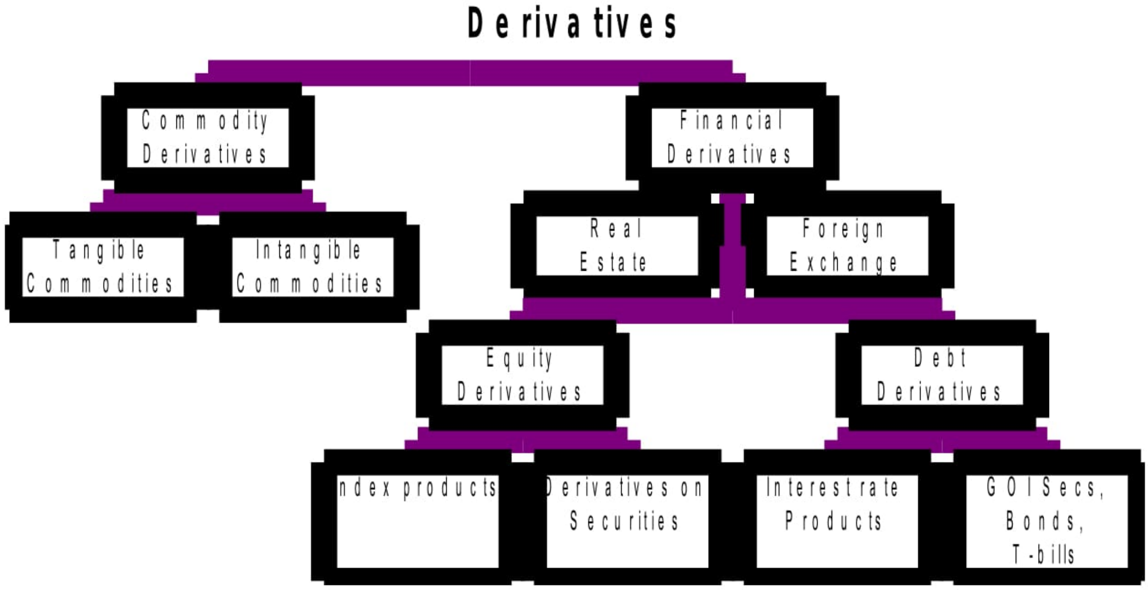
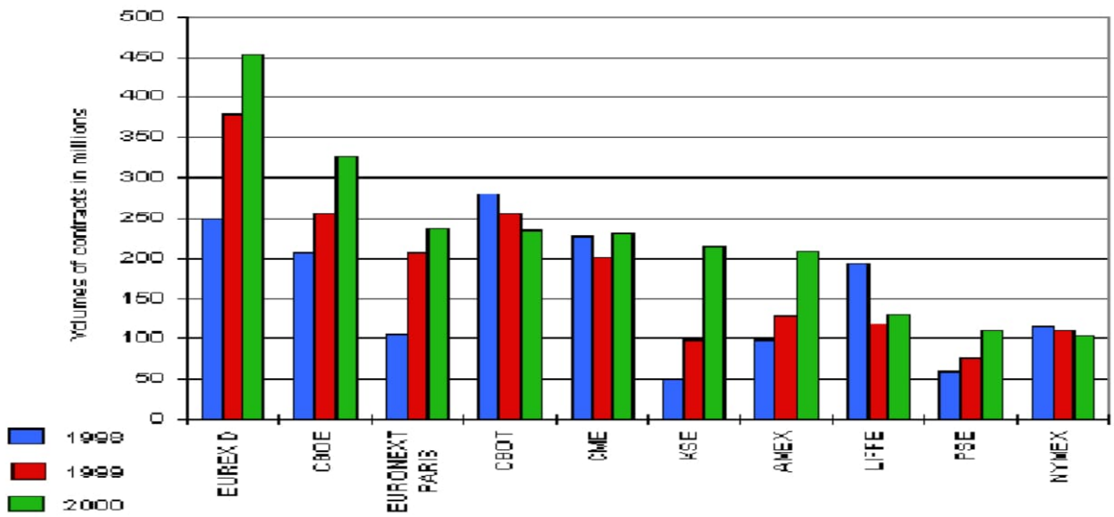


Figure 4.1

TOP FUTURES EXCHANGE



GraphNo.4.2

CHAPTER -5

Methodology & procedure of work

METHODOLOGY AND PROCEDURE OF WORK

METHODOLOGY

A Research Methodology defines the purpose of the research, how it proceeds, how to measure progress and what constitute success with respect to the objectives determined for carrying out the research study. The appropriate research design formulated is detailed below.

Exploratory research: this kind of research has the primary objective of development of insights into the problem. It studies the main area where the problem lies and also tries to evaluate some appropriate courses of action. The research methodology for the present study has been adopted to reflect these realties and help reach the logical conclusion in an objective and scientific manner. The present study contemplated an exploratory research

NATURE OF DATA

PRIMARY DATA: Data which is collected through direct interviews and by raising questionnaires. For the present study, the primary data shall be collected through structured questionnaires, personal interviews/ discussions with focus on his/ her choice before availing for the service.

SECONDARY DATA: Secondary data that is already available and published .it could be internal and external source of data. Internal source: which originates from the specific field or area where research is carried out e.g. publish broachers, official reports etc. External source: This originates outside the field of study like books, periodicals, journals, newspapers and the Internet. Secondary data will be collected through the following sources:-

- Articles,
- Reports,
- Journals,
- Magazines,
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- Internet

SAMPLE DESIGN: - Purposive Random Sampling. Samples shall be taken based on previous knowledge of the population (from which the samples are taken), and the specific purpose of the study or investigation.

Sampling unit:	(a) Finance Students
	(b) People Workking in Financial Sector.

Sample size : **100**

Research Location : New Delhi, India

Research Period : Three months

Research Constraints:

Geographical Limitation;

Busy Schedule of the students and working people.

CHAPTER -6

Analysis of data

ANALYSIS OF DATA

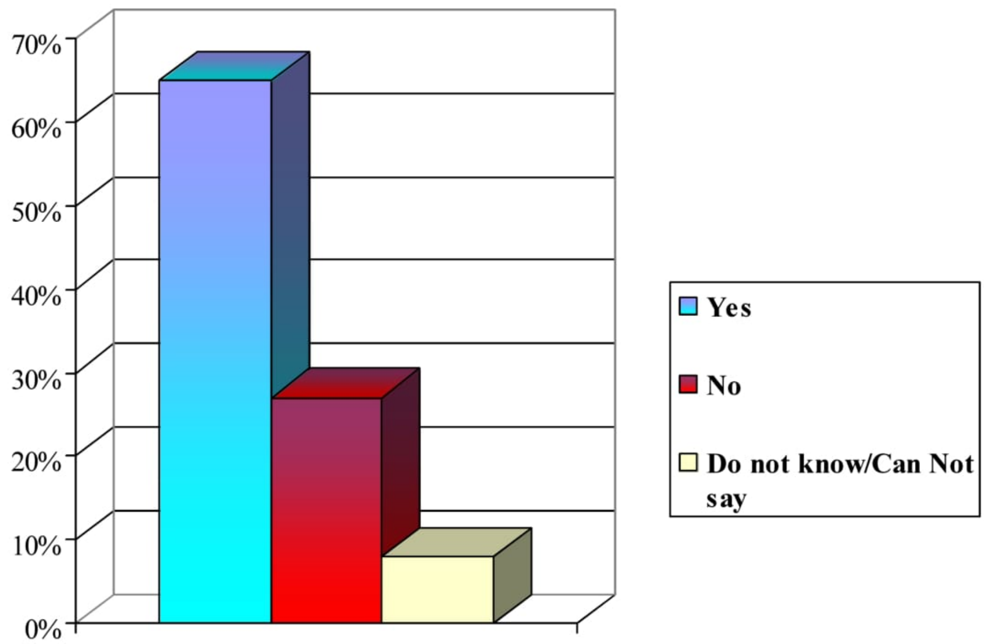
DATA ANALYSIS

1. Are you aware about the derivatives market in India?

Yes -- 65 per cent

No --- 27 per cent

Do not know/ Can not say -- 08 per cent



Yes	65%
No	27%
Do not know/Can Not say	8%

Graph No.6.1

Interpretation:

As regards the awareness level of the capital market, particularly the derivative market, the data suggests that 65 per cent of the respondents studied have the awareness level about the operational system of the stock market and the derivative market in India. As against this data, 27 per cent of the respondents are not aware about this mechanism.

2. **What is the need for a derivative market in India?**

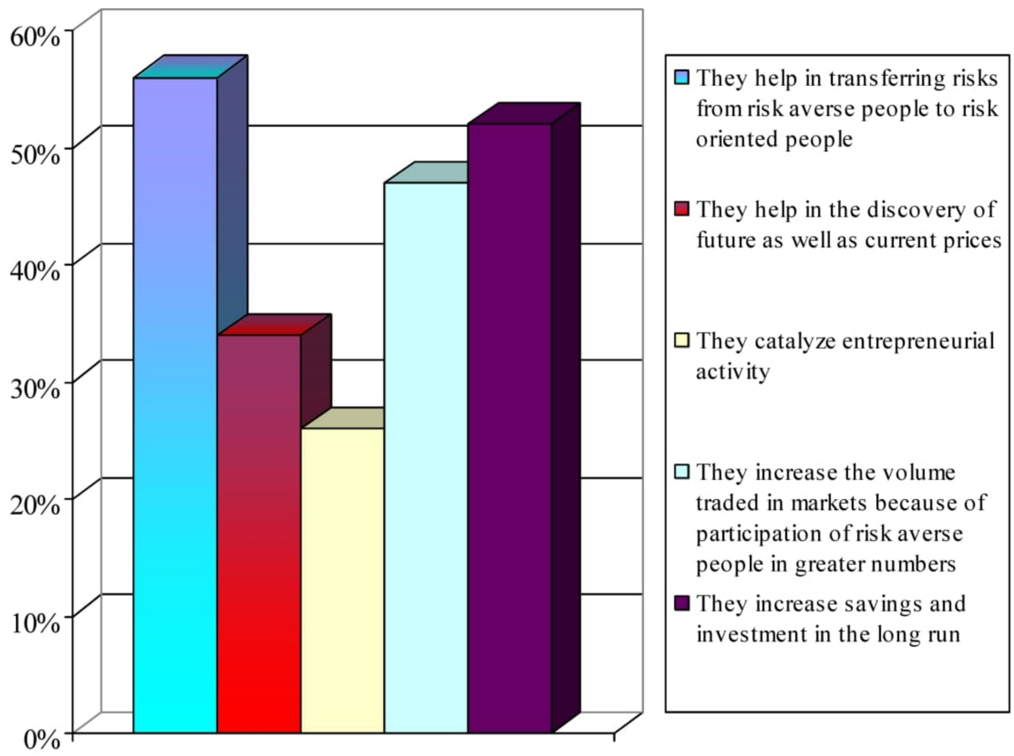
They help in transferring risks from risk averse people to risk oriented people -- 56 per cent

They help in the discovery of future as well as current prices--- 34 per cent

They catalyze entrepreneurial activity ---------------------------- 26 per cent

They increase the volume traded in markets because of participation of risk averse people in greater numbers--- 47 per cent

They increase savings and investment in the long run ---------- 52 per cent

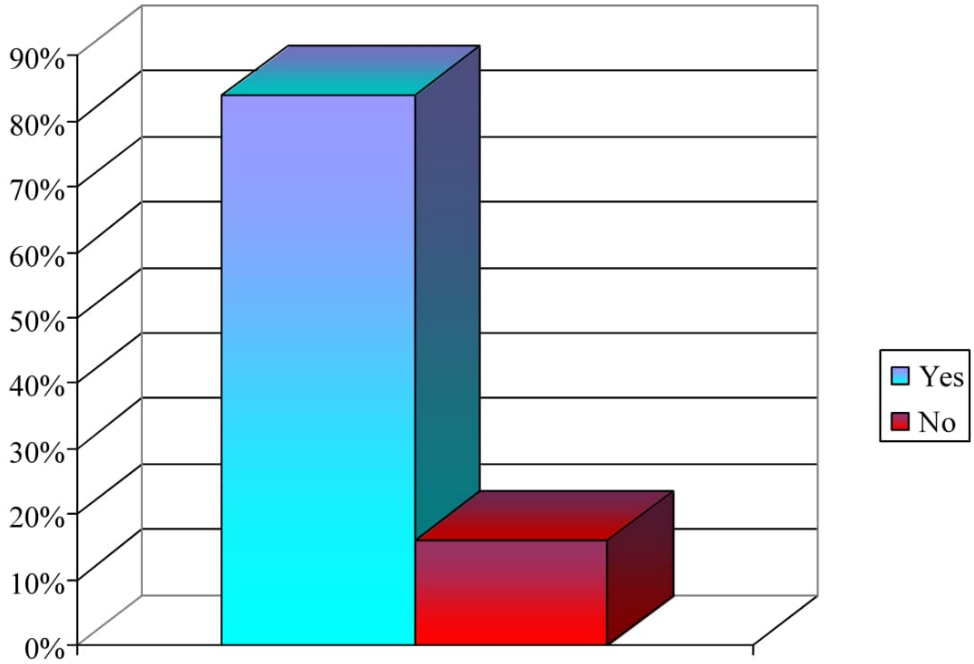


Graph No.6.2

3. Are you aware about the regulatory role played by SEBI in the derivative market in India?

Yes --- 84 per cent

No -- 16 per cent



Yes	84%
No	16%

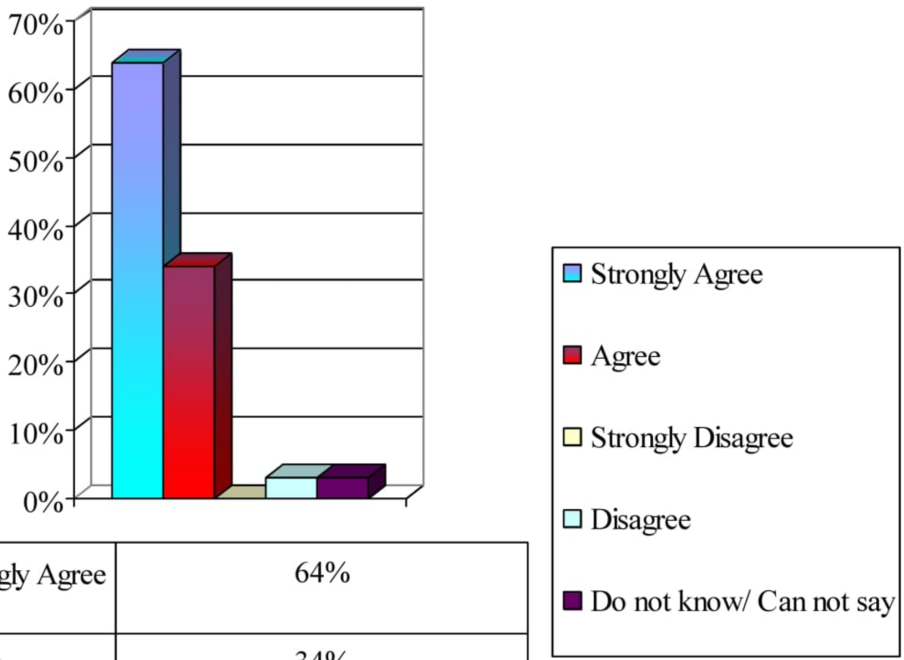
Graph No.6.6

Interpretation:

As regards the regulatory role played by SEBI in this regard, it may be stated that 84 per cent of the respondents are aware about the role played by SEBI whereas 16 per cent of the respondents are not aware about it.

4) **Do you agree that risk factors are inherent in the financial instrument of Derivatives?**

Strongly Agree --	64 per cent
Agree --	34 per cent
Strongly Disagree ---	00 per cent
Disagree ---	03 per cent
Do not know/ Can not say ---	03 per cent



Strongly Agree	64%
Agree	34%
Strongly Disagree	0%
Disagree	3%
Do not know/ Can not say	3%

Graph No.6.7

Interpretation:

As regards the presence of risk factor, it is prominently clarified by the opinion of our respondents that risk factor is always a potential threat against the use of financial derivatives.

5) Which according to you is the most potential risk threat in the Derivatives market?

Credit Risk --- 27 per cent

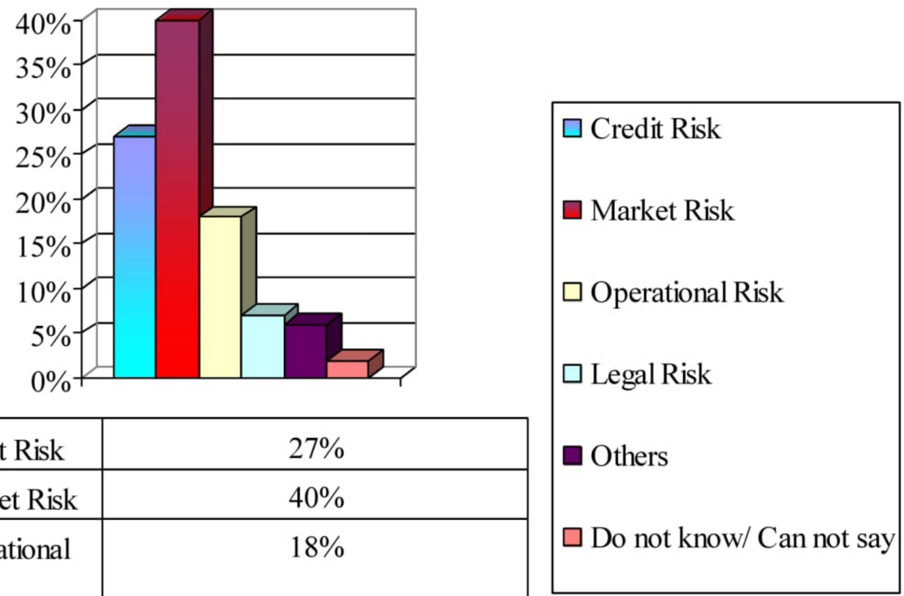
Market Risk -- 40 per cent

Operational Risk --- 18 per cent

Legal Risk --- 07 per cent

Others ---------------- -- 06 per cent

Do not know/ Can not say --- 02 per cent



Credit Risk	27%
Market Risk	40%
Operational Risk	18%
Legal Risk	7%
Others	6%

Graph No.6.8

Interpretation:

As regards the potential of risk and their respective magnitude, the respondents are of the opinion that risks associated with market fluctuation that is the market risk is the most potential risk in the operation of derivatives followed by credit risk, operational risk and legal risk.

6) Do you agree that the risk management system existing in your financial institution is potential enough to deal with all types of risks associated with Derivatives management?

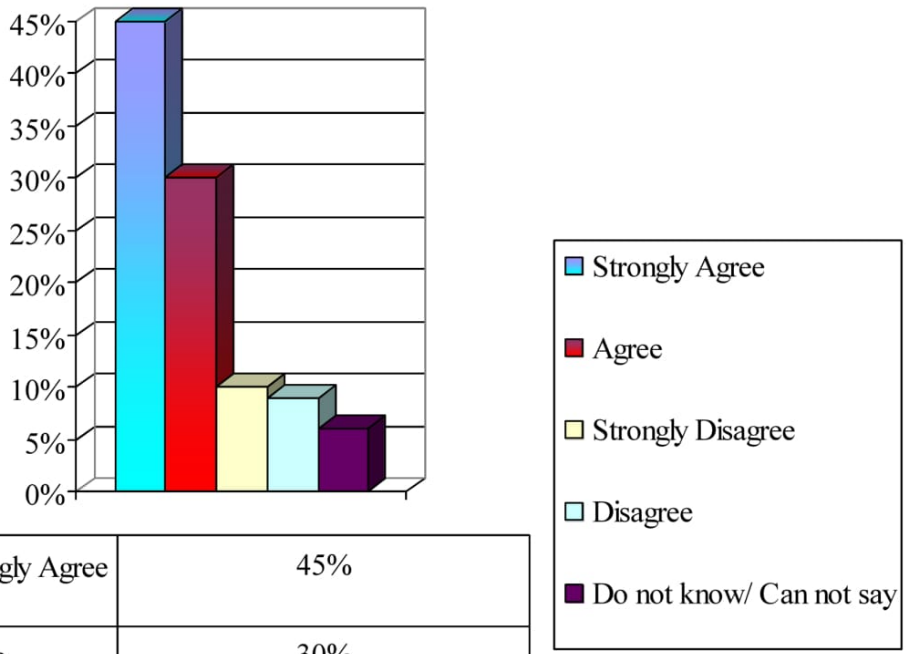
⇒ Strongly Agree -- 45 per cent

⇒ Agree --- 30 per cent

⇒ Strongly Disagree -- 10 per cent

⇒ Disagree --- 09 per cent

⇒ Do not know/ Can not say --- 06 per cent



Strongly Agree	45%
Agree	30%
Strongly Disagree	10%
Disagree	9%
Do not know/ Can not say	6%

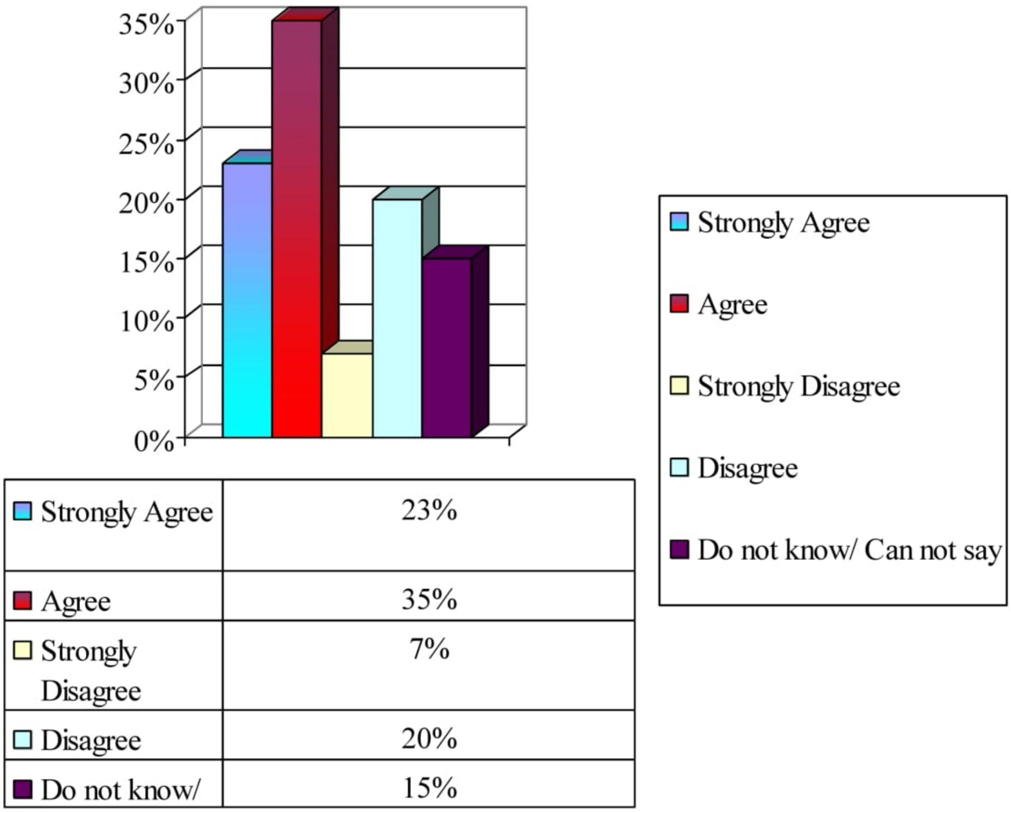
Graph No.6.9

Interpretation:

It is believed that the existing risk management system is capable enough to deal with the risks associated with management of derivatives in financial institutions.

7). Do you agree that foreign exchange derivatives are more volatile to risk factors?

- ⇒ Strongly Agree -- 23 per cent
- ⇒ Agree --- 35 per cent
- ⇒ Strongly Disagree -- 07 per cent
- ⇒ Disagree --- 20 per cent
- ⇒ Do not know/ Can not say -- 15 per cent



Strongly Agree	23%
Agree	35%
Strongly Disagree	7%
Disagree	20%
Do not know/	15%

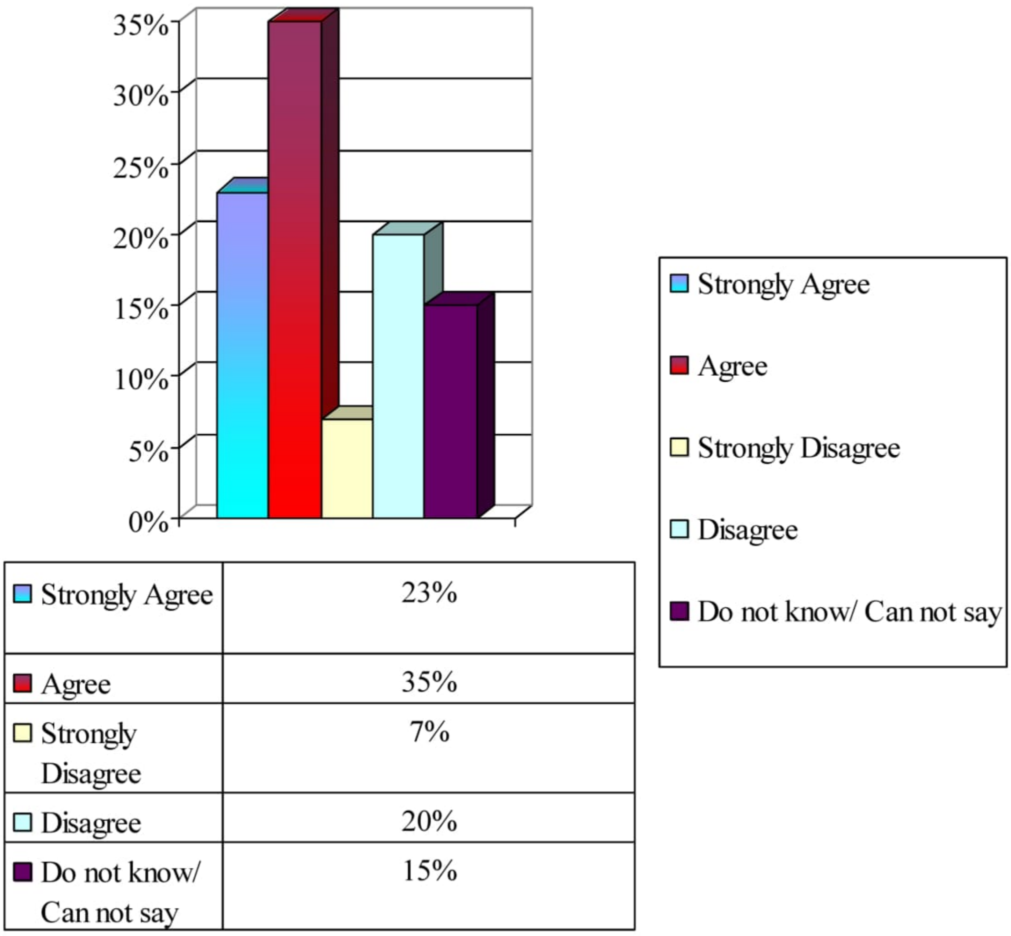
Graph No.6.10

Interpretation:

As regards the risk factors associated with foreign exchange derivatives, the respondents are of the opinion that they are more prone to risk factors or volatile against market conditions.

8). **Do you agree that we can have a full proof risk management system for the Derivatives market?**

- ⇒ Strongly Agree -- 23 per cent
- ⇒ Agree -- 35 per cent
- ⇒ Strongly Disagree -- 07 per cent
- ⇒ Disagree --- 20 per cent
- ⇒ Do not know/ Can not say --- 15 per cent



Strongly Agree	23%
Agree	35%
Strongly Disagree	7%
Disagree	20%
Do not know/ Can not say	15%

Graph No.6.12

Interpretation: Full proof risk management system or mechanism for the Derivatives market is a myth.

CHAPTER -7

Findings, inferences and recommendatio

FINDINGS, INFERENCES AND RECOMMENDATIONS

Findings and Inferences

These bases can be underlying assets bases or reference rates. For example, wheat farmers may wish to sell their harvest at a future date to eliminate the risk of a change in prices by that date. The transaction in this case would be the derivative, while the spot price of wheat would be the underlying asset.

- To reduce this risk, the concept of derivatives comes into the picture. Derivatives are products whose values are derived from one or more basic variables called bases.
- They are basically the same as those faced in traditional activities (e.g., price, interest rate, liquidity, credit risk). Fundamentally, the risk of derivatives (as of all financial instruments) is a function of the timing and variability of cash flows.

Derivatives market has the following roles:

- Derivatives allow hedging of market risk.
- It allows for a separate market to be developed for lending of funds and securities to the market.
- It helps in making the underlying cash market more liquid.
- It helps in innovations and the creation of new financial products.

Forwards: A forward contract is a customized contract between two entities, where settlement takes place on a specific date in the future at today's pre-agreed price.

Futures: A futures contract is an agreement between two parties to buy or sell an asset at a certain time in the future at a certain price. Futures contracts are special types of forward contracts in the sense that the former are standardized exchange-traded contracts

Options: Options are of two types - calls and puts. Calls give the buyer the right but not the obligation to buy a given quantity of the underlying asset, at a given price on or before a given future date. Puts give the buyer the right, but not the obligation to sell a given quantity of the underlying asset at a given price on or before a given date.

Warrants: Options generally have lives of up to one year, the majority of options traded on options exchanges having a maximum maturity of nine months. Longer-dated options are called warrants and are generally traded over-the-counter.

LEAPS: The acronym LEAPS means Long-Term Equity Anticipation Securities. These are options having a maturity of up to three years.

Baskets: Basket options are options on portfolios of underlying assets. The underlying asset is usually a moving average or a basket of assets. Equity index options are a form of basket options.

Swaps: Swaps are private agreements between two parties to exchange cash flows in the future according to a prearranged formula. They can be regarded as portfolios of forward contracts. The two commonly used swaps are:

Interest rate swaps: These entail swapping only the interest related cash flows between the parties in the same currency.

Currency swaps: These entail swapping both principal and interest between the parties, with the cash flows in one direction being in a different currency than those in the opposite direction.

Swaptions: Swaptions are options to buy or sell a swap that will become operative at the expiry of the options. Thus a swaption is an option on a forward swap. Rather than have calls and puts, the swaptions market has receiver swaptions and payer swaptions. A receiver swaption is an option to receive fixed and pay floating. A payer swaption is an option to pay fixed and receive floating.

Disadvantages of Derivatives:

If derivatives are misused, they can boomerang on the company.

- **Credit Risk:** While derivatives cut down on the risks caused by a fluctuating market, they increase credit risk. Even after minimizing the credit risk through collateral, you still face some risk from credit protection agencies.

- **Crimes:** Derivatives have a high potential for misuse. They have been the caused the downfall of many companies that used trade malpractices and fraud.

RECOMMENDATIONS

The economic (capital) perspective focuses on the value of the bank in today's interest rate environment and the sensitivity of that value to changes in interest rates. Interest rate risk arises from differences between the timing of rate changes and the timing of cash flows (re-pricing risk); from changing relationships among different yield curves affecting bank activities (basis risk); from changing rate relationships across the spectrum of maturities (yield curve risk); and from interest-related options embedded in bank products (options risk). The evaluation of interest rate risk must consider the impact of complex illiquid hedging strategies or products, and also the potential impact on fee income that is sensitive to changes in interest rates. When trading is separately managed, this impact is on structural positions rather than trading portfolios. Banks are exposed to interest rate risk through their structural balance sheet positions.

The level of structure and formality in this process should be commensurate with the activities and level of risk approved by senior management and the board.

STEPS TO MINIMIZE THE POTENTIAL RISKS OF DERIVATIVES TRADING

1) Pace and sequence of market opening :

New and modern technology-driven Exchanges with best international practices have come up. All these developments have taken place in the backdrop of a long history of ban in forward trading when the perception about these markets was not good. That perception has not gone away totally. Even today people express their doubts about the need and efficacy of these markets. Therefore, it becomes all the more important that these markets are set up on a strong foundation. There should not occur any mischief which may discredit the market as a whole. The Government/Regulator/Exchanges should be able to explain that the markets are beneficial to all groups and if there are any transitional costs, these are the minimum and will be more than compensated with the overall benefit to the economy and will be more than compensated with the overall benefit to the economy and the stakeholders. Before taking any steps to lift the ban on the four delisted commodities, the government should take necessary steps. A cautious approach is to be adopted for revival of futures trade in these commodities rather than have to confront a stop go situation again in the future.

2) **Regulatory framework** :

In order to defend the market against criticism, it is essential to minimize the potential adverse impact of futures trading on prices of agricultural products. This requires properly functioning and regulated markets. There is a need for a clear and unambiguous regulatory frame work. The broad parameters of the functioning of the markets have to be clearly laid down. The regulatory authority should have the capacity and the power to discipline the market. Once these pre-requisite are in place they will not only help in controlling aberrations in the market but also help the government and the regulatory to explain to various stakeholders at large any abnormal behavior in the market that might occur as a result of some basic fundamental demand and supply factors. The regulatory framework for the market is provided in the Forward Contract (Regulation) Act, 192. The FMC (Forward Markets Commission) was set up under this act.

3) **Derivatives Markets to be Anchored to Physical Spot-Markets** :

The derivative market has to be anchored to physical cash market. The Physical spot markets have large number of infirmities. Till these infirmities are reformed, it will be difficult for the futures market to progress far ahead of them. Futures markets can act as a catalyst of change for spot markets and nothing more. Whenever futures markets try to grow faster than the under-developed physical markets of underlying commodities, the mismatch between the two gets widened, thereby opening up futures market to the criticism of being driven by speculators, even of benign and closely regulated. Futures markets efficiency is contingent on the efficiency of spot markets. Efficient spot markets reduce the cost of future – arbitrage. Efficient spot markets in commodities would require integration of markets across geographical regions and quality. This reduces the basis risk in the use of futures contracts. Integration of the spot markets requires development of rural communication, transport and storage infrastructure. The committee is of the view that in order to expedite this, a substantial part of the transaction tax which is now being imposed on futures markets should be earmarked for development of the required physical market infrastructure.

4) **Speculation an Integral part of Efficient Futures Market** :

The commodities with a history of high price volatility are prone to excessive speculative interests which open up futures market to the charge of distorting prices having no linkage to the fundamentals of the demand and supply factors. The presence of the speculators on the futures market is often looked upon with suspicion, It must be remembered that if only the framers and consumers were to operate on the agricultural commodity markets, there is likely to be mismatch in thief respective marketing strategies and therefore, they would not be able to transact business at any given point of time since the total volume of business would be very thin. The market would, therefore become illiquid. Hence, speculators step into to provide the transaction matching through risk transfer and consequential liquidity. In a free market with availability of technology for instantaneous flow of information speculative funds cannot bring secular price rise as supply responses (through inventory unloading, imports and production) are fast. It is opacity or non-availability of efficient markets, like futures markets that gives power to the manipulator-speculator. On the other hand, an efficient and transparent market with sufficient depth of participation will encourage responsible and informed speculation.

5) **Consultative Mechanism for Development of the market** :

The exchanges as well as FMC should have a strong back up of domain knowledge of commodities which are traded on the exchange platforms. The knowledge of fundamental economic characteristic of production, marketing and use of the commodity so as to understand the factors influencing thief prices is of utmost importance. Once a proper contract design of a product is in place, the surveillance of the market becomes easy. There should be a consultative group comprising of persons with proven domain knowledge of the commodity sector, both in the FMC as well as in the Exchanges.

CHAPTER -8

Conclusions

CONCLUSION

Derivatives are financial instruments whose value is derived, in whole or part, from the value of any one or more underlying securities or assets, or index of securities or assets (such as a bonds, stocks, commodities, and currencies). Derivatives risk management is difficult to model because its main concerns are securities that are not in equilibrium. Past securities that posed serious risks to a firm, such as range notes, may now have their risk precisely measured. Securities that currently pose serious risks, such as certain CMOs, can be expected in time to be adequately captured. Given the many different dimensions new securities innovate, it is impossible to provide a precise, general, practicable model of the problems they present, their current measurement uncertainty, or the speed with which they will be fully understood. Nonetheless, there are useful general rules one can use in describing an optimal risk management objective for these environment.

Derivatives have become an integral part of the financial markets because they can serve several economic functions. When used properly, derivative products can become effective tools in managing business risks. In the marketplace, derivatives can be used to expand product offerings to customers, manage capital and funding costs, and alter the risk-reward profile of a particular item or an entire balance sheet. Most importantly, derivative transactions offer the opportunity for financial institutions to reduce risks in the marketplace.

Despite their usefulness, financial derivatives may be used inappropriately. In recent years, there have been many examples of financial institutions and other companies losing large sums of money as a result of poorly controlled derivatives use. As the market has developed, there has been a significant increase in the types and complexity of derivatives. Failing to understand, identify and manage the risks associated with financial derivatives can have a sudden and significant impact on an institution's financial position. It is imperative that management understand what they are attempting to accomplish in making use of the various derivative products in the marketplace.

The use of financial derivatives requires special expertise, experience and rigorous controls. Critical management systems should be in place commensurate with each institution's use of derivative products. Derivatives should not be executed without the proper systems and internal controls necessary to monitor and analyze the performance of the instruments. An institution needs to ensure that the rewards associated with derivatives are commensurate with the risks being taken and that these risks are understood by the board of directors and senior management.

An optimal risk management process works more at getting relevant risks on the radar screen than measuring what already appears on the radar screen more precisely. This does not mean simply enumerating an endless list of theoretical possibilities, but quantifying risks so that the trivial and the significant are appropriately considered. In order to do this, there must exist real incentives that come from quantifying risks, tying these measures to compensation and business unit evaluation, and proper accountability.

The primary intent of derivative security transactions should be to hedge risk in portfolios or to implement investment strategies more effectively and at a lower cost than would be possible in the cash market. In order to limit the financial risks associated with derivative applications, rigorous counterparty selection criteria and netting agreements shall be required to minimize counterparty risk for over the counter derivatives. The counterparty must be an investment grade credit and the agreement must be marked to market no less frequently than monthly.

Chapter -9

Summary of the project report

SUMMARY OF THE PROJECT REPORT

The use of financial derivatives requires special expertise, experience and rigorous controls. Critical management systems should be in place commensurate with each institution's use of derivative products. Derivatives should not be executed without the proper systems and internal controls necessary to monitor and analyze the performance of the instruments. An institution needs to ensure that the rewards associated with derivatives are commensurate with the risks being taken and that these risks are understood by the board of directors and senior management.

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CHAPTER -10

Annexure

ANNEXURE

QUESTIONNAIRE

1. **Are you aware about the derivatives market in India?**

   Yes ---

   No --

   Do not know/ Can not say --------------------

2. **What are the reasons for the need for a derivative market in India?**

   They help in transferring risks from risk averse people to risk oriented people --------------------------

   They help in the discovery of future as well as current prices--------

   They catalyze entrepreneurial activity ---------------------------

   They increase the volume traded in markets because of participation of risk averse people in greater numbers-------------

   They increase savings and investment in the long run ---------------

3. **Are you aware about the regulatory role played by SEBI in the derivative market in India?**

   Yes ---

   No --

4. **Do you agree that risk factors are inherent in the financial instrument of Derivatives?**

   Strongly Agree -------------------------------

   Agree --

   Strongly Disagree ----------------------------

   Disagree --------------------------------------

   Do not know/ Can not say ------------------

5. **Which according to you is the most potential risk threat in the Derivatives market?**

   Credit Risk ----------------------------

   Market Risk --------------------------

   Operational Risk ---------------------

   Legal Risk ----------------------------

   Others ----------------- --------------

   Do not know/ Can not say -----------

6. **Do you agree that the risk management system existing in your financial institution is potential enough to deal with all types of risks associated with Derivatives management?**

   Strongly Agree ------------------------------

   Agree ---

   Strongly Disagree ----------------------------

   Disagree --------------------------------------

   Do not know/ Can not say -------------------

7) **Do you agree that foreign exchange derivatives are more volatile to risk factors?**

   Strongly Agree ------------------------------

   Agree ---

   Strongly Disagree ----------------------------

   Disagree --------------------------------------

   Do not know/ Can not say -------------------

8) **Do you agree that we can have a full proof risk management system for the Derivatives market?**

   Strongly Agree -----------------------------

   Agree ---------------------------------------

   Strongly Disagree -------------------------

   Disagree -------------------------------------

Do not know/ Can not say -----------------

ANNEXURE - I

PROJECT PROPOSAL

Name of the Learner : ………….

Registration No. : …………

Program Name : ……..

Address : ………

TITLE OF THE PROJECT:

"Risk Management in Derivatives Market – How to Minimize Risk in Derivatives"

OBJECTIVES

The study of derivatives market in India with special reference to risk management mechanism revolves around the following broad objectives:

⇒ To understand the dynamics of the Derivatives market in India,

⇒ To analyze the risks associated with the Derivatives ,

⇒ To explain the need for and the operation of an effective risk management mechanism for the financial derivative market in India.

Need for the topic

Derivatives risk management is difficult to model because its main concerns are securities that are not in equilibrium. Past securities that posed serious risks to a firm, such as range notes, may now have their risk precisely measured. Securities that currently pose serious risks, such as certain CMOs, can be expected in time to be adequately captured.

- Derivatives have become an integral part of the financial markets because they can serve several economic functions. When used properly, derivative products can become effective tools in managing business risks. In the marketplace, derivatives can be used to expand product offerings to customers, manage capital and funding costs, and alter the risk-reward profile of a particular item or an entire balance sheet.

- Despite their usefulness, financial derivatives may be used inappropriately. In recent years, there have been many examples of financial institutions and other companies losing large sums of money as a result of poorly controlled derivatives use.
- The primary intent of derivative security transactions should be to hedge risk in portfolios or to implement investment strategies more effectively and at a lower cost than would be possible in the cash market. In order to limit the financial risks associated with derivative applications, rigorous counterparty selection criteria and netting agreements shall be required to minimize counterparty risk for over the counter derivatives.

METHODOLOGY AND PROCEDURE OF WORK

METHODOLOGY

A Research Methodology defines the purpose of the research, how it proceeds, how to measure progress and what constitute success with respect to the objectives determined for carrying out the research study. The appropriate research design formulated is detailed below.

Exploratory research: this kind of research has the primary objective of development of insights into the problem. It studies the main area where the problem lies and also tries to evaluate some appropriate courses of action. The research methodology for the present study has been adopted to reflect these realties and help reach the logical conclusion in an objective and scientific manner. The present study contemplated an exploratory research

NATURE OF DATA

PRIMARY DATA: Data which is collected through direct interviews and by raising questionnaires. For the present study, the primary data shall be collected through structured questionnaires, personal interviews/ discussions with focus on his/ her choice before availing for the service.

SECONDARY DATA: Secondary data that is already available and published .it could be internal and external source of data. Internal source: which originates from the specific field or area where research is carried out e.g. publish broachers, official reports etc. External source: This originates outside the field of study like books, periodicals, journals, newspapers and the Internet. Secondary data will be collected through the following sources:-

- Articles,
- Reports,
- Journals,
- Magazines,
- Newspapers and
- Internet

SAMPLE DESIGN: - Purposive Random Sampling. Samples shall be taken based on previous knowledge of the population (from which the samples are taken), and the specific purpose of the study or investigation.

Sampling unit: (a) Finance Students
(b) People Working in Finance Sector.

SAMPLING PROCEDURE

Simple Random Sampling to select the sample

Sample size : **100**
Research Location : New Delhi, India
Research Period : Three months
Research Constraints:
Geographical Limitation;
Busy Schedule of the working people

Statistical Techniques to be tool used

The data was shown with the help of diagrams and pie charts.

Chapterization

1. Introduction
2. Objectives and Scope
3. Limitations
4. Theoretical Perspective
5. Methodology and Procedure of work
6. Analysis of Data
7. Findings, Inferences and Recommendations
8. Conclusion
9. Summary of the Project Report

Annexure

- I) Proposal
- II) References
- III) List of Figures, Charts, Diagrams
- IV) List of Tables

Detailed information of Guide :

Name	:	Dr. G.C. Maheshwari
Address	:	
Qualification	:	
Designation	:	Professor
Special Field or Work	:	
Experience	:	
Any Other Important Information	:	

ANNEXURE - II

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ANNEXURE - III

LIST OF FIGURES, CHARTS, DIAGRAMS

ANNEXURE – IV

LIST OF TABLES