A STUDY ON DERIVATIVE COMMODITY MARKET & FACTORS OF COMMODITY FUTURE PRICE

A THESIS

Submitted by:
RAM GOPAL RAJCHAL
Nepal Commerce Campus
Roll:-189/2061
Symbol No:-1851/2063
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VIVA-VOCE SHEET

We have conducted the viva –voce examination of the thesis presented

Submitted By:

RAM GOPAL RAJCHAL

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and found the thesis to be the original work of the student and written according to the prescribed format. We recommend the thesis to be accepted as partial fulfillment of the requirement for the

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Viva-Voce Committee

Head, Research Department _____

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Member (Thesis Supervisor) _____

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RAM GOPAL RAJCHAL

Entitled

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has been prepared as approved by this Department in the prescribed format of the Faculty of Management. This thesis is forwarded for examination.

_____ _____

(Prof.Dr.Bihari Binod Pokharel)
Head of Research Department

(Diwakar Pokhrel)
Campus Chief and
Thesis Supervisor

_____

(Rajesh Gurung)
Thesis Supervisor

Date:

TRIBHUVAN UNIVERSITY

Faculty of Management

Nepal Commerce Campus

DECLARATION

I hereby declare that the work reported in this thesis entitled "**DERIVATIVE-COMMODITY MARKET IN NEPAL & FACTORS OF COMMODITY FUTURE PRICE**" submitted to Office of the Dean, Faculty of Management, Tribhuvan University, is my original work done in the form of partial fulfillment of the requirement for the Degree of Master's in Business Studies (M.B.S) under the supervision of **Diwakar Pokhrel** and **Rajesh Gurung** of Nepal Commerce Campus.

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Ram Gopal Rajchal

Researcher

Campus Roll No. : 189/061

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Ram Gopal Rajchal
Nepal Commerce Campus
Minbhavan, Kathmandu

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ABBREVIATIONS

Σ	-	Sum
B.S.	-	Bikram Sambat
C.M	-	Clearing Member
C.V	-	Coefficient of Variation
COMEN	-	COMMODITY & METAL EXCHANGE NEPAL
etc	-	etcetera
F/Y	-	Fiscal Year
Govt	-	Government
i.e.	-	That is
KG	-	KILOGRAM
Ltd.	-	LIMITED
LTS	-	LITRES
MBS	-	Master of Business Studies
MEX	-	MERCANTILE EXCHANGE LIMITED
N	-	Number of Observations
N.C.M		Non Clearing Member
NDEX	-	NEPAL DERIVTIVE EXCHANGE LIMITED
NEPSE	-	Nepal Stock Exchange
No.	-	Number
NPR	-	Nepalese Currency (Rupees)
PE	-	Probable Error
r	-	Correlation of Coefficient
r^2	-	Coefficient of Determination
Rs	-	Rupees
RSI	-	Relative Strength Index
S.D or σ	-	Standard Deviation
S.E	-	Standard Error
S.N	-	Serial Number

SE	-	Standard Error
SEBON	-	Security Board of Nepal
SEC	-	Security Exchange Centre
T.U.	-	Tribhuvan University
TB	-	Trading Broker
U.K.	-	United Kingdom
$\bar{x}$	-	Average or mean value

CHAPTER-I

INTRODUCTION

1.1 Background of the Study

Investment is a dynamic process which includes proper planning, strategies and choices. It has both opportunities and risks. Rational investments help to boost once future life. For that the investors postpone their current consumptions and invest the saving expecting the reasonable return. Once may inter in financial market which is the combination of real and financial investments making good interaction between these two with priory of high return and calculated risks. Especially they practice for the appropriate combinations between real and financial investment opportunities. In application real investment are portfolio investment. That's why the question may arise about real investment in real assets to generate productivity of capital while financial investment in financial assets to generate return from capital market activities. Financial markets perform basically economic functions and future functions. It can be classified into money and capital market including loan and security market. Primary market deals with entirely a new issue which includes common stock, preferred stock, bond and debentures while secondary market deals with outstanding securities. As per the fundamental concept of financial assets, it includes both primary as well as derivative assets. Primary assets carry common stock, preferred stock, bond and debentures and derivatives assets carry options, futures, forward, swap, warrants and option on futures etc. Among these assets the futures (derivatives) is one of newly introduced and emerging invertible assets in Nepalese perspective.

1.1.1 Derivative

A derivative is any financial instrument, whose payoff depends in a direct way on the value of an underlying variable at a time in the future. This underlying variable is also called the underlying assets a just underlying. For example the underlying assets for gold are commodity, financial assets for govt bond, index for S&P 500. Simply derivatives are contracts to buy or sell the underlying assets at a future time with the price, quantity and other specification defined

today. Contract can be bidding for both parties or for one party reserving the option to exercise or not. If the underlying assets is not traded. For e.g. if the underlying assets is an index, some kind of cash settlement has to take place. Derivatives are traded in organized exchanges as well as over the counter (OTC derivative). As mentioned above, derivatives include forwards, features, options, caps, floors, swaps, collars, & many others.

1.1.2 Types of Derivative

The most commonly used derivatives contracts are forwards, futures and options, which we shall discuss in detail later. Here we take a brief look at various derivatives contracts that have come to be used.

a) 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.

b) Futures

A futures contract is an agreement between two parties to buy or sell an asset at 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.

c) 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.

d) 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.

e) 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.

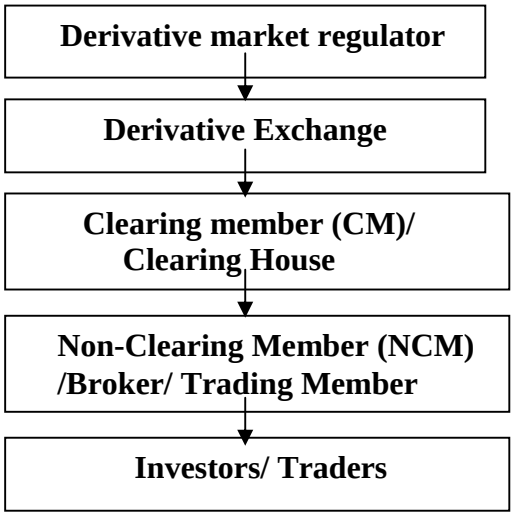
f) L.E.A.P.S

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

g) 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.

1.1.3 Structure of Derivative Market.



1.1.4 Mechanism of Future Market

Some Specifications of Futures Contracts Exchange traded must specify the assets, the contract size, delivery time, delivery place and the quality of asset.

The Asset

Futures contracts are made on both commodity and financial assets. When the underlying is a commodity, there may be a quite variation in the quality of what is available n the market in the market place. Therefore, exchange stipulates the grades of commodities that are acceptable. When the underlying is a financial asset, they are well defined and unambiguous.

The Contract Size

The contract size specifies the amount of the assets that has to be delivered under one contract. This is an important decision for the exchange. If the contract size is too large, many investors who wish to hedge relatively small

exposures or who wish to take small speculative positions will be unable to use the exchange. On the other hand, if the contract size is too small, trading may be expensive as there is a cost associated with each contract traded. Therefore, the exchange specifies the medium size for contract depending on the nature and price of the underlying assets.

Delivery Agreement

The place where delivery will be made must be specified by the exchange. This particular important for commodities that involve significant transportation costs. When alternative locations are specified the price received by the party with short position is sometimes adjusted according to the location chosen by that party.

Delivery Month

A future contract is referred to by its delivery month. The exchange must specify the precise period during the month when delivery can be made. For many futures contracts, the delivery period is whole month. The delivery month vary from contract and are chosen by the exchange to meet the needs of market participants. For example, currency futures on the Chicago Mercantile Exchange have delivery months of March, June, September, and December. The corn futures traded on the Chicago Board of Trade have delivery months of January, March, May, July, September, November, and December.

Price Quotes

The futures price is quoted in a way that is convenient and easy to understand. For example Rs per Kg. percentage of face value for financial assets etc.

Daily Price Limit

For most contracts, daily price limits are specified by the exchange. If the price moves down by an amount equal to the daily price limit, the contract is said to be limit down. If it moves up by the limit, it is said to be limit up. Normally, trading ceases for the day once the contract is limit up or limit down. The purpose of the daily price limit is to present large price movements from occurring because of the speculative exercises.

Position Limits

Position limits are the maximum number of contracts that a speculator may hold. In the Chicago Mercantile Exchange's random –length number contract. For example, the position limit of writing is 1000 contracts with no more than 300 in any one delivery month. Bona fide hedgers are no affected by position

limits. The purpose of the limits is to prevent speculators form exercising undue influence on the market.

1.1.5 Off-Floor Future Traders

a) Introducing Broker (IB)

An introducing broker is an individual who solicits orders from public customers to trade futures contracts. Introducing brokers do not execute orders themselves, nor do their firms: rather, they subcontract with Futures Clearing Members to do this. The Introducing Brokers and Future Clearing Members divide the commission.

b) Commodity Trading Advisor (CTA)

CTA is an individual or firm that analyzes futures markets and issues reports, gives advice, and makes recommendations on the purchase and sale of contracts. CTAs earn fees on their services but do not necessarily trade contracts themselves.

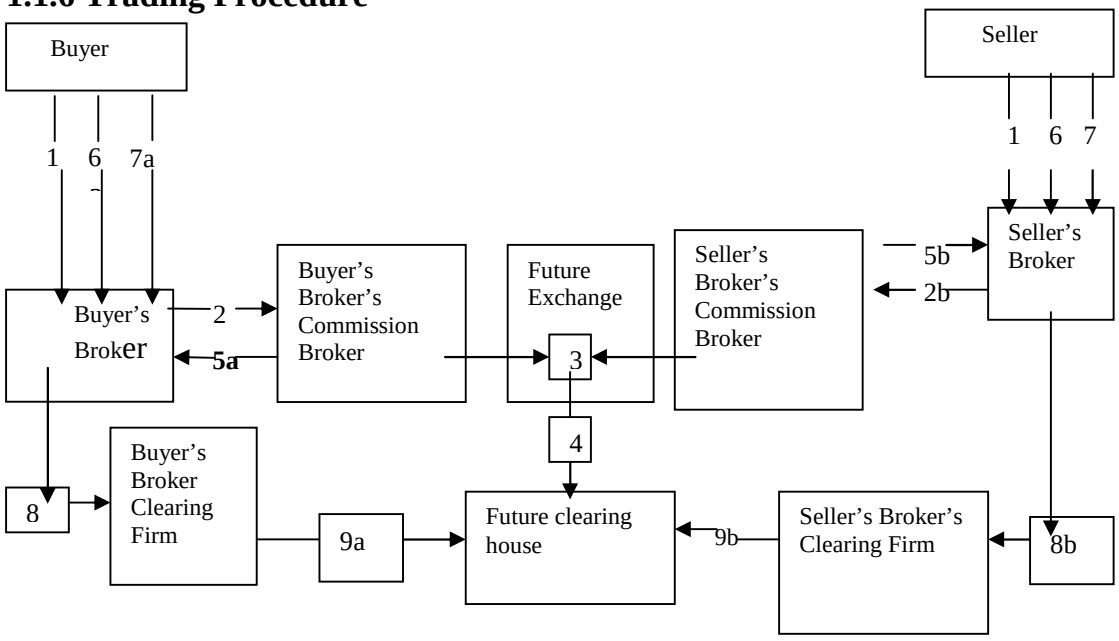
c) Commodity Pool Operators (CPO)

CPO is an individual or a firm that solicits funds from the public pools them, and uses them to trade futures contracts. A CPO essentially is the operator of a futures fund.

d) Associated Person (AP)

AP is an individual associated with any of the above individuals or institutions or any other firm engaged in the futures business. APs include directors, partners, officers, and employees but do not clerical personnel.

1.1.6 Trading Procedure



1a, 1b Buyer and seller instruct their respective brokers to conduct a future transaction.

2a, 2b Buyer's and seller's brokers request that their firms' commission Brokers execute the transaction.

3 Both commission brokers meet in the pit on the floor of the future exchange and agree on a price.

4 Information on the trade is reported to the clearinghouse.

5a, 5b Both commission brokers report the price obtained to the seller's and buyer's brokers.

6a, 6b Buyer's and seller's brokers report the price obtained to the buyer and seller.

7a, 7b Buyer and seller deposit margin with their brokers.

8a, 8b Buyer's and seller's brokers deposit margin with their clearing firm.

9a, 9b Buyer's and seller's brokers clearing firms deposit margin with clearinghouse. *Either buyer or seller (or both) could be a floor trader, eliminating the broker and the commission broker.*

1.1.7 Commodity Future

Commodity future is an agreement to buy or sell a set amount of a commodity such as sugar, corn, apple, Soya, rice, wheat etc. at a predetermined price and date. Buyers use these to avoid the risks associated with the price fluctuations of the product of raw material, while sellers try to lock in a price for their products. Like in all financial markets, others use such contracts to gamble on price movements. The futures market was started from trading in commodity. It now also growing and becoming very popular worldwide. Future exchanges list various commodities in their trading list. They serve valuable purpose of managing risk for hedgers; provide profitable opportunity to arbitrageurs and speculators. The commodity future objectives can be point out as: Hedge against the risk of change in price, to make supply easy and grading of commodities according to their quality, providing liquidity in market and to create speculative opportunity. (COMEN Bulletin, 2009)

1.1.8 Types of Broker

a) Introductory (Trading) Broker

Trading Broker (TB) is a Business Associate of exchanges who has the right to execute transactions in the trading system of the exchange and the right to have

contracts in its own name. The TB can also act as a Broker. As a Broker, he can deal on behalf of the clients. All the trades have to be executed only through the Trading facilities provided by the Exchange. TB will settle the transactions through Clearing Brokers (Trading & Clearing Brokers or Institutional Clearing Brokers). TB cum Broker is required to maintain a separate account for client transactions and is required to maintain the margin deposit and money belonging to clients in segregated accounts. TBs are responsible for all the transactions of their clients. TB will clear their Trades through Clearing Brokers (TCBs or CBs). A TB will be allowed to have clearing relationship with only one TCB or

CB at any point of time. The obligations of the TBs are monitored by the associated TCB or CB. If the limits are breached by a TB, they will not be allowed to do further trading unless the limits are reset on receipt of additional deposits. To provide continuous liquidity in the market, the TBs will be acting as Jobbers in the Market. However, there are no special privileges or obligations attached to this function of TBs. TBs will compete in the market place along with customers' orders to improve the price discovery in the market. TBs will make use of the Order Based Trading System of the exchange to provide continuous stream of order flows in the market.

b) Trading -cum- Clearing Broker

Trading cum Clearing Broker (TCB) is a Broker of Exchange who has the right to execute transactions in the trading system of the exchange like a TB. TCB also a right to clear the transactions in contracts executed in Exchange either on its own behalf or on behalf of other TBs. TCBs will be responsible to Exchange for all the obligations (margins, settlement obligations etc) of TBs on whose behalf they have agreed to clear the trades. COMEN will debit the banking account of the TCBs for all the obligations of the TBs who are clearing through TCBs. TCBs will enter into Clearing Agreements with their constituent Trading Brokers. They will also take the required Caution Deposit from the TBs. They will be allowed to set the limits for trading by TBs. TCBs are required to maintain segregated accounts of the all the monies belonging to TBs on behalf of whom they are clearing the trades. If the clearing limits of

TCBs are breached, all the trading Brokers attached to them will be stopped from further trading until the limits are reset on receipt of additional deposits.The number of TCBs will be limited compared to that of TBs in Exchange. TCBs will be located in major towns and have banking accounts with the Designated Clearing Banks who have interface with exchange

c) Clearing Broker

CB is a Broker of Exchange who has the right to clear transactions done in Exchange that are executed in the trading system of the exchange by TBs and their clients who are Registered Non Brokers with Exchange. A CB does not have the right to have contracts executed in the trading system of Exchange. CBs are professional clearers in the market providing clearing services to the institutional clients. Registered Non-Brokers of COMEN who have executed transaction through any TBs can request their CBs to settle the trade. CBs therefore can have independent clearing relationship with Registered Non Brokers exclusive of the trading relationship of Registered Non Brokers with any TBs. If the clearing limits of CBs are breached, all the trading Brokers attached to them will be stopped from further trading until the limits are reset on receipt of additional deposits. Financial Institutions, Commercial Banks and Corporate Houses who do not have trading interests, but are desirous of providing clearing services to their clients will become CBs in COMEN. COMEN proposes to have a maximum of only 20 CBs. TCBs will be located in major towns and are expected to have banking accounts with the Designated Clearing Banks who have interface with Exchange.

CBs will be responsible to Exchange for all the obligations (margins, settlement obligations etc) of TBs and Registered Non-Brokers on whose behalf they have agreed to clear the trades. Exchange will debit the banking account of the CBs for all the obligations of the TBs and the Registered Non-Brokers who are clearing through TCBs. CBs will enter into Clearing Agreements with their constituent TBs and Registered Non-Brokers. They will also take the required Caution Deposit from the TBs and Registered Non-Brokers. They will be allowed to set the limits for trading by TBs. CBs will also confirm the transaction done on behalf of the Registered Non-Brokers

once the trade is reported to them by exchange. CBs are required to maintain segregated accounts of the all the monies belonging to TBs and Registered Non-Brokers on behalf of whom they are clearing the trades.

d) Sub Broker

Sub-Broker is a registered Broker of the Exchange who has the right to execute transaction in the trading system of the exchange only through a TB/TCB. Sub Broker enters transactions in Exchange through Brokers. Sub Brokers introduce the clients to the Brokers. Sub-Brokers do not have the right to have contracts in their own name. Sub-Brokers will settle the transactions of clients introduced by them, through Brokers, who in turn settle through Clearing Brokers (TCBs or CBs). Sub-Brokers will enter into an agreement with the TB who would provide trading limits to them. Sub-Brokers are also required to obtain registration from Exchange.

1.1.9 The Role of Clearinghouse

Future clearinghouse is an independent corporation tat guarantees the every trade in futures exchange. Each futures exchange operates its own independent clearinghouse. For each transaction, obviously there is a buyer, usually called the long, and a seller, typically called the short. In the absence of clearinghouse, each party would be responsible to the other. If one party defaulted, the other would be left with worthless claim. The clearinghouse assumes the role of intermediary to each transaction. It guarantees the buyer that seller will perform and guarantees the seller the buyer will perform.

1.1.10 Daily Settlement and Margin Operation

To avoid the default of parties involved in the futures transaction, futures exchange requires certain margin deposit to be maintained by both parties. The loss or gain due to change in futures price settled by transferring amount from the loser to gainer. The gain and loss is settled daily (or even continuously) by considering closing price or average of some prices at the end of that day's transactions. Following example shows the procedure of margin account operation. For e.g. Suppose that the current price of December Gold future is Rs 400 per once. You purchased two gold futures. The contract size is 100 ounce. Thus, you have contracted to buy 200 ounce at this price. The broker requires Rs 2000 as margin deposit per contract and a maintenance margin of

Rs 1500 per contract. Therefore, your initial margin is Rs 4000 and maintenance margin is Rs 3000. The contract is entered into on June 5 at Rs 400 and closed out on June 26 at Rs 392.30. The table1.1 shows the daily gain or loss and margin call requirement hypothetically.

1.1.10.1 Closing out Future Position

The majority of futures contracts that are initiated do not lead to delivery. The reason is that most investors choose to close out their positions prior to delivery period specified in the contract. Making and taking delivery under the terms of a future contract is inconvenient and in some instance quite expensive.

This is true even for a hedger to close out the futures position and then buy or sell the asset in the usual way.

Closing out futures position involves entering into an opposite trade to the original one. For example, and investor who buys two Kartik gold future contracts on Bhadra 5 can close out position on Aswin 25 by selling (shorting) two Kartik gold future contract. Similarly, an investor who sells (shorts) Kartik gold futures on Bhadra 5 can close out position on Aswin 25 by buying Kartik gold future. In each case, the investor's total gain or loss is determined by the change in the futures price between Bhadra 5 and Aswin 25.

The Table1.1

The daily gain or loss and margin call requirement (Hypothetical)

Date-June	Settlemet Price Rs	Mark-to-market (daily gain/loss) Rs	Cumulative gain-or (loss) Rs	Margin Acount Balance Rs	Margin call Rs
June 4	400.00	-	-	4000	-
June 5	397.00	(600)	(600)	3400	
June 6	396.10	(180)	(780)	3220	
June 9	398.20	420	(360)	3640	
June 10	397.10	(220)	(580)	3420	
June 11	396.70	(80)	(660)	3440	
June 12	395.40	(260)	(920)	3080	
June 13	393.30	(420)	(1340)	2660	1340
June 16	393.60	60	(1280)	4060	
June 17	391.80	(360)	(1640)	3700	
June 18	392.70	180	(1460)	3880	
June 19	387.00	(1140)	(2600)	2740	1260
June 20	387.00	0	(2600)	4000	
June 23	388.10	220	(2380)	4220	
June 24	388.70	120	(2260)	4340	
June 25	391.00	460	(1800)	4800	
June 26	392.30	260	(1540)	5060	

1.1.11 Products and Participants

Derivative contracts are of different types. The most common ones are forwards, futures, options and swaps. Participants who trade in the derivatives market can be classified under the following three broad categories - Hedgers, Speculators, Arbitragers, day-traders/scalper & market makers.

Hedgers

Hedgers face risk associated with the price of an asset. They use the futures or Options markets to reduce or eliminate this risk.

Speculators

Speculators are participants who wish to bet on future movements in the price of an asset. Futures and options contracts can give them leverage; that is, by putting in small amounts of money upfront, they can take large positions on the market. As a result of this leveraged speculative position, they increase the potential for large gains as well as large losses.

Arbitragers

Arbitragers work at making profits by taking advantage of discrepancy between prices of the same product across different markets. If, for example, they see the futures price of an asset getting out of line with the cash price, they would take offsetting positions in the two markets to lock in the profit.

Spot versus forward transaction

Let us try to understand the difference between spot and derivatives contract.

Every transaction has three components like trading, clearing and settlement. A buyer and seller come together, negotiate and arrive at a price this is trading. Clearing involves finding out the net outstanding, that is exactly how much of goods and money the two should exchange.

For example ‘A’ buys goods worth Rs.1000 from ‘B’ and sells goods worth Rs.400 to ‘B’. On a net basis ‘A’ has to pay Rs.600 to ‘B’. Settlement is the actual process of exchanging money and goods. In a spot transaction, the trading, clearing and settlement happens immediately, i.e. on the spot. For example on 1March 2009, Darpan wants to buy some gold. The goldsmith quotes Rs.15000 per 10 grams. They agree upon this price and Darpan buys 20grams of gold. He pays Rs.30000 to the goldsmith and collects his gold. This is a spot transaction. Now suppose Darpan does not want to buy the gold on the 1 March, but wants to buy it a month later. Then the goldsmith quotes Rs.15050 per 10 grams. They agree upon the forward price for 20 grams of gold that Darpan wants to buy and Darpan leaves.

A month later, he pays the goldsmith Rs.30100 and collects his gold. This is a forward contract, a contract by which two parties permanently agree to settle a trade at a future date, for a stated price and quantity. No money changes hands when the contract is signed. The exchange of money and the underlying goods only happens at the future date as specified in the contract. In a forward contract the process of trading, clearing and settlement does not happen immediately. The trading happens today, but the clearing and settlement happens at the end of the specified period.

A forward is the most basic derivative contract. We call it a derivative because it derives value from the price of the asset underlying the contract, in this case gold. If on the 1st of April, gold trades for Rs.15100 in the spot market, the contract becomes more valuable to

Darpan because it now enables him to buy gold at Rs.15050. If however, the price of gold drops down to Rs.15000, he is worse off because as per the terms of the contract, he is bound to pay Rs.15050 for the same gold. The contract has now lost value from Darpan's point of view. "Note that the value of the forward contract to the goldsmith varies exactly in an opposite manner to its value for Darpan".

Day-traders/ Scalper

Day traders are speculators who take positions in spot, futures or options contracts and liquidate them prior to the close of the same trading day.

Market Maker

A market maker is a trader, who simultaneously quotes both bid and offer price for a same commodity throughout the trading session.

1.2 Statement of Problem

Being a new concept in case of Nepal the exchanges created their own structure of this transaction. The formulated structure should be internationally acceptable and efficient. Not only the structured the other great issue is about its trend. It can be accepted that commodity derivative also a major investment sector. Investors are being attracted in the market. So it needs to analyze on this trend to know about its current & future perspectives.

Commodity derivative is a very good investment mechanism which includes the grower/ farmer as well as business persons of commodity nationally & internationally. The market can play an effective role and can contribute to

uplift the national economy. The study set a basis to know the contribution of commodity derivatives market in investment environment.

There are numbers of concepts, theories, terms & ideologies to know in detail about commodity derivatives exchange. All the participants & related authorities like regulatory body, policy maker, commodity exchanges, brokers & investors should have up to date concepts and knowledge for the effective and efficient operation of the transactions. But there are lacks of those major & emerging concepts and still is in exercise period in Nepal.

The relevant concepts & ideologies should match as per the national economy plans, policies and level of awareness. There should be proper chances of utilizing & analyzing the concepts and it is possible only after the great practices in case of Nepal. It needs to analyze on the reliability and possibility to recommend the concepts in Nepalese perspectives because in Nepal commodity derivative is still in practice.

For the reasonable return over the investment, it is essential to know & use the required tools & techniques in this market. It also helps to forecast the future trend & price movements of commodity. So the participants of the market need to search & trained the effective forecasting tools & techniques.

Both share market and commodity derivative market are the major financial indicators of national economy. Investors are investing in both of the sectors. In both of the markets they should handle the different risks i.e. chances of being loss. So it is required to investors to know about the relationship between the markets for the ideal decision for their investment.

In reference of these statements the study has raised the following issues:-

1. What is the structure and trend of the future market in Nepal?
2. Is there any contribution of future/commodity derivatives markets in investment environment of Nepal?
3. What are the major and emerging concepts of future market (commodity exchange).
4. Can the concepts are reliable to recommend.
5. Are there any forecasting tools and techniques to forecast the future price of commodity?
6. Are there any relationship between share market and future market?

1.3 Objective of the Study

The prime objective of the study is to analyze the overall scenario of commodity derivative market and the factors of commodity future price in Nepalese perspectives. However, the specific objectives of the study are as follows:

1) To study and analyze the situation of commodity or future market in Nepal.
2) To observe and spot out alternative financial instrument for investment.
3) To introduce the analytical and reliable tools of forecasting about Nepalese commodity markets.
4) To present the investors attitude toward share market and commodity derivative.
5) To recommend the concern parties on the basis of major findings.

1.4 Scope of the Study

It can enhance some scopes which are the applied objectives or aim as well as a key for the investor of this study

1) To create speculative opportunities
2) For providing liquidity in the market.
3) It works to make the supply easy and grading of commodity according to their quality.
4) Hedge against the risk of change in price.

1.5 Significance of the Study (Rational of Study)

Future market has been essential nowadays for portfolio and diversified investment plan. People's frustration and unmonitored as well as unfair play in share market is the main matter to move toward future market. So the study is emerging and logical in current scenario of Nepal. The following aspects can be outline as the rational of the study:-

1) New concepts for Nepal.
2) Safe and easy investment than in share and securities with public awareness on the matters.
3) Investment facility in margin payment and its study.
4) Risk reduction using hedge limit or the investors
5) International dealing in the transaction.
6) Global major financial tools analysis for commodity exchange.

1.6 Limitation of Study

As far as practicable the will include the important aspects for the diplomatic presentation of the facts as per its objectives. Even that the study may have some limitations which are given below:-

1) The study has been conducted within the limited time bound and financial resources.
2) As the concept of commodity derivative market is new to Nepal, there is lack of sufficient literature in Nepalese context.
3) Access to reliable information is not easy due to non availability of sufficient data.
4) Sampling errors may occur in this study.

   Beside these limitations the study may tries to provide valid result as well as in depth knowledge of commodity market.

1.7 Organization of Study

This study is going divided into five chapters in which Background of study, statement of problem, objective of study, scope of study, significance of study, limitation of study and organization of study are in First chapter. Second chapter includes review of literature in which conceptual review are include. Third chapter will include research methodology in which research design, population and sampling, questionnaire, documentary are planned to include along with source and types of data, techniques of presentation will include. Forth chapter will combine the presentation and analysis of data in which there may include the tools of analysis, charts, figures and diagrams. The last i.e. fifth chapter is planned with summary and conclusion having recommendation of the study.

CHAPTEER II

REVIEW OF LITERATURE

Review of literature means going thoroughly in related books, articles, reports and research works. This helps or works as a bridge for readers, researchers and related organizations to get gist views of opinions from interested field of study. It also guides and directs to capture details knowledge if they are interested on such subject. Thus, this chapter is divided into two parts one is the conceptual part with spreading in-depth concepts and other is the review of earlier studies, which helps to develop a through understanding and insight into previous research.

2.1 Conceptual Framework

A review can be just a simple summary of the sources, but it usually has an organization pattern and combines both summary and synthesis. A summary is a recap of the important information of the source, but a synthesis is a re-organization, or a reshuffling, of that information. It might give a new interpretation of old materials or combine new with old interpretation.

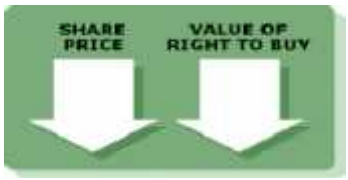
To express the relevant and true facts for the research purpose, this chapter highlights the literature available related to the study.

So in this chapter, the emphasis is given to review of major relevant literature on the derivative and commodity market. Similarly, this chapter also highlights on the importance aspects of the Nepalese commodity futures market. Every study is very much based passed as well as experts analytical based so past and expert's aspects can not be ignored because they provide the foundation to the recent study. To develop the concepts and ideas about the selected topic, the review of relevant materials have been made to look into a number of related books and publications, especially of those related to the derivative and commodity market. (Commodities Training, 2008-Zamb Technology Pvt.Ltd)

2.1.1 Derivative

Derivatives are contracts, whose value is "derived" from the price of something else, typically, 'cash market investments' such as stocks, bonds, money market instruments or commodities.

An equity derivative, for example, might give you the right to buy a particular share at a stated price up to a given date. And in these circumstances the value of that right will be directly related to the price of the "underlying" share: if the share price moves up, then the right to buy at a fixed price becomes more valuable; if it moves down, the right to buy at a fixed price becomes less valuable



This is but one example of a particular kind of derivative contract. However, the close relationship between the value of a derivative contract and the value of the underlying asset is a common feature of all derivatives.

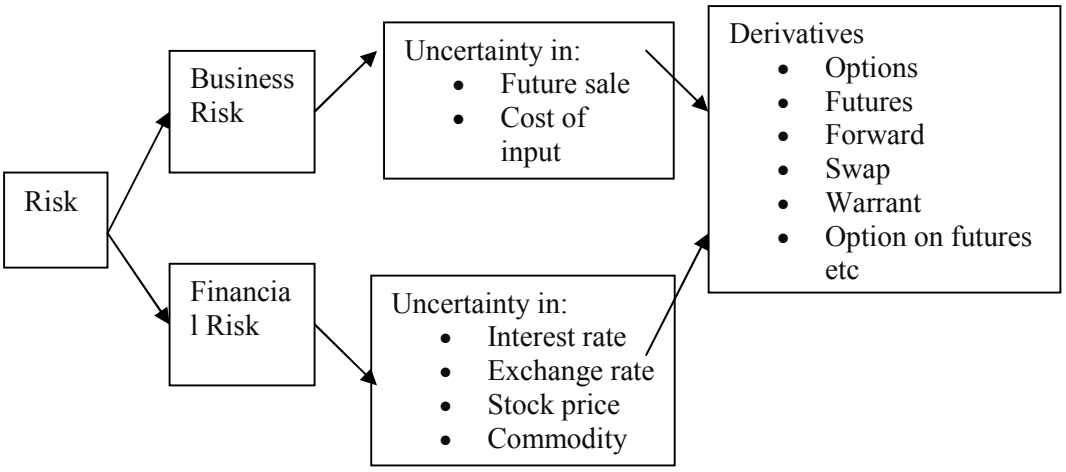
There are many different types of derivative contract, based on lot of different financial instruments; share prices, foreign exchange, interest rates, the difference between two different prices, or even derivatives of derivatives. The possible combinations of products are almost limitless. What then are derivatives used for? (htt:// www.financial-guide.ch/ica/derivtives)

2.1.1.1 Why Derivatives?

Every underlying asset will have a value that is affected by a variety of factors, therefore inheriting risk. Derivative contracts, due to the *leverage* that they offer may seem to multiply he exposure to such risks. However, derivatives are rarely used in isolation. By forming portfolios utilizing a varieties of derivatives and underlying asserts, one can substantially reduce her risk exposure, when an appropriate strategy considered.

Derivative contracts provide an easy and straightforward way to both reduce risk-hedging, and to bear extra risk-speculating. As noted above, in any market conditions every security bears some risk. Using active derivative management involves isolating the factors that serve as the sources of risk, and attacking them in turn. In general, derivatives can be used to

- hedge risks
- reflects a view on the future behavior of the market, speculate
- lock in an arbitrage profit
- change the nature of a liability
- Change the nature of an investment.



2.1.1.2 History of Derivatives

Derivatives trading began in 1865 when the Chicago Board of Trade (CBOT) listed the first "exchange traded" derivatives contract in the USA. These contracts were called "futures contracts". In 1919,the Chicago Butter and Egg Board, a spin-off of CBOT, was reorganized to allow futures trading. Its name was changed to Chicago Mercantile Exchange (CME).

The first stock index futures contract was traded at Kansas City Board of Trade. Currently the most popular stock index futures contract in the world is based on the Standard & Poor's 500 Index, traded on the CME. In April 1973, the Chicago Board of Options Exchange was set up specifically for the purpose of trading in options. The market for options developed so rapidly that by early 80s the number of shares underlying the option contract sold each day exceeded the daily volume of shares traded on the New York Stock Exchange. And there has been no looking back ever since. (Derivative Seminar,2008-Kathmandu)

2.1.2 Futures Contracts

Futures Contract is specie of forward contract. Futures are exchange - traded contracts to sell or buy standardized financial instruments or physical commodities for delivery on a specified future date at an agreed price. Futures contracts are used generally for protecting against rich of adverse price fluctuation (hedging). As the terms of the contracts are standardized, these are generally not used for merchandizing propose.

The following sentences deals about the various terminologies used in future contracts:-

2.1.2.1 Commodities Suitable for Futures Trading

All the commodities are not suitable for futures trading and for conducting futures trading. For being suitable for futures trading the market for commodity should be competitive, i.e., there should be large demand for and supply of the commodity - no individual or group of persons acting in concert should be in a position to influence the demand or supply, and consequently the price substantially. There should be fluctuations in price. The market for the commodity should be free from substantial government control. The commodity should have long shelf-life and be capable of standardization and gradation.

2.1.2.2 Determination of Future Price

Futures prices evolve from the interaction of bids and offers emanating from all over the country - which converge in the trading floor or the trading engine. The bid and offer prices are based on the expectations of prices on the maturity date.

How professionals predict prices in futures?

Two methods generally used for predicting futures prices are fundamental analysis and technical analysis. The fundamental analysis is concerned with basic supply and demand information, such as, weather patterns, carryover supplies, relevant policies of the Government and agricultural reports. Technical analysis includes analysis of movement of prices in the past. Many participants use fundamental analysis to determine the direction of the market, and technical analysis to time their entry and exist.

2.1.2.3 Possible to Sell, When One Doesn't Own Commodity

One doesn't need to have the physical commodity or own a contract for the commodity to enter into a sale contract in futures market. It is simply agreeing to sell the physical commodity at a later date or selling short. It is possible to repurchase the contract before the maturity, thereby dispensing with delivery of goods.

2.1.2.4 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.

What is a forward contract? A forward contract is a legally enforceable agreement for delivery of goods or the underlying asset on a specific date in future at a price agreed on the date of contract. All the contracts for delivery of goods, which are settled by payment of money difference or where delivery and payment is made after a period of specific days, are forward contracts.

2.1.2.5 Standardized Contracts

Futures contracts are standardized. In other words, the parties to the contracts do not decide the terms of futures contracts; but they merely accept terms of contracts standardized by the Exchange.

2.1.2.6 Customized Contracts

Forward contracts (other than futures) are customized. In other words, the terms of forward contracts are individually agreed between two counter-parties.

2.1.2.7 Delivery Mandatory in Futures Contract Trading

The provision for delivery is made in the Byelaws of the Associations so as to ensure that the futures prices in commodities are in conformity with the underlying. Delivery is generally at the option of the sellers. However, provisions vary from Exchange to Exchange. Byelaws of some Associations give both the buyer and seller the right to demand/give delivery.

2.1.2.8 N.T.S.D Contract

Non-Transferable Specific Delivery Contracts is an enforceable bilateral agreement under which the terms of contract are customized and the performance of the contract is by giving specific delivery of goods. The rights or liabilities under this contract cannot be transferred by transferring delivery order, railway receipt, bill of lading, warehouse receipts or any other documents of title to the goods.

2.1.2.9 The T.S.D. Contract

Transferable Specific Delivery contracts is an enforceable customized agreement where unlike known transferable specific delivery contracts, the right or liabilities under the delivery order, transport receipt, bill of lading, warehouse receipts or any other documents of title to the goods are

transferable. The contract is performed by delivery of goods by first seller to the last buyer. The parties, other than the first seller and the last buyer, perform the contract merely by exchanging money differences.

2.1.2.10 Long and Short Position

In simple terms, long position is a net bought position and Short position is net sold position.

2.1.2.11 Bull Spread (Futures)

In most commodities and financial derivatives market, the term refers to buying contracts maturing in nearby month, and selling the deferred month contracts, to profit from the wide spread which is larger than the cost of carry.

2.1.2.12 Bear Spread (Futures)

In most of commodities and financial derivatives market, the term refers to selling the nearby contract month, and buying the distant contract, to profit from saving in the cost of carry.

2.1.2.13 'Contango'

Contango means a situation, where futures contract prices are higher than the spot price and the futures contracts maturing earlier.

2.1.2.14 Futures Contract in 'Contango'

It arises normally when the contract matures during the same crop-season. In an well-integrated market, Contango is equal to the cost of carry viz. Interest rate on investment, loss on account of loss of weight or deterioration in quantity etc.

2.1.2.15 'Backwardation'

When the prices of spot or contracts maturing earlier are higher than a particular futures contract, it is said to be trading at Backwardation.

2.1.2.16 Futures Contract at 'Backwardation'

It is usual for a contract maturing in the peak season to be in backwardation during the lean period.

2.1.2.17 'Basis'

It is normally calculated as cash price minus the futures price. A positive number indicates a futures discount (Backwardation) and a negative number, a futures premium (Contango). Unless otherwise specified, the price of the nearby futures contract month is generally used to calculate the basis.

2.1.2.18 Cash Settlement

It is a process for performing a futures contract by payment of money difference rather than by delivering the physical commodity or instrument representing such physical commodity (like, warehouse receipt).

2.1.2.29 Offset

It refers to the liquidation of a futures contract by entering into opposite (purchase or sale, as the case may be) of an identical contract.

2.1.2.20 Settlement Price

The settlement price is the price at which all the outstanding trades are settled, i.e., profits or losses, if any, are paid. The method of fixing Settlement price is prescribed in the Byelaws of the exchanges; normally it is a weighted average of prices of transactions both in spot and futures market during specified period.

2.1.2.21 Convergence

This refers to the tendency of difference between spot and futures contract to decline continuously, so as to become zero on the date on maturity.

2.1.2.22 Delivery against Futures Contract

Futures contract are contracts for delivery of goods. But most of the futures contracts, the world over, are performed otherwise than by physical delivery of goods.

2.1.2.23 Why the proportion of futures contracts resulting in delivery is so low?

The reason is, futures contracts may not be suitable for merchandising purpose, mainly because these are standardized contracts; hence various aspects of the

contracts, viz., quality/grade of the goods, packing, place of delivery, etc. may not meet the specific needs of the buyers/sellers.

Why delivery of good is permitted when futures contract by their very nature not suitable for merchandising purposes?

The threat of delivery helps in dissuading the participants from artificially rigging up or depressing the futures prices. For example, if manipulators rig up the prices of a contract, seller may give his intention to make a delivery instead of settling his outstanding contract by entering into purchase contracts at such artificially high price.

2.1.3 Avoid Delivery Being Imposed Against Outstanding Purchase Contracts

All the Exchanges give option to the participants to liquidate their outstanding position by entering into offsetting contract, before the "delivery period" commences. There is no delivery if the contracts are so liquidated. The threat of delivery - whether in terms of physical goods or by warehouse receipts - becomes a reality once delivery period commences.

2.1.4 Buyer's Demand Delivery against Futures Contract

The Byelaws of different Exchanges have different provisions relating to delivery. Some Exchanges give the option to seller, i.e., if the seller gives his intention to give delivery, buyers have no choice, but to accept delivery or face selling on account and/or penalty. Some Exchanges trading contracts in some commodities provide the option both to buyer and seller. In some Exchanges, if the sellers do not give intention to give delivery, all outstanding short and long position is settled at the "Due Date Rate". (COMEN Bulletine, 2009)

2.1.4.1 Delivery Month

It is the specified month within which a futures contract matures.

2.1.4.2 Delivery Notice

It is a written notice given by sellers of their intention to make delivery against outstanding short open futures positions on a particular date.

2.1.4.3 Warehouse Receipt

It is a document issued by a warehouse indicating ownership of a stored commodity and specifying details in respect of some particulars, like, quality, quantity and, some times, indicating the crop season.

2.1.5 Futures Markets and "Satta" Markets

Participants in futures market include market intermediaries in the physical market, like, producers, processors, manufacturers, exporters, importers, bulk consumers etc., besides speculators. There is difference between speculation and gambling. Therefore futures markets are not "satta markets".

2.1.6 Speculation

Futures are an obvious choice to advantage from correctly anticipating a directional market move. These highly liquid contracts can be easily established and unwound. For a very bullish view you would buy futures, closing out the trade by selling once the price has moved up to realise a profit. For a bearish view you would sell futures, closing out by buying once the price has moved down to realize a profit

2.1.6.1 Need of Speculators in Futures Market

Participants in physical markets use futures market for price discovery and price risk management. In fact, in the absence of futures market, they would be compelled to speculate on prices. Futures market helps them to avoid speculation by entering into hedge contracts. It is however extremely unlikely for every hedger to find a hedger counterparty with matching requirements. The hedgers intend to shift price risk, which they can only if there are participants willing to accept the risk. Speculators are such participants who are willing to take risk of hedgers in the expectation of making profit.

Speculators provide liquidity to the market; therefore, it is difficult to imagine a futures market functioning without speculators.(Derivative Seminar,2009)

2.1.6.2 Difference between a Speculator and Gambler

Speculators are not gamblers, since they do not create risk, but merely accept the risk, which already exists in the market. The speculators are the persons who try to assimilate all the possible price-sensitive information, on the basis of which they can expect to make profit. The speculators therefore contribute in improving the efficiency of price discovery function of the futures market.

2.1.6.3 Over-Speculation may Curbed

In order to curb over-speculation, leading to distortion of price signals, limits are imposed on the open position held by speculators. The positions held by speculators are also subject to certain margins; many Exchanges exempt hedgers from this margins.

2.1.7 Design of Future Market

The most important principle for designing a futures contract is to take into account the systems and practices being followed in the cash market. The unit of price quotation, unit of trading should be fixed on the basis of prevailing practices. The "basis" - the standard quality/grade - variety should generally be that quality or grade which has maximum production. The delivery centers should be important production or distribution centers. While designing a futures contract care should be taken that the contract designed is fair to both buyers and sellers and there would be adequate supply of the deliverable commodity thus preventing any squeezes of the market.

2.1.8 The Benefits from Commodity Forward/Futures Trading

Forward/Futures trading performs two important functions, namely, price discovery and price risk management with reference to the given commodity. It is useful to all segments of the economy. It enables the 'Consumer' in getting an idea of the price at which the commodity would be available at a future point of time. He can do proper costing & also cover his purchases by making forward contracts. It is very useful to the 'exporter' as it provides an advance indication of the price likely to prevail and thereby helps him in quoting a realistic price and secure export contract in a competitive market. It ensures balance in supply and demand position throughout the year and leads to integrated price structure throughout the country. It also helps in removing risk of price uncertainty, encourages competition and acts as a price barometer to farmers and other functionaries in the economy.

2.1.9 Hedging

Hedging is a mechanism by which the participants in the physical/cash markets can cover their price risk. Theoretically, the relationship between the futures and cash prices is determined by cost of carry. The two prices therefore move in tandem. This enables the participants in the physical/cash markets to cover their price risk by taking opposite position in the futures market.

Illustration of Hedging by a Stockiest by using Futures Market

To illustrate the concept of hedging, let us assume that, on 1st December, 2008, a stockiest purchases, say, 10 tonnes of paddy in the physical market @ Rs. 1600/- p.q.. To hedge price-risk, he would simultaneously sell 10 contracts of one tonne each in the futures market at the prevailing price. Assuming the

ruling price in May, 2009 contract is Rs.1750/- p.q., the stockiest is able to lock in a spread of Rs. 150/- p.q., i.e., about 9% for about 6 months. The stockiest would, in the first instance, take the decision to purchase stock only if such a spread covers his cost of carry and a reasonable profit of margin. Assuming that the stockiest sells his stock in the month of April when the spot price is Rs. 1500/- p.q. The stockiest would incur a loss of Rs. 100/- p.q. on his physical stocks. He would also make a loss of expenses incurred for carrying the stocks. However, since the spot and futures prices move in parity, futures price is also likely to decline, say, from Rs. 1750/- p.q. to, say, Rs. 1625/- p.a. The stockiest can liquidate his contract in the futures market by entering into purchase contract @ Rs. 1625/- p.q. He would end up earning a profit of Rs. 125/- in the futures segment. Looking at the gain/loss in the two segments, we find that the stockiest is able to hedge his price risk by operating simultaneously in the two markets and taking opposite positions. He gains in the futures market if he loses in the spot market; but he would lose in futures market if he gains in the spot market. Similarly, processors, exporters, and importers can also hedge their price risks.

2.1.10 Benefit to Farmers by Future Market

World over, farmers do not directly participate in the futures market. They take advantage of the price signals emanating from a futures market. Price-signals given by long-duration new-season futures contract can help farmers to take decision about cropping pattern and the investment intensity of cultivation. Direct participation of farmers in futures market to manage price risk -either as associates of an Exchange or as clients of some associates- can be cumbersome as it involves meeting various associates criteria and payment of daily margins etc. Options in goods would be relatively more farmer-friendly.

2.1.11 Set off the Loss Incurred on the Futures Market be Against Normal Business Profit

Loss incurred in futures market by entering into contracts for hedging purposes can be set off against normal profit. The loss incurred on account of speculative transactions in futures market cannot be set off against normal business profit. This loss is however allowed to be carried forward for eight years, during which it can be set off against speculative profit.

2.1.12 Successful Futures Trading when the Cash Markets of the Underlying Commodities are Fragmented.

It is true that in order to attract wide participation, the cash market of commodities should be geographically integrated and free from Government restrictions on production, marketing and distribution, like limit on stock-holding, movement of goods etc. It is however not a bad idea to introduce futures trading in commodity without waiting for the cash market in the commodity to become geographically integrated. Existence of futures/derivatives market as well as wide use of derivatives in commodities to manage price risk would create conditions for the Government to consider dilution/withdrawal of Administered price mechanism.

2.1.13 Risks Faced by Participants in Derivatives Markets

The derivative market is one of the highly risky markets. It expose many types of risks to the participants.

Basically the five different types of risk faced by the market participants are listed below:-

a) Credit risk b) Market risk c) Liquidity risk d) Legal risk
e) Operational risk

2.1.13.1 Credit Risk

Credit risk on account of default by counter party: This is very low or almost zeros because the Exchange takes on the responsibility for the performance of contracts

2.1.13.2 Market Risk

Market risk is the risk of loss on account of adverse movement of price.

2.1.13.3 Liquidity Risk

Liquidity risks are the risk that unwinding of transactions may be difficult, if the market is illiquid.

2.1.13.4 Legal Risk

Legal risk is that legal objections might be raised; regulatory framework might disallow some activities.

2.1.13.5 Operational Risk

Operational risk is the risk arising out of some operational difficulties, like, failure of electricity, due to which it becomes difficult to operate in the market.

2.1.14 "National" Commodity Exchange

The best international systems and practices in respect of trading, clearing, settlement and governance structure and invited applications from associations - existing and potential - to set up National level of Commodity Exchanges by introducing such systems and practices. The term," National" used for these Exchanges does not mean that other Exchanges are restricted from having nationwide operations.

2.1.15 Role of an Exchange in Futures Trading

An Exchange designs a contract, which alone would be traded on the Exchange. The contract is not capable of being modified by participants, i.e., it is standardized. The Exchange also provides a trading platform, which converges the bids and offers emanating from geographically dispersed locations. This creates competitive conditions for trading. The Exchange also provides facilities for clearing, settlement, arbitration facilities. The Exchange may also provide financially secure environment by putting in place suitable risk management mechanism (margining system etc.), and guaranteeing performance of contract through the process of novation.

2.1.16 Cause of Collecting Margin by Exchange

The aim of margin money is to minimize the risk of default by either counter party. The amount of initial margin is so fixed as to ensure that the probability of loss on account of worst possible price fluctuation, which cannot be met by the amount of ordinary/initial margin, is very low. The Exchanges fix rates of ordinary/initial margin keeping in view need to balance high security of contract and low cost of entering into contract.

2.1.17 Margins Payable on Futures

Different margins payable on futures contracts are: Ordinary/initial margin, maintenance margin, mark-to-market margin, special margin, volatility margin, and delivery margin.

2.1.17.1 Initial/Ordinary Margin

It is the amount to be deposited by the market participants in his margin account with clearing house before they can place order to buy or sell a futures contract. This must be maintained throughout the time their position is open and is returnable at delivery, exercise, expiry or closing out.

2.1.17.2 Mark-to-Market Margin

Mark-to-market margins (MTM or M2M) are payable based on closing prices at the end of each trading day. These margins will be paid by the buyer if the price declines and by the seller if the price rises.

This margin is worked out on difference between the closing/clearing rate and the rate of the contract (if it is entered into on that day) or the previous day's clearing rate. The Exchange collects these margins from buyers if the prices decline and pays to the sellers and vice versa.

2.1.18 Cause of Daily collection of Mark-to-Market Margin in Commodity Market

Collecting mark-to-market margin on a daily basis reduces the possibility of accumulation of loss, particularly when futures price moves only in one direction. Hence the risk of default is reduced. Also, the participants are required to pay less upfront margin - which is normally collected to cover the maximum, say, 99.9%, of the potential risk during the period of mark-to-market, for a given limit on open position. Alternatively, for the given upfront margin the limit on open position would have to be reduced, which has the effect of restraining the trade and liquidity.

2.1.19 Volatility

It is a measurement of the variability rate (but not the direction) of the change in price over a given time period. It is often expressed as a percentage and computed as the annualized standard deviation of percentage change in daily price.

2.1.20 Client Account

Client Account is an account maintained for any individual or entity being serviced by an agent (Member), for a commission. A customer's business must be segregated from the Member's /principal's own business and clients' money should be kept in segregated accounts.

2.1.21 Client Agreement

It is a legal document entered into between the Member and the client setting out the conditions of their relationship and meeting the requirements of the relevant self-regulatory organization and the Regulator.

2.1.22 'Trade Guarantee Fund'

The main objectives of Trade Guarantee fund are (a) to guarantee settlement of bonafide transactions of the associates of the Exchange (b) thereby, to inculcate confidence in the minds of market participants' (c) to protect the interest of the investors. All the associates of the Exchange are required to make initial contribution towards trade guarantee fund of the Exchange.

2.1.23 Role of Clearing House

Clearing House performs post trading functions like confirming trades, working out gains or losses made by the participants during the course of the clearing period - usually a day-collecting the losses from the members and paying out to other who have made gains.

2.1.24 Novation

Some Clearing Houses interpose between buyers and sellers as a legal counter party, i.e., the clearing house become buyer to every seller and vice versa. This obviates the need for ascertaining credit-worthiness of each counter party and the only credit risk that the participants face is the risk of clearing house committing a default. Clearing House puts in place a sound risk-management system to be able to discharge its role as a counter party to all participants.

2.1.25 The Way of an Exchange to Ensure the Guarantee of the Performance of the Contract

The performances of the contracts registered by the exchange are guaranteed either by the exchange or it's clearing house. The exchange interposes itself between each buyer and seller thereby becoming a seller to every buyer and a buyer to every seller. The Exchange In order to safeguard its interest by imposing mark to market margin (which is clearing all the transactions at the closing price of the day. All the profits and losses are either paid in or paid out). This minimizes the chances of default as buyer or seller is exposed to one day of price movements. The Exchange also maintains its own TGF / SGF

which can be used in case of a default. The Exchange also puts in place criteria of associates and some of the new Exchanges have also prescribed certain minimum capital adequacy norms.

2.1.26 Associates of Exchange

2.1.26.1 The Chances of Security Member to Obtain the Membership of a Commodity Exchange

The current legal structure of country does not prohibit security Member from obtaining Membership of a Commodity Exchanges. The security Member will however have to set up a subsidiary - a separate legal entity - with separate capital adequacy and minimum net worth for being able to trade on a commodity exchange.

2.1.27 Legal and Regulatory Provisions for Customer Protection

As trading based on contractual form of agreement, so all the investors are protected legally about their trade as contract. Apart from that exchange it is regulating the behavior of its members, so customers are fully protected through legal way and from exchange's side as well.

2.1.28 Bucketing

Member is said to be indulging in bucketing, when he takes directly or indirectly, the opposite side of a customer's order either on his own account or into on account in which he or she has an interest, without executing the order on an Exchange. Appropriation of clients' trade without written consent constitutes unauthorized activities of Members.

2.1.29 Options in Commodities

Options in goods is an agreement by whatever name called, like, Teji-Mandi, under which buyer of the option (called as applier) pays a premium to the seller of option (called as writer of the option) for acquiring from him right to buy or sell the goods at a mutually agreed rate (called as strike price), in respect of which the premium amount is paid. When the buyer acquires right to buy, it is called as a "call" (Teji) and when he acquires right to sell it is called a "put" (Mandi) option. It is possible to acquire rights both to buy and to sell the goods; but in this case higher premium amount would have to be paid. The buyer acquires only right, i.e., he is under no obligation to buy or sell, as the case may be, at the mutually agreed price.

Options

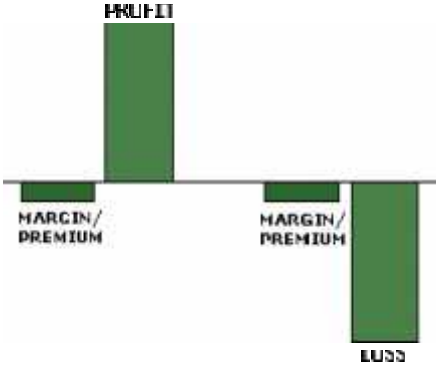
Currently COMEN is not introducing option trade in commodities. We are on the phase to build professional approach of investment behavior. When COMEN will be satisfied to its volume, demand for this segment of market with volume and professional approach to understand this market by brokers then we are planning to launch this segment of market for trade.

2.1.30 Leverage

Apart from the structure of the instrument itself, the source of a lot of the risk associated with derivative contracts stems from the fact that they are leveraged contracts.

Derivative products are said to be ‘leveraged’ because only a proportion of their total market exposure needs to be paid to open and maintain a position. This percentage of the total is called a ‘margin’ in futures markets; and a ‘premium’ in options markets. In this context, ‘leverage’ is the word used in all English-speaking derivative markets.Because of leverage your market exposure with derivative contracts can be several times the cash you have placed on deposit as “margin” for the trade, or paid in the form of a premium.

Leverage, of course, can work both in your favour and against you. A derivative which gives you a market exposure of 10 times the funds placed on deposit is excellent if prices are moving in your favour, but not so good if they are moving against you, as losses will mount up very rapidly (www.financial-guide.ch/ica/derivtives)



In other words, with leveraged positions, losses are magnified as well as gains. As we have already seen earlier in this module, futures contracts are contracts to buy or sell a specific underlying instrument at a specific time in the future, for a specific price. Buying (going long) a future commits you to buying the underlying at a future date.Selling (shorting) a future commits you to selling the underlying at a future date.

- All futures are exchange-traded contracts and they are standardized in terms of the delivery date, the amount of the 'underlying' they relate to, and the contract terms. They are also contracts with a limited lifespan - i.e. they expire after a certain date.
- Although futures contracts, if held till "delivery", lead to fulfillment of their commitments, generally speaking, very few contracts are taken to delivery. Instead, holders of futures positions will normally "close out" by selling the contract - thus avoiding the prospect of having to make/take delivery of the underlying.

2.1.30.1 Margin and Leverage

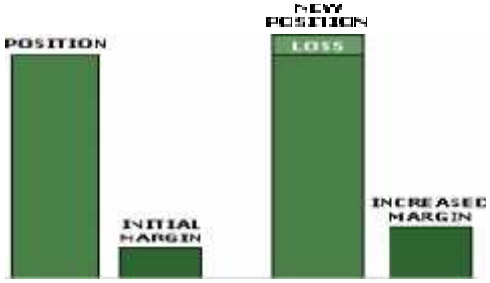
When clients wish to buy or sell a futures contract they instruct a broker, who will be a member of the exchange where the futures contract is traded. The broker will then instruct a market maker to execute the order on their behalf.

Unlike trading underlying markets, when you buy a futures contract, it doesn't involve actually paying for the full market exposure of the contract you have bought. Rather, the position is established at that price level. Profits or losses due to any subsequent price changes are paid out or received on a day to day basis.

A small percentage of the overall contract exposure is deposited as "margin" when a position is opened - so-called initial margin - and refunded on closing. The size of this margin bears a relationship to the likely price movements as well as the size of the position taken.

As long as the position is open this margin is marked-to-market on a daily basis. Marking-to-market simply means that the size of the margin is adjusted to take account of the end-of-day value of the open position. If the position has generated a profit this is credited to the contract holder's account and, indeed, they may be able to withdraw margin.

If the position has generated a loss then the customer must deposit additional funds to restore the margin to its initial level. This payment is called variation margin.



Apart from the small transaction cost per contract bought or sold, the initial and variation margin are all that an investor has to put up to control a much larger amount. For this reason, futures contracts, like other derivatives contracts, provide leverage.
Futures positions might be established for a variety of reasons.

2.1.31 Hedging (Insurance)

Since futures contracts effectively represent a certain exposure to the cash market at a future date, they can be used to offset the risks of holding a position in the underlying, acting as a "hedge" protecting the value of your holdings.

2.1.32 Tracking

The exposure represented through futures can also be utilised to "track" the performance of an underlying market without direct investment in it, therefore eliminating frictional costs and difficulties associated with building up an underlying position.

2.1.33 Tactical Asset Allocation

Futures can also be utilized where you want to gain short-term exposure to a particular market or product without having to commit the funds necessary to gain that exposure in the cash market.
To summarize, the key advantages of futures are:

- it is easy to open and close positions - the market is highly liquid
- leverage - you can buy exposure to price movements in a large amount of a given underlying with a relatively small outlay
- You can go "short" - you can sell a future with the intention of benefiting from a fall in price.

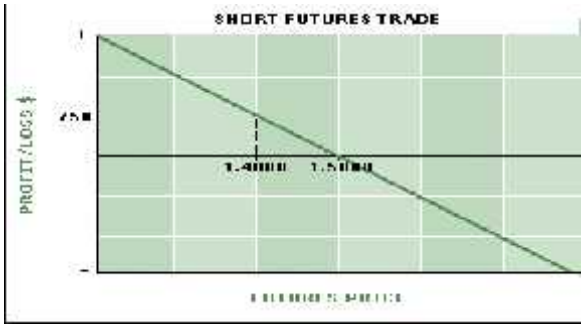
Speculating with futures contracts should not be undertaken without a thorough understanding of the market and risks involved. The highly geared nature of these products means that a sizeable market exposure can be established, far in excess of the funds on deposit.
Speculators need to consider risk/reward ratios, ways of limiting losses, and time horizons. They also need to plan their trades carefully. Many pure futures traders use detailed technical analysis in an attempt to work out potential price patterns. (Bhattarai, R, 2009)

Outlook

Suppose you are following the sterling/dollar exchange rate, believing sterling will weaken further against the dollar. Using CME British Pound futures, which are trading at $1.5000, you short the market at this level.

Price move

As expected, sterling continues to depreciate against the dollar, reflected by a decline in the futures price to $1.4880, or a 120 points movement. For the CME British Pound contract, each point movement is worth $6.25, so for one contract this means a profit of $750



Returns

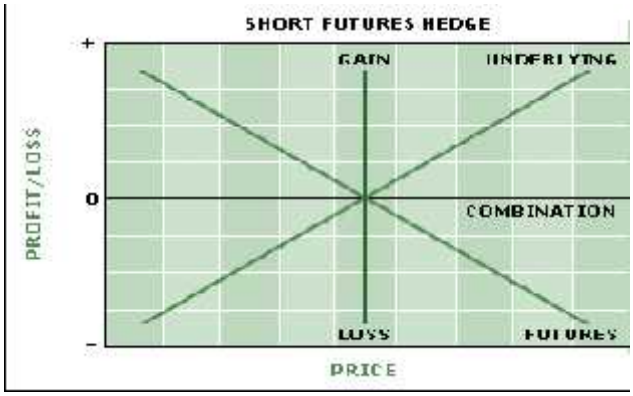
Although this contract is based on £62,500, it can be established with a "margin" deposit set by the exchange of $1,688, so the return in this case per contract of $750 represents a return of over 40%.

This is based on a movement in the exchange rate (as expressed in the futures price) of 0.012, out of $1.5000, or 0.8%. This clearly demonstrates the gearing potential of futures contracts.

Hedging is a risk reduction strategy whereby investors and traders take offsetting positions in an instrument to reduce their risk profile. The practice usually involves taking both a long and a short position in an instrument and so, usually, necessitates using financial derivatives with which it is possible to short sell.

Hedging strategies are also employed by professional fund managers to control the risk exposure of large managed funds. In this context, hedging is a more complex process as it involves a whole portfolio of different investments - each with its own unique risk/return profile.

Futures contracts can be an extremely useful heding tool. The principle of hedging is simple: as the value of your assets fall, the value of the hedge increases, therefore offsetting these losses.



In a perfect hedge the profit on the hedge will exactly offset the loss on your underlying position. However, most hedges are unlikely to be perfect, as there will be slight differences between the price movements of the derivatives you have chosen and your cash market holdings, or the number of derivatives contracts you buy doesn't exactly match the exposure you have. For e.g. you hold a diversified portfolio of shares, which broadly match movements in the Dow Jones Industrial Average (DJIA), and you anticipate a temporary fall in market value. You are unwilling to liquidate your portfolio as it is part of your long term strategy.

To protect the portfolio you could use index futures, which are available on all the major world markets. The exposure an index future gives is found by multiplying the value of the index future (i.e. what it is quoted at) by the value per point of the futures contract. The Dow Jones Industrial Average futures trading on the CBOT are worth $10 per point, so if the futures were quoted at 10,600 then one contract gives an exposure of 10,600 x $10 = $106,000.

Suppose your US portfolio is worth roughly $5m. In this case you would need $5,000,000 / $106,000 = 47 futures contracts to hedge your holdings. As you are long the market, you sell futures contracts in order to profit from any fall in price.

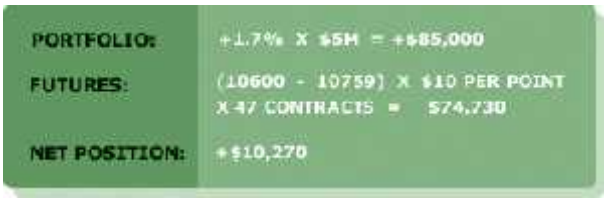
Let's assume that when the hedge is set up in January, the Dow is at 10580. By March, when the March futures contracts you have bought stop trading, the index is at 10400, a fall of 1.7%.With the index now at 10400, profits and losses are:

In this case, the hedge has actually over compensated for the loss in value of your equity portfolio.

PORTFOLIO:	-1.7% X $5M = -$85,000
FUTURES:	(10600 - 10400) X $10 PER POINT X 47 CONTRACTS = +$94,000
NET POSITION:	+$9000

Of course, if your expectations were wrong, and the index went up instead of down, then a profit would have been made on the portfolio, which would have been reduced by the loss on the hedge.

Let's assume the market had gone up by 1.7%. What would the net position have been:



In this case upside gains have been sacrificed by the presence of a hedge.

In reality, as we have already seen, the fact that you can close out whatever position you have adopted before expiry means you are unlikely to hold the hedge if your original view looks like it is going to be incorrect.

2.2 Theories and Tools of Derivative Analysis

2.2.1 Fundable Analysis

The fundamentalists are of the opinion that the value of commodity depends upon the anticipated future stream of returns and corresponding market condition. The condition is the overall scenario on the commodity

“Fundamental analysis involves making investment decision based on the examination of the economy, an industry, and company variables that lead to an estimate of value for an investment, which is then compared to the prevailing market price of the investment” (Reilly and Brown, 2000:31-32).

Fundamental analysis use public information to calculate a fundamental value for commodity, and then offer investment advice by comparing the fundamental value with the current market price. “Fundamental analysis is not possible if markets are semi-strong from efficient, since commodity price will already fully and fairly reflect all publicity available information” (Watson and Head, 1998:31-32).

Fundamental analysis approach involves working to analyze various factors like economic influences, industry factors, firm’s financial statement, and pertinent company information such as product demand, earnings, dividends and management in order to calculate an intrinsic value for the commodity.

The objective of fundamental analysis is to appraise the intrinsic value of commodity. The intrinsic value is the true economic work of financial assets.

Therefore, fundamental analysts work to find new information before other investors, so they can get into a position to profit from price changes they anticipate. Fundamental analysis use different models like Top-Down versus Bottom–up forecasting, probabilistic forecasting, econometric models, financial statement analysis etc. to estimate the value of commodity in an appropriate manner for making investment decision.

Some limitations of the fundamental analysis approach are as follows:

1. The approach though sound and based on basis financial figures dose suffer from drawbacks and to make this approach work effectively one must be aware of them.
2. The entire fundamental approach is based on a rational scientific analysis of data that the market is rarely rational.
3. The information and analysis itself may be incorrect.
4. Many companies with the help of creative/ innovative accounting and accounting cosmetics disguise real earnings.
5. The fundamentalist's estimate of intrinsic value may be incorrect. This is not only possible but also probable than not he has to often forecast growth, profit and other factors without having in his grasp all the facts.
6. The fundamentalists may not fully understand the economy or the industry, as there are several external factors.

Therefore, fundamental analysis is a never-ending process because values changes overtime. Ideally, revision in analysis should occur whenever new information affecting the future benefits to security holder becomes available.

2.2.1.1 Tools / Factors of Fundamental Analysis

a) Demand and Supply Condition

Demand and supply are the main economic variables that determine the price of commodity. Expected change in demand and supply of particular commodity also affects the current and expected future spot price. For example, price of corn decrease at the time of harvesting (Bhadra) and increases with the consumption in subsequent months. As shown by cost of carry relationship, future price is determined by the expected future spot price. Thus, analyzing the present and expected demand and supply condition is very important for futures traders. Not only domestic demand is important but also the demand in international market should also be considered. Some goods are not produced in country and imported form other country. For example gold, silver, petroleum, etc are goods not manufactured but imported in Nepal.

b) Export-Import

Export- Import are very common in today's globalize world. Import of goods increases the supply and may provide substitute for existing products. Conversely, export of goods decreases the supply that results in increased demand and price. What is the condition of export and import of listed goods should also be considered while pricing and trading of futures. Any anticipated change in the export and import policy of government also affects the demand and supply of particular goods which ultimately affects the price.

c) Consumption, Saving and Production

National production, national consumption and national saving are also the dominant variables that determine the export and import. If the national production is greater than the national consumption, there will be surplus or saving of goods which encourages the export. In contrary, if the national production is less than the national consumption, there will be the shortage of goods and import is encouraged. This situation affects the balance of payment and foreign currency reserve. This situation may result in the adjustment of foreign currency exchange rate. Traders trading in foreign currency futures/ forward should be conscious about the macro economic variables like national production, national level of employment of factor of productions, flow of foreign currency and level of interest rates etc.

d) Weather and Technology in Commodity Production

Production of agro-products heavily depends on the whether. In Nepal, there is no irrigation facility in most of the arable land. Farmers must depend on monsoon. If weather is not favorable, the production will be low and demand and price in future and present increase. This affects futures price directly. For example, if storm destroy the flowers of mango, the production will decrease and price will increase. Thus futures price of mango should also be set accordingly similarly. Technology used in Nepal is very traditional, therefore, production is low. If government announced subsidy in use of new technology, this may encourage farmers to such facility in production which increases the production. This increases supply and lowers the price.

e) Distance between Production and Consumption Centre and the Role of Transportation

If the distance between production and consumption centre is long, the transportation cost will be high. This increase the spot price of goods. And future price also reacts accordingly. Similarly the mean of transport also important in minimization of transportation cost. For example, there is huge

production of apples is Jumla but the road transportation is not available. If air transport is used, the cost will be very high. Similarly product imported from India will be available in cheaper cost. Therefore, the availability and mean of transport is also the factor that determines the price and demand of goods. Pricing and trading futures is also affected by the transportation.

In an another example, when the government of Nepal and Bangladesh open the direct road way (Fulbari Bangladesh Marg), pulse was exported to Bangladesh and there was shortage in Nepal and price was also high.

f) Stock Market Volatility and Derivative Prices

Derivative securities are derived from other assets. The change in the price of underlying asset brings the change in the price of derivatives. If any futures or forward to buy or sell stock of certain company, and the price of such stock is more volatile, the futures price of that stock will also be volatile. This provides gain to speculators. Good forecasters can get more benefit from volatile price than relatively stable price. Arbitragers can also get benefit by involving spot and futures transactions. Similarly, the investors in stock market may use futures/forwards to hedge against the risk arisen due to volatility in stock market.

g) Inflation

Inflation is the increase in general price level. If inflation is increasing, prices of goods will increase in future. Thus, futures prices should also be set accordingly with movement of inflation. On the other hand inflation also results in increase the futures price. The government's action to control or increase the inflation should also be considered. The monetary policy and fiscal policy are the government measures to increase and to decrease the inflation.

h) Government and Group Influences

Every business must operate in government's regulatory environment. Government policies may be favorable or adverse for business. Government influence may be direct regulation of indirect impact of policies related to the other sectors. For example, government's subsidy in use of new technology in agriculture, subsidy in fertilizer, subsidy in transportation, opening of cold stores etc, affect the production of agriculture commodities. Government policy regarding export and import of goods foreign direct investment and intervention of currency market directly affects the supply of goods and currency exchange rate which ultimately affects the futures price of commodities and foreign currency. Government announcement of implementing major plans such as mining cupper, building road in Jumla, implementing hydro projects also have indirect influence of the availability and

cost of commodities. Government tries to maintain right level of inflation in the country. For this monetary policy tools such as open market operation, cash reserve ratio (CCR) direct intervention in interest rate market are important. The future market participants should also analyze such policies and estimate the impact of them on their trading.

Similarly other interest groups may also put influence on futures trading directly of indirectly. For example FNCCI may oppose the price determination of COMEN.

2.2.2 Technical Analysis

Technical theory involves study of the past volume and price data of the commodity to predict future price fluctuations. This approach studies various graphs and charts of past product prices and deduces from the analysis about future price movement. The chartist seeks to predict future movement by seeking to interpret past pattern on the assumption that "history tends to repeat itself" (Kean, 1983:11).

"Technical analysis involves the study of commodity market prices in an attempt to predict future price movements. Past prices are examined to identify recurring trends or patterns in price movements. Then more recent commodity prices are analyzed to identify emerging trends or patterns that are similar to past ones. This analysis is done in the belief that these trends or patterns repeat themselves. By identifying an emerging trend or pattern, the analyst hopes to predict accurately future price movements for a particular commodity" (Alexander, Sharpe, and Bailey, 2001:12).

"Technical analysis is based on the widely accepted premise that commodity prices are determined by the supply and demand for commodity. The tools of technical analysis are therefore designed to measure certain aspects of supply and demand" (Francis, 1991:521-522).

"Technical analysis can be defined as the use of published market data for the analysis of both the aggregate commodity market and individual commodity. It is sometimes called market or internal analysis" (Jones, 1988:396). So, the technical analysis is based on the assumption that the past information of prices and trading of commodity provides some picture of the future prices of product. Technicians seek to forecast commodity prices rather that then commodity value, especially trends in the price changes.

Prices and volume are the primary tools of the technical analyst. Technicians believe that the forces of supply and demand show up in patterns of price and volume.

Volume data are used to gauge the general condition in the market and to help assess its trend. The evidence seems to suggest that rising (falling) commodity prices are usually associated with rising (falling) volume. If commodity prices rise but volume activity dose not keep pace, technicians would be skeptical about the upward trend. “A downside movement from some pattern or holding point, accomplished by heavy volume, would be taken as a bearish sign” (Jones, 1988:396).

The technician usually attempts to predict short-term price movements and thus makes recommendations concerning the timing of purchase and sales of either specific commodity or groups of commodity in general. “It is sometimes said that fundamental analysis is designed to answer the question “what”? And technical analysis to answer the question “when?” (Alexander, Sharpe, and Bailey, 2000:522). More especially the technical analyst seems to be trying to forecast short-run shifts in supply and demand that will affect the market prices of one or more commodities.

Typically, technical analysts record historical financial data on charts, study these charts in search of patterns that they find meaningful, and endeavor to use the patterns to predict future prices. “Some charts are used to predict movements of market index and, still others are used to predict the function of both individual assets and the market” (Frances, 522).

Technical analysis involves the examination of past market data, such as prices and the volume of trading which leads to an estimate of future price trends and, therefore, an investment decision is made feasible. Whereas, fundamental analysts use economic data that are usually separate from the commodity or derivative market, the technical analyst believes that using data from the market itself is a good idea because “the market is its own best predictor”. “Technical analyst base trading decisions on examinations of prior price and volume data to determine past market trends from which they predict future behavior for the markets as a whole and for individual commodity” (Reilly and Brown, 2000:870).

Technical analysis maintain that the price of a commodity at any time (present price) is the balance struck by buyers and sellers at a point in time price movements take place on account of changes in buying and selling pressures.

This occurs in account of diverse internal and external factors (profits, political environment, predictions and the likes).

Prices stabilize when equilibrium between buyers and sellers is achieved. They believe that record of price movements over, a period of time in the past, as the whole theory is based on the assumption that history repeats itself. “That human nature does not change and that man is likely to repeat his patterns of past movements will repeat them in the future” (Palat, 1991: 870).

“Technical analysis is essentially the search for recurrent and predictable patterns in commodity prices. Although technicians recognize the value of information regarding future economic prospects of the firm, they believe that such information is not necessary for a successful trading strategy. This is because whatever the fundamental reason for a change in commodity price, if the commodity price responds slowly enough, the analyst will be able to identify a trend that can be exploited during the adjustment period. The key to successful technical analysis is a sluggish response of commodity prices to fundamental supply-and demand factors. This prerequisite, of course, is diametrically opposed to the notion of an efficient market” (Bodie, Kane and Marcus; 2002:343).

“Technical analysis however may be useful in timing a buy or sell order that may be implied by the forecasts of return and risk. For example, the technical analysis may reveal that a drop in price is warranted. Postponement of purchase, then, if the technical analysis is correct, will raise the forecast holding period yield (HPY). Conversely, a sell order might be postponed because the charts reveal a raise in the price of the commodity in question” (Fisher and Jordon, 1995:510).

“The methodology of technical analysis rests upon the assumption that history tends to repeat itself in the commodity exchange. If a certain patterns of activity has in the past produced certain results nine times out of ten, one can assume a strongly likelihood of the same outcome whenever this pattern appears in the future. It should be emphasized, however that a large part of the methodology of technical analysis lacks a strictly logical explanation” (Sharpe, Flix, and Rosenfeld, 1975:297-298).

The basic assumptions underlying technical analysis are as follows (Francis, Edwards & Magee, 1958:86).

1. Market value is determined by the interaction of supply and demand.

2. Supply and demand is governed by numerous factors, both rational and irrational.
3. Commodity prices tend to move in trends that persist for an appreciable length of time, despite minor fluctuations in the market.
4. Changes in a trend are caused by the shifts in supply and demand.
5. Shifts in supply and demand, no matter why they occur, can be detected sooner or later in charts of market transactions.
6. Some Chart Patterns tend to repeat themselves.
7. “The pattern trends repeat it” (Reilly, 1986:348).

Various studies evidenced that technical analysis is useful in enabling investors to beat the market. Technical analysis, however, attempts to predict future commodity prices by analyzing past behavior of commodity prices. In general, tomorrow’s commodity price is influenced by to day’s price. The direction of price change is important as the relevant size of change. With the application of various tools, the technicians attempt to correctly catch changes in trend and take advantage of them.

2.2.2.1 Technical Analysis Indicators

a) Simple Moving Average

A Simple Moving Average is an of data calculated over a period of time. The moving average is the most popular price indicator used in technical analyses, and can be used with any price. High, Low, Open, Close or it can be applied to other indicators. Moving Average smooth a data series which is very important in volatile market. With a moving average is much easier to spot a trend.

Investopedia explains *Simple Moving Average – SMA*

In other words, this is the average stock price over a certain period of time. Keep in mind that equal weighting is given to each daily price. As shown in the chart above, many traders watch for short-term averages to cross above longer-term averages to signal the beginning of an uptrend. As shown by the blue arrows, short-term averages (e.g. 15-period SMA) act as levels of support when the price experiences a pullback. Support levels become stronger and more significant as the number of time periods used in the calculations increases.Generally, when you hear the term "moving average", it is in reference to a simple moving average. This can be important, especially when comparing to an exponential moving average (EMA).

Formula or Use of SMA-

The **simple moving average** (SMA) is the most basic of the moving averages used for trading. The simple moving average formula is calculated by taking the average closing price of a stock over the last "x" periods.

Let's take a look at a simple moving average example with MSFT. The last five closing prices for MSFT are:

28.93+28.48+28.44+28.91+28.48 = 143.24

To calculate the simple moving average formula you divide the total of the closing prices and divide it by the number of periods.

5-day SMA = 143.24/5 = 28.65

b) Relative Strength Index (RSI)

The Relative Strength Index is momentum oscillator which compares a upward movements of close price with downward movement resulting a value which range is between 0 and 100. The Relative Strength index is developed by J.Welles Wilder.

Financial Interpretation of RSI: The Relative Strength Index is useful for detecting Movement which is not readily apparent, and also as a Reversal signal using Divergence between the RSI and price (an RSI above 70 or below 30 warns of coming reversals). The Relative Strength Index is smoother than the rate of change.

Calculation: The Relative Strength index is calculated using following algorithm:

1. Average Upward Price Move = EMA(Sum of all upward movements in Closing price)

2. Average Downward Price Move = EMA(Sum of all downward movements in Closing price

3. Calculate Relative Strength (RS):

RS = Average Upward Price Move / Average Downward Price Move

4. Calculate the Relative Strength Index (RSI):

RSI = 100 - 100 / (1 + RS)

c) Commodity Channel Index (CCI)

Developed by Donald Lambert, the Commodity Channel Index (CCI) was designed to identify cyclical turns in commodities. The assumption behind the indicator is that commodities (or stocks or bonds) move in cycles, with highs and lows coming at periodic intervals. Lambert recommended using 1/3 of a complete cycle (low to low or high to high) as a time frame for the CCI.

It can be noted that the determination of the cycle's length is independent of the CCI.If the cycle runs 60 days (a low about every 60 days), then a 20-day CCI would be recommended. For the purpose of this example, a 20-day CCI is used.

There are 4 steps involved in the calculation of the CCI:

1. Calculate the last period's **Typical Price (TP)** = (H+L+C)/3 where H = high, L = low, and C = close.
2. Calculate the 20-period **Simple Moving Average of the Typical Price (SMATP)**.
3. Calculate the **Mean Deviation**. First, calculate the absolute value of the difference between the last period's SMATP and the typical price for each of the past 20 periods. Add all of these absolute values together and divide by 20 to find the Mean Deviation.
4. The final step is to apply the Typical Price (TP), the Simple Moving Average of the Typical Price (SMATP), the Mean Deviation and a Constant (.015) to the following formula:

CCI = (Typical Price - SMATP) / (.015 X Mean Deviation)

d) Accumulated Distribution

The accumulation distribution formula is an improved on balance volume indicator. This indicator uses a relationship between volume and price to estimate the strength of price movements. If volume is increased, there is a high probability that prices will move up.

Average True Range:- Average true Range is an indicator that measures commitment comparing the range between High, Low and close prices. This indicator is developed by J.Welles Wilder.

e) Exponential Moving Average

An exponential Moving Average of data calculated over a period of time where the most recent days have more weight. The exponential moving average can be used with any price. High, Low, Open, Close or it could be applied to other indicators. Exponential Moving Average smooths a data series which is very important in volatile market.

Time Series and Forecasting:- The Time Series analysis has two main goals: identifying the nature of the sequence of observations and predicting future values using historical observations (forecasting).

f) Standard Deviation

1. A measure of the dispersion of a set of data from its mean. The more spread apart the data, the higher the deviation. Standard deviation is calculated as the square root of variance.

2. In finance, standard deviation is applied to the annual rate of return of an investment to measure the investment's volatility. Standard deviation is also known as historical volatility and is used by investors as a gauge for the amount of expected volatility.

Investopedia explains Standard Deviation

Standard deviation is a statistical measurement that sheds light on historical volatility. For example, a volatile stock will have a high standard deviation while the deviation of a stable blue chip stock will be lower. A large dispersion tells us how much the return on the fund is deviating from the expected normal returns

The standard deviation is a measure of how spread out a set of numbers is. The standard deviation of a set of numbers is the square root of their variance. Variance is usually denoted by σ^2 and the standard deviation by σ, and:

$\sigma^2 = 1/n\ \Sigma(x_i - \mu)^2$

where x_i is one of n numbers and μ is the arithmetic mean all n numbers x.

Variance as a measure of risk

The most common use of the standard deviation in finance is to measure the risk of holding a security or portfolio. We first need the expected price:

$E[S] = \Sigma S_i p(S_i)$

where S is a price and $p(S_i)$ is the probability that S will be the actual price.

Denoting the variance of S, Var(S):

$Var(S) = \Sigma(S_i - E[S])^2 p(S_i)$

Var(S) is a measure of volatility. Its square root (the standard deviation) is the most widely used measure of volatility.

To use continuous times and prices replace the sums above with integrals.

g) Stochastic Oscillator (Fast, Slow, and Full)

The concept is developed by George C. Lane in the late 1950s, the Stochastic Oscillator is a momentum indicator that shows the location of the current close relative to the high/low range over a set number of periods. Closing levels that are consistently near the top of the range indicate accumulation (buying pressure) and those near the bottom of the range indicate distribution (selling pressure). The detail of its hypothetical calculation can see in appendix V.

In the calculated analysis, A 14-day %K (14-period Stochastic Oscillator) would use the most recent close, the highest high over the last 14 days and the lowest low over the last 14 days. The number of periods will vary according to the sensitivity and the type of signals desired. As with RSI, 14 is a popular number of periods for calculation.

%K tells us that the close (115.38) was in the 57th percentile of the high/low range, or just above the mid-point. Because %K is a percentage or ratio, it will fluctuate between 0 and 100. A 3-day simple moving average of %K is usually plotted alongside to act as a signal or trigger line, called %D.

h) Chaikin Oscillator

The Chaikin Oscillator indicators are the difference berween a 3-day exponential moving average and a 10-day exponential moving average applied to Accumulation Distribution. Using the Chaikin Oscillator, it is possible to monitor volume flow on the market. The Chaikin Oscillator should be used together with the price envelope

i) MACD & Mass Index Formula

The MACD indicators compares two moving average of prices. The MACD is used with its 9 days Exponential Moving Average as signal. These signals indicate buying and selling moments. This indicator is developed by Gerald Appel.

The Mass Index developed to predict trend reversal by comparing difference and range between High and Low prices. If the mass index going up, the range between High and Low is bigger. If the Mass index going down, the range between High and Low is smaller.

k) Triangular Moving Average

The triangular moving average (TMA) is a weighted average of the last n prices (P), whose result is equivalent to a double smoothed simple moving average (i.e. calculated twice).

It is the moving average (also known as the TMA) is similar to other moving averages in that it shows the mean price over a specified number of previous prices. However, the triangular moving average differs from most moving averages in that it is double smoothed (i.e. it is averaged twice). The triangular moving average can be calculated using various input data (prices, volume, or another technical indicator), but is most often calculated using prices. It can be calculated as below:

SMA=(P1+P2+P3+P4+.....+Pn)/n

TMA = (SMA1 + SMA2 + SMA3 + SMA4 + ... SMAn) / n

Trading Use

As with other moving averages, the triangular moving average can be used to identify a trend by using the slope of the average (or lack of slope in a ranging market). However, due to the additional smoothing, triangular moving averages tend to be smoother, and have more waves, than standard moving averages. Interestingly, triangular moving averages often appear more responsive to direction changes, even though the additional smoothing actually moves the dominant input value to the middle of the input series (which would decrease responsiveness).

l) Envelopers

The envelopers are plotted above and below a moving average using specified parentage. Envelopes indicators are used to crate signals for buying and selling. The percentage which will be used for calculating envelopes is specified by user and it depends on volatility of the market. If the market is more volatile the percentage is higher.

m) Median Price

Median price is mid-point value of daily prices. Median price could be used as a filter for trend indicators. It is also used as daily average price which is very useful if we want more simple view of prices.

n) Money Flow

The money flow indicator compares upward changes and downward changes of the volume weighted typical prices. This indicator is similar to relative strength index. The difference is in the volume weighted price. This indicator could be used to identify market tops and bottoms.

o) Trix

TRIX is a technical analysis oscillator developed in the 1980s by Jack Hutson, editor of Technical Analysis of Stocks and Commodities magazine. It shows the slope (i.e. derivative) of a triple-smoothed exponential moving average. The name Trix is from "triple exponential."

Trix is calculated with a given N-day period as follows:

Smooth prices (often closing prices) using an N-day exponential moving average (EMA).

- Smooth that series using another N-day EMA.
- Smooth a third time, using a further N-day EMA.

- Calculate the percentage difference between today's and yesterday's value in that final smoothed series.

Like any moving average, the triple EMA is just a smoothing of price data and therefore is trend-following. A rising or falling line is an uptrend or downtrend and Trix shows the slope of that line, so it's positive for a steady uptrend, negative for a downtrend, and a crossing through zero is a trend-change, i.e. a peak or trough in the underlying average.

p) Negative Volume Index

The Negative Volume Index should be used together with positive Volume index. The negative volume index is changed only if the volume decreases from the previous day.

q) On Balance Volume

The on Balance volume indictors which measure positive and negative flow. Volume is added if closing price moves up and subtracted if closing price moves down. The on Balance Volume is developed by Joseph Granville.

Performance: - The performance indicator compares current Close (or any other price) with the first close value (close value from the first time period). This indicator shows how much close price was changed from the beginning.

r) Typical Price

Typical Price is another approximation of average price for each period and can be used as a filter for moving average systems.

It is Calculated as: **(High + Low + Close) / 3**

Typical Price is a component of the Money Flow Index and Commodity Channel Index

s) Positive Volume Trend

The Positive Volume Index should be used together with Negative Volume Index. The positive volume index is changed only if the volume decreases from the previous day.

t) Weighted Moving Average

A weighted moving average is an average of data calculated over a period of time where the greater weights are attached to the most recent data. The weighting is calculated from the sum of days. The weighted moving average can be used with any price; high, low, open, close, or it could be applied to other indictors. Weighted moving average smooth a data series which is very important in volatile market.

u) Rates of Change

Rates of Change indicator is very close to performance indicator. Performance indicator compares the first price with current price and Rates of Change compares specified close price with current price. This formula is used for price and volume.

v) Price Volume Trend

The price Volume Trend is cumulative volume total which is calculated using relative change of the close price. The price volume trend is mostly used with other indicators.

w) Volume Oscillator

The volume Oscillator try to identify trends in volume comparing two moving average; one with short period and second with longer period.

x) Weighted Close

Weighted Close formula calculates average value of daily price. The only difference between typical price and weighted close is that closing price has extra weight as most important price. Weighted close could be used as a filter for trend indicators. It is also used as daily average price which is very useful if we want more simple view of price.

y) William's %R

Williams's %R is a momentum indicator. This indicator is used to measure overbought and oversold levels. This indicator is very similar to stochastic %k indicator, except that Williams %R is always negative value between 0 to -100. This indicator is developed by Larry Williams.

z) Bollinger Bands

Bollinger Bands are indicators that are plotted at standard deviation levels above and below a simple moving average. Since standard deviation is a measure of volatility, a large standard deviation is a good indicator for a volatile market, while a smaller standard deviation is an indicator of a calmer market. Bollinger Bands are a good way to compare volatility and relative price levels over a period of time.

2.3 Review of Previous Studies

Among the various studies over the time in the area of derivative market, some of the related studies have been conducted and analyzed.

2.3.1 Review of Journals, Articles & Book

Bhattarai (2009) in the article **"Commodities & Derivtives Jigyasa"** has mentioned the terms and terminologies about the commodities and derivatives. Form past few years people are investing their money in the commodity and derivatives market. On the scenario it is founded that the investors and the others participants along with the public and government bodies are enthusiastic to collect more in formations and recommendations about this market and transaction. That's why Bhattarai introduce the book in market to boost and for kind information about the derivative market to the all.

The book has mentioned some effective terms and terminologies along with suggestions and recommendations of derivative and commodity experts.

Pradhan (2009) in his article-**"Challenges for Commodity Market in Nepal"** has explained about the challenges and difficulties for commodity market in Nepal. In the article he mentions the condition and trading nature of existing commodity exchanges. He focus that the existing commodity and futures exchanges are not being able to meet the real objectives and terms of commodity and futures. On the article Mr Pradhan prior for the necessity of proper mechanism, authorized law, rules and regulation for the sustainable development of commodity market in Nepal. As he is an expert in the field, he has recommended some solutions to overcome with the current difficult situations on the market. (Pradhan-7th Jun2009, Abhiyan)

Bhattarai (2009) in his article**"Need of Legality and Trasarency**" has written that the derivative market is essential in case of Nepal . Some exchanges has been established under the registration of Company Registrar Office,Nepal even that according to it nature only company act is not suit for it there should be a separate legal provision for its operation and regulation. In some of the country the National Security Board regulate these kinds of derivative markets but its not possible immediately possible in case of Nepal because there are not any sections or provisions mention in the law of Security Board. There need some improvement or changes in the scope and law of Security Board to make it possible for the regulation of derivatives by Security Board of Nepal. There are the chances of fraud to the clients on the transactions and no guarantee on their deposit / margin as it is not being transparent up to now. Another the most risky matter is the lack of cash capacity of the exchanges to cover the contract of buy and sell of the commodity as per the contract. If it occurs the exchanges may quit at any time when they felt that problem and the clients may face that

crisis. Beside these, there are chances of cheating tax by the exchanges as there are not any specific tax mechanisms particularly for this sector. Because of these things it is essential to establish the Regulatory entity immediately before occurring any serious crisis on the derivative market of Nepal. The government should do the homework rapidly and seriously on this matter. (Bhattarai, Rabindra –Octover 2009,Himal Khabar Patrika)

Gorton & Rouwenhorst (2005) in their research paper **"Facts and Fantasies about Commodity Futures"** provides evidence on the long-term properties of an investment in collateralized commodity futures contracts. We construct an equally-weighted index of commodity futures covering the period between July 1959 and December 2004. We show empirically that there is a large difference between the historical performance of commodity futures and the return an investor of spot commodities would have earned. An investor in our index of collateralized commodity futures would have earned an excess return over T-bills of about 5% per annum. During our sample period, this commodity futures risk premium has been about equal in size to the historical risk premium of stocks (the equity premium), and has exceeded the risk premium of bonds. This evidence of a positive risk premium to a long position in commodity futures is consistent with Keynes' theory of "normal backwardation".

In addition to offering high returns, the historical risk of an investment in commodity futures has been relatively low – especially if evaluated in terms of its contribution to a portfolio of stocks and bonds. A diversified investment in commodity futures has slightly lower risk than stocks – as measured by standard deviation. And because the distribution of commodity returns is positively skewed relative to equity returns, commodity futures have less downside risk. Commodity futures returns have been especially effective in providing diversification of both stock and bond portfolios. The correlation with stocks and bonds is negative over most horizons, and the negative correlation is stronger over longer holding periods. We provide two explanations for the negative correlation of commodity futures with traditional asset classes. First, commodity futures perform better in periods of unexpected inflation, when stock and bond returns generally disappoint. Second, commodity futures diversify the cyclical variation in stock and bond returns.

On the basis of the stylized facts we have produced, two conclusions are suggested. First, from the point of view of investors, the historical performance of collateralized investments in commodity futures suggests that they are an attractive asset class to diversify traditional portfolios of stocks and bonds. Second, from the point of view of researchers, there are clearly challenges for asset pricing theory, which to date has primarily focused on equities.

Ribeiro & Hodges (2004) in the study T**wo-factor model for commodity prices and the corresponding futures valuation** they have presented a two-factor model for commodity prices and the corresponding futures valuation. This model extends Schwartz's (1997)[20] two factor model by adding two important features. First, the Ornstein-Uhlenbeck process for the convenience yield is replaced by a CIR process. This allows us to maintain the mean-reverting property of the convenience yield and additionally ensure that our model is arbitrage-free. Second, they consider both spot price and convenience yield volatilities proportional to the square root of the instantaneous convenience yield level. This implicitly reflects dependency between volatility of the state variables and commodity inventory levels, as predicted by the theory of storage.Their model adds valuable characteristics to the existing reduced form models in the literature and outperforms Schwartz's model although not significantly. Both models achieve very good results when valuating short-term maturity data but fail to reproduce long-term futures prices. This suggests further extensions of these models for future work to improve the valuation of futures contracts with long maturities. This is particularly relevant to evaluate long-term investments on commodities.

Bryan and Rafferty (2006) has mentioned in the book about the vitally interesting and innovative approach to finance, focusing on derivatives, whose rapid development since the 1980s transforms, according to the authors, not only the financial system but also the way capitalism works. Derivatives are often highly complex financial instruments that "derive" their value from some underlying asset. Instead of trading the asset itself, market participants agree to exchange some financial or other value at a future date based on the underlying asset. The payments between the counterparties may or may not correspond to the performance of the underlying asset.

The authors depart from a radical theoretical standpoint, declaring that Marxist theory had a “clear influence” on their analysis .However, they reject the common conception in many heterodox and Marxist approaches of a “dichotomy” between the “real economy” and a supposedly merely speculative financial sphere. Their main thesis is that financial markets play a decisive role in the expanded reproduction and accumulation of social capital

2.3.2 Review of Unpublished Thesis

Chakrabarti (2009) has mentioned about the evolution and condition of commodity market in India in his thesis“**CommodityFutures in India”.** The thesis is based on Indian economy and the introduction of derivative market in India. He has included the history of commodity in India and the development of commodity in the country along with the datas. According to him the first modern futures market was established in 1875 for cotton contracts by the Bombay Cotton Trade Association. The thesis included the functions and role of Forward Market Commission, which is the regulatory body of futures market. Besides that it describe about the trends in future markets and the road ahead for India,The organization and governance of futures exchanges, basics of future contracts and Futures trading volume around the world. By the thesis margin in India typically fall in the 5-10% range and one can start trading in commodities with as low a balance as Rs. 5,000. In addition there are brokerage and other fees. Brokerage charges usually range from 0.10-0.25 per cent of the contract value and generally higher for a contract resulting in delivery. There are also transaction charges of approximately Rs 6 to Rs 10 per contract. The brokerage varies from commodity to commodity and is below maximum limits set by the relevant exchange.

Sebastian Helfrich (2009) thesis about “**On the modelling, design and valuation of commodity derivatives**” has the introduction of fundamental concepts and techniques used in financial mathematics for valuing financial contracts dependent on stochastic processes, with reference to the framework. We extend this introduction to include further necessary preliminaries regarding interest rates and bonds.

The special matter of commodities is addressed in and discusses the modeling of convenience yield, the role of inventories, and provides a review of the literature on this subject. We then address the valuation of futures and forward contracts on commodity price for a select number of models and discuss the

intricacies of pricing these products. It also provides an introduction to futures options, detailing several types and their respective contractual features. Particular attention is paid to Asian options and a review of the relevant literature is provided. The chapter is concluded by introducing Monsoon options, a new type of contract that combines early-exercise with Asian features. Explaining how futures contracts may be used as an exogenously specified underlying for the valuation of futures options, based on their analytic solutions and characterized by a term structure of volatility. It propose a methodology for assessing option price behavior dependent on using the empirically obtained parameters of Schwartz (1997) as benchmarks then obtain analytic solutions for European options, where it study how the vts affects option prices depending on time, or time-to-maturity, followed by the derivation of analytic solutions to geometric fixed and floating strike Asian options, considering seasoned options. The thesis introduces the quad numerical integration method for valuing options, pioneered by Andricopoulos et al. (2003, 2004, 2007), and describes modifications to the curtailment range for application to processes possessing VTS. It combine quad with the analytic Asian option pricing methods of in order to value geometric Asian tail options, and in the process outlining a general approach to quad where the European payoff_ may be substituted with other contracts. We then price Bermudan futures options, where the call option possesses an early-exercise premium, and introduce another modification to the quad method where we vary curtailment ranges dependent on the location of the free boundary. The chapter is concluded by valuing geometric Monsoon options, treating them as early-exercise Asian tails in the quad framework. We highlight how prices of Monsoon options bridge between European, Bermudan, Asian tail, and vanilla Asian contracts. Consideration is given to the impact of the vts on prices of all contracts. It begin an introduction to the traded account method of Vecer (2002, 2001), which we apply to arithmetic fixed strike Asian futures options, suggesting improvements to the numerical implementation and valuing seasoned options.Then take a pragmatic approach to valuing the floating strike equivalents using a direct_nite-di_erence scheme, again considering the valuation of seasoned options.

CHAPTER – III

RESEARCH METHODOLOGY

3.5 Introduction

Research means to search or study about a phenomenon. The word research is composed by’re’ and 'search' where re means repeatedly or again and again, and search means to investigate or find. Thus to search again and again is research. Generally, research is an effort to search new fact, knowledge, and principle in scientific manner. Any systematic research study requires a proper methodology to achieve the set objectives. Research is a careful investigates or inquiry into any subject matter, which is an attempt to discover to find out proposed information or relationship that would be useful for further application. Research methodology is a systematic way of finding solution to a research problem i.e. systematic collection, recollection, recording, analysis, interpretation, and reporting of information. This chapter deals with the research methodology by which the collected data are analyzed to get the results. In other words it describes the methods and processes applied in the entire aspect of the study. This chapter provides the methodology followed to achieve the objectives stated in this research work. Detail research methods are described in the following headings. It refers to the various sequential steps to be adopted by a researcher in studying a problem with certain objectives in view. This chapter focuses on the research methodology used for the study on the derivative market of Nepal.

This chapter focuses and deals with the following aspects of methodology:

- Research Design
- Population and Sample
- Sources of Data
- Data Analyzing Methods

3.6 Research Design

Research design is the conceptual structure, plan or strategy of investigation within which research is conducted. Before making a research, the researcher needs to plan which help as a path in order to achieving goal.

Research design helps researcher to enable him to keep track of his action and to know whether he was moving in the right direction to achieve his goal.

This study covers quantitative methodology in a greater extent and also uses the descriptive part based on both technical aspect and logical aspect. This study is carried out to get the empirical result of the stock price movements. This research also tries to perform a well-designed quantitative research in a very clear and direct way using both financial and statistical tools as required by the study. All the data used in this study are secondary in nature. Though the research tried to concentrate on quite a specified subject area, it could not ignore some other relevant areas of study, which may give further support to the research. Moreover some subject matters are so interrelated that ignoring one may halt the whole research. Thus, this study is much diversified within the topic of market efficiency and Nepalese investors' behavior. It was historical data to develop generalization. It follows descriptive and analytical designs in the sense that it tries to find some fact about the Nepalese derivative market and the Nepalese investors.

3.7 Population and Sample

The large group about which the generalization is made is called the population under study. Because of the large group size, it is fairly difficult to collect detail information from each member of population. Rather than collecting detail information from each number, the small portion is chosen as representation of the population is called the sample. Altogether fifteen commercial banks operating in Nepal are considered to be the total population of the study. Due to lack of time and resource factor, it is not possible to study all of them. Hence, the Three Derivative Exchanges companies have been taken as sample which are listed and doing shares transaction in NEPSE from population.

The sample selections for this study are:

- Commodity and Metal Exchange Nepal Ltd (COMEN)
- Mercantile Exchange Nepal Ltd (MEX)
- Nepal Derivative Exchange (NDEX)

This study will try to explore the objectives set in the previous section and it is also expected that this study will help in analyzing the stock market scenario. This study is aimed at producing tested affect of historical as well as recent information on commodity exchange of Nepal.

3.8 Sources of Data

Once the purpose of statistical investigation has been defined, the next step is to collect the data, which are relevant for analysis in a meaningful manner. Thus collection of data is considered as an integral part of the research activity. The sources of information are generally classified as primary and secondary. Data collected by the researcher or through agent for the first time from related field and possessing original character are known as primary source or data. On other hand, data collected by someone else, used already and are made available to others in the form of published statistics are known as secondary data. Once primary data have been used, it loses its primary characteristics (originality) and becomes secondary.

In this study the main source for the data collection was the central office of Nepal Stock Exchange (NEPSE), NDEX,COMEN and MEX from their web sites, direct visit, interview and publications . The main source of data is annual report of the exchanges and their publications, newsletter, journals, articles and other publications published by different financial institutions and other useful resources are also taken in to consideration. The research is mainly based on secondary data. Primary data are collected through questionnaire and direct interview of the concerned person in the office. The Secondary data are collected through the annual report of the Exchanges, different text books and reference books from library, periodicals, newspaper cuttings, company's magazines, guidelines, unpublished thesis, previous research work etc. Besides this, other significant information are obtained from internet and various websites have been used.

3.6 Data Analyzing Methods

After the collection of data, an analysis of the data and the interpretation of the results are necessary because data collected from various sources might be in raw form. So, they cannot be used directly. Further, they need to be verified and simplified for the purpose of analysis. The obtained data should be classified and tabulated in the required format according to the nature of data and requirement of the study. Statistical and financial tools are used to analyze and interpret those data. After analyzing the collected data they are presented in bar diagram or pie diagram. Major findings of the study are based on the analysis and interpretation of data. Hence, analysis of data and their findings are the main body or heart of the study.

3.6.1 Tools Used in the Analysis

The tools are used for the analysis and interpretation of financial data. These tools can be used to get precise knowledge of a business, which are fruitful in exploring the strength and weakness of the major aspects and strategies.

3.5.1.1 Standard Deviation

Standard deviation, usually denoted by the letter σ (small sigma) of the Greek alphabet, which was first suggested by Karl Pearson as a member of dispersion in 1893. It is quantitative measure of total risk of assets. It provides more information about the risk of the asset. The standard deviation of a distribution is the square root of the variance of returns around the mean. The following formula is applied to calculate the standard deviation, using historical returns:

$$\pm X = \sqrt{\frac{\sum (X - \overline{X})^2}{N}} \quad \text{.....} \quad \text{.....} \quad \text{.....(i)}$$

Where,

σ_x = standard deviation of index

X = value of index

$\overline{X}$ = mean value of the index

n = number of observations in sample.

3.5.1.2 Coefficient of Variation

The relative measure of dispersion based on the standard deviation is known as the coefficient of standard deviation. The coefficient of dispersion based on standard deviation multiplies by 100 is known as the coefficient of variation (CV). It is suitable for comparing the variability, homogeneity or uniformity of two or more distributions. A distribution having less CV is said to be less variability or more uniformity homogeneity, consistency etc. and vice versa. The risk per unit of expected return can be measured by coefficient of variation, which is computed as follows:

$$\text{Coefficient of Variation (CV)} = \frac{\pm x}{\overline{x}} \quad \text{.....(ii)}$$

Where,

CV_j = coefficient of variation

$\overline{X}$ = mean value of the index

σ_x = standard deviation of index

3.5.1.3 Coefficient of Correlation

When the relationship is of quantitative nature, the appropriate statistical tool for discovering and measuring the relationship and expressing it in a brief formula is known as correlation. If the values of the variables are directly proportional then the correlation is said to be positive. On the other hand, if the values of the variables are inversely proportional, the correlation is said to be negative, but the correlation coefficient always remain within the limit of +1 to -1.

By Karl Pearson, the simple correlation coefficient r is

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - \left(\sum X\right)^2}\sqrt{N\sum Y^2 - \left(\sum Y\right)^2}} \quad \text{.....(iii)}$$

Where, r_{xy} = the correlation coefficient between two variables X and Y

Value of r lies between +1 to -1

When r = +1, there is perfect positive correlation

When r = -1, there is perfect negative correlation

When r = 0, there is no correlation

When r lies between 0.7 and 0.999, there is high degree of positive or negative correlation.

When r lies between 0.5 and 0.699, there is moderate degree of correlation

When r lies less than 0.5, there is low degree of correlation.

3.5.1.4 Probable Error

The probable error denoted by P.E. is used to measure the reliability and test of significance of correlation coefficient. Significance of relationship has been tested by using the probable error (P.E.) and it is denoted by the following model.

$$\text{Probable Error (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} \quad \text{..... } (iv)$$

Where, r = the value of correlation coefficient

n = number of pairs of observations

if r < P.E., the value of r is not significant no matter how high r value is i.e. there is no evidence of correlation between the variables.

if r > P.E., the value of r is significant i.e. correlation is significant.

if P.E. < r < 6 P.E., nothing can be concluded.

CHAPTER – IV

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter deals with data presentation, analysis and interpretation following the research methodology presented in the third chapter. Data presentation and analysis are the central steps of the study. The main purpose of this chapter is to analyze and elucidate the collected data to achieve the objective of the study following the conversion of unprocessed data to an understandable presentation. The chapter deals with the main body of the study.

Data presentation is the interpretation of the study. Data analysis summarizes the collected data and its interpretation presents the major findings of the study. Analysis is not complete without interpretation and interpretation cannot proceed without analysis. In this course of analysis, data gathered from various sources have been inserted in the tabular form and shown in diagram form. The data have been analyzed by using financial and statistical tools. The results of the computation have also been summarized in appropriated tables.

4.2 Brokerage Status of Exchange

Brokers are one of the key factors of any exchanges. The numbers of brokers and their transaction volume highlights the market participants, public involvement and the market size. In case of commodity derivative, it is a introducing market for Nepal ,even that from last few period it can be realized that the numbers of brokers are increasing significantly after the basic trainings provided by the consultancies and exchanges. The increasing numbers of brokers mean the increment in possibility of the scope of market so that it is essential to analyze on it. The following tables and diagrams has prepared on the basis of the data of COMEN and MEX of the year 2065/66.

Table 4.1

Commodities & Metal Exchange Nepal Ltd.

Numbers of Trading Brokers during F/Y 2065/66

(**Quarterly analysis)**

Quarter	Time Period	Numbers of Trading Brokers
1st Quarter	Shrawan 2065—Aswin 2065	10
2nd Quarter	Kartik 2065—Poush 2065	19
3rd Quarter	Magh 2065—Chaitra 2065	25
4th Quarter	Baishakh 2066--Ashad2066	34

Source-MEX Report

The table 4.1 shown that the numbers of brokers of COMEN are increasing as per the demand of market and because of the practices done by the exchange. In first quarter there are 12 brokers. Then after it has been increased upto 34 at the end of 4th quarter. Beside these COMEN have three clearing members (broker) .They are:-

a) Golden Investment Pvt. Ltd ,New Plaza
b) Muktinath Investment Pvt. Ltd, Putalisadak
c) Mass Capital investment Pvt. Ltd, Rabibhawan

Figure 4.1

Commodities & Metal Exchange Nepal Ltd.

Numbers of Trading Brokers during F/Y 2065/66

(**Quarterly analysis)**

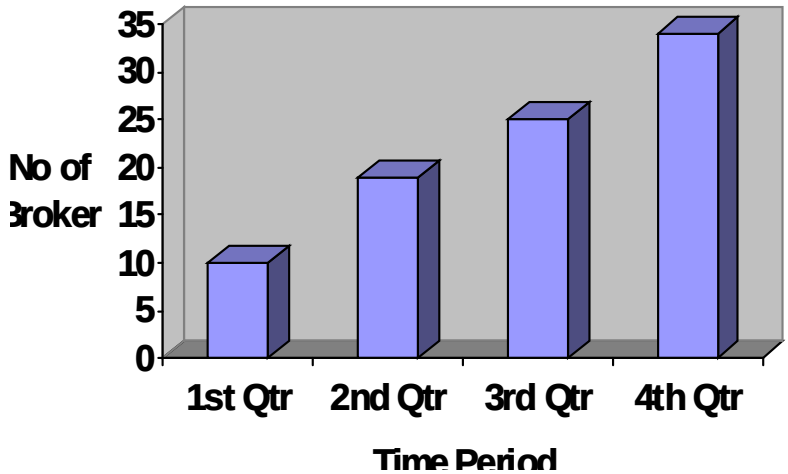


Table 4.2

Mercantile Exchange Nepal Ltd.

Numbers of Trading Brokers during F/Y 2065/66

(**Quarterly analysis)**

Quarter	Time Period	Numbers of Trading Brokers
1st Quarter	Shrawan 2065—Aswin 2065	12
2nd Quarter	Kartik 2065—Poush 2065	30
3rd Quarter	Magh 2065—Chaitra 2065	41
4th Quarter	Baishakh 2066--Ashad2066	56

S*ource-MEX Report*

As per the above data it can be said that MEX are getting more popularities in the commodity derivative market of Nepal so the numbers of brokers are also increasing in the market. Because of its sufficient, fast and dynamic procedures its market size is increasing and the demand of brokers in different places of Nepal are also required more for the trading. There were 12 brokers at the introducing period of MEX. But due to its dynamic and modern working procedure and reliable practices its brokers increased up to 56 at the end of 4th quarter of 2066. Beside this it has two clearing members (broker). They are:-

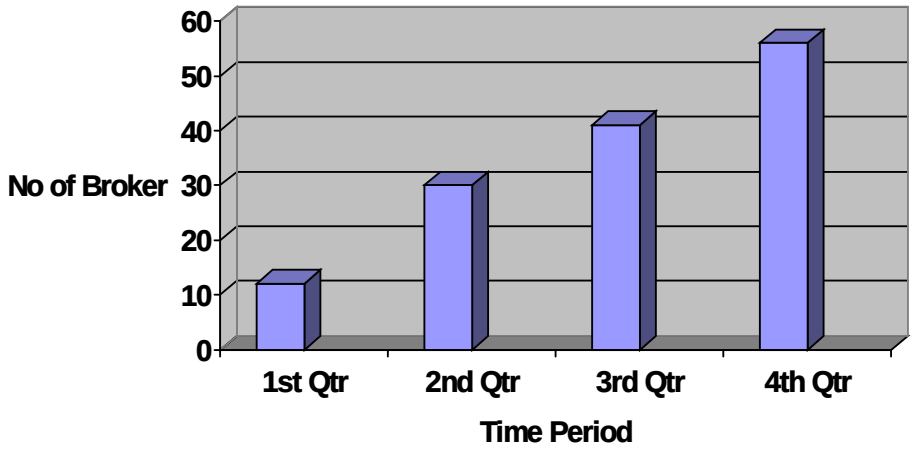
a) Axis Broking Solution Pvt. Ltd, Sundhara, Katmandu
b) Himalayan Commodity Brokers Pvt. Ltd, New Road, Katmandu

Figure 4.2

Mercantile Exchange Nepal Ltd.

Numbers of Trading Brokers during F/Y 2065/66

(**Quarterly analysis)**



4.3 Market Capitalization Percentage

Market capitalization percentage help to analyze about the investors interest and attitude towards the commodities on which they invest their amount. The choice of the product depend on its efficiency in trade, price fluctuating trend, availability of contract sizes, margin amount, knowledge on the commodity etc. It will be better to know about the confidence level of investors on specific commodity for the effective analysis on the commodity and to forecast for future trend on the commodity. So the following tables are developed to know about the different commodity status in Nepalese commodity derivative market in reference of the two commodity exchange's data of transactions on 2009.

Table 4.3

Market Capitalization Percentage in Metals (COMEN) of F/Y 2065/66

Name of Metals	Transaction Volume(in Unit)	Percentage
Gold	70771	97.56
Silver	1419	1.96
Copper	274	0.38
Zink	27	0.10
Total	72543	100

Source- COMEN Bulletin

The market capitalization of the COMEN listed metals from January,2009 till June,2009 shows major share of precious metal i.e98% followed by the gold contracts This shows gold contracts are popular among investors while other metals like silver, copper and zink are not frequently traded which may be due to the investors attitude towards the metals.

For the simplicity of data of table 4.3 can be presented in a simple pie chart has prepared as figure 4.3.

Figure 4.3

Market Capitalization Percentage in Metals (COMEN) of F/Y 2065/66

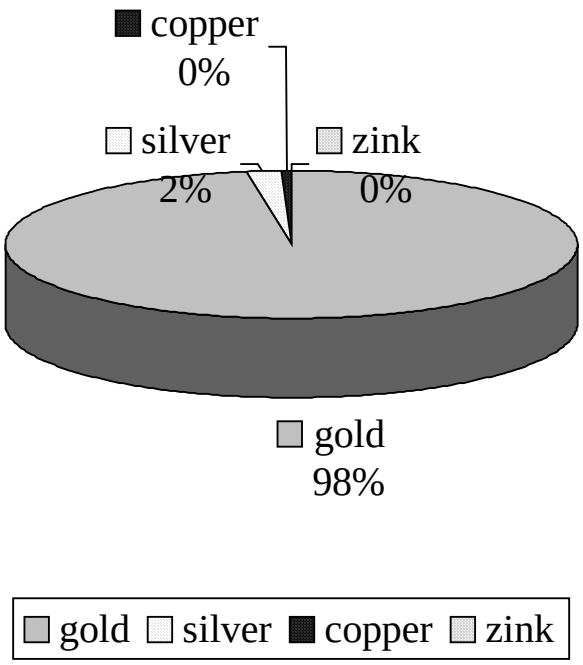


Table 4.4

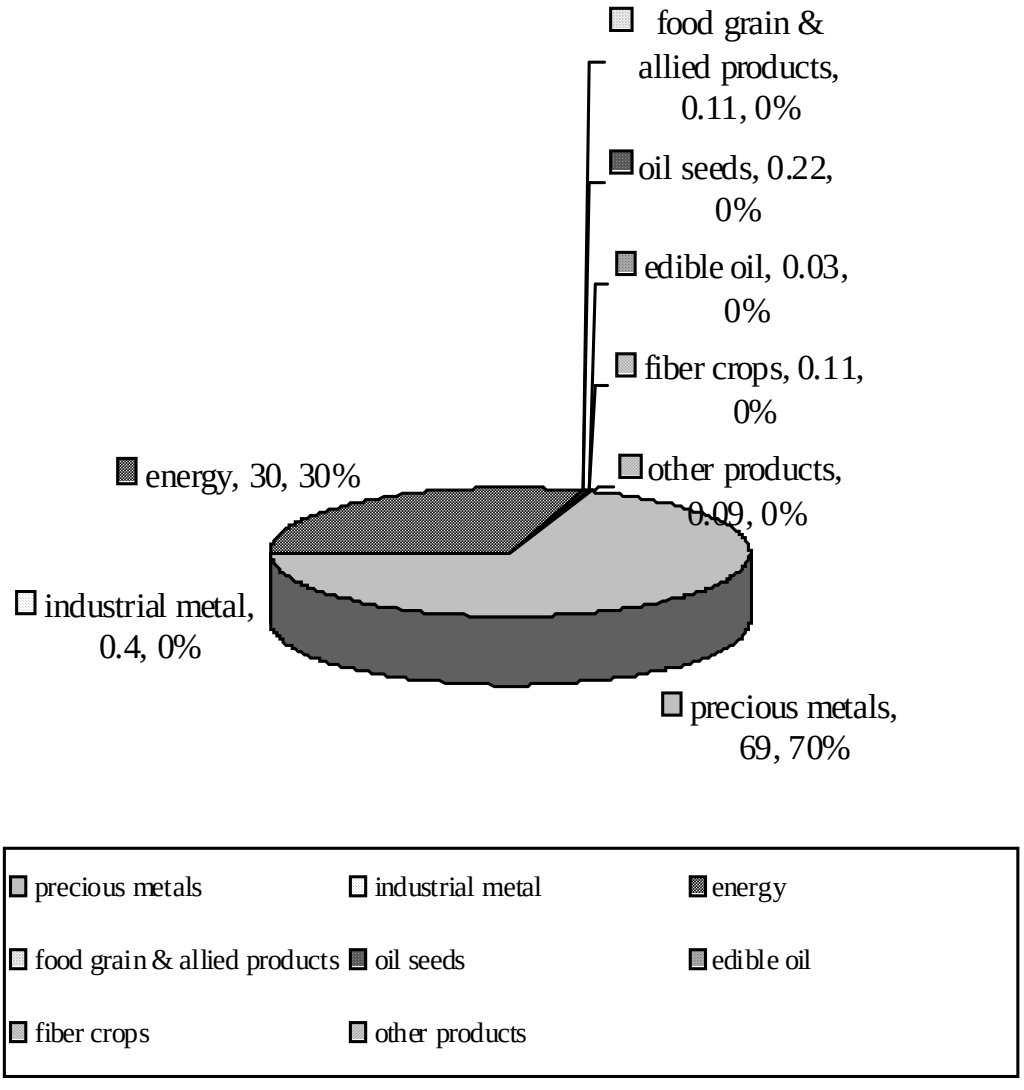
Market Capitalization Percentage (MEX)

Name of Commodity	Percentage
Precious Metals	69
Industrial Metals	0.4
Energy	30
Food Grains & Allied Products	0.11
Oil Seeds	0.22
Edible Oil	0.03
Fiber Crops	0.11
Other Products	0.09

S*ource-MEX Bulletin*

The market capitalization of the MEX listed commodities from January,2009 till June,2009 shows major share of precious metal i.e. 69% followed by the energy contracts with share of 30%. This shows precious metal and energy contracts are popular among investors while other contracts like fiber crops, oil seed and other products are not frequently traded which may be due to the lack of awareness among the investors.

Figure 4.4
Market Capitalization Percentage of F/Y 2065/66 (MEX)



4.4 Mean, Standard Deviation, Co-efficient of Variation & Correlation Coefficient Analysis (COMEN) of NEPSE & COMMODITY DERIVTIVE

Both security market and commodity derivative market are the great indicators of national economy. They both are the good investment areas for the investors. Nowadays it is being a big issue of investors about the relationship and impact on each other between the two markets. So that some calculation and analysis has been prepared on the issues of average transaction, risk factors and correlation of the two market.

The trading data of 2009 of both NEPSE Index & COMMODITY DERIVATIVE of COMEN has been used for the analysis and calculation on the following tables:-

Table-4.5

Mean, Standard Deviation & Co-efficient of Variation

Name of Exchange	Mean ($\overline{X}$)	Standard Deviation (±)	Co-efficient of Variation (c.v)
NEPSE	617.32	71.58	0.1160
COMEN	328.65	195.48	0.5948

Source-Appendix VI

Table-4.6

Correlation Co efficient between NEPSE & COMMODITY DERIVTIVE

Correlation Coefficient (R x1x2)	Probable Error (PE)	Remarks
-0.4334	0.1652	Insignificant Moderate degree of -ve correlation

Source-Appendix VI

Correlation Co efficient between NEPSE & COMMODITY DERIVTIVE
($R\ x_1x_2$) = -0.4334
Standard Error [S.E(r)] =0.2449
Probable Error (P.E) =0.1652
And 6 x P.E=0.9911

The statistical table no 4.6 clearly demonstrate that the degree of relationship between NEPSE & COMMODITY DERIVTIVE. The correlation coefficient recorded of NEPSE & COMMODITY DERIVTIVE seems to be insignificant with negative correlation. This indicates that increase in NEPSE causes to decrease in the transaction COMMODITY DERIVATIVE trading.

Here, the value of 'r' is less than six times P.E which reflects that there is no significant correlation between NEPSE & COMMODITY DERIVTIVE.

So we can conclude that, if independent variable NEPSE increases then it causes to decrease COMMODITY DERIVATIVE MARKET and vice-versa in case of negative correlation.

Similarly, the above comparative table 4.5 shows the standard of two components (markets) with their average as well as the standard deviation and coefficient of variation of the transaction covering the period from financial year 2009

Here, standard deviation is a representation of the risk associated with a given security. The overall concept of risk is that as it increases the expected return

on asset will increase as a result of risk premium earned. Here the SD of COMMODITY DERIVATIVE is higher than NEPSE .Similarly; higher coefficient of variation indicates more price fluctuation and vice-versa. Here, the CV of COMMODITY DERIVATIVE is more than CV of NEPSE. The above calculations of table 4.5 and 4.6 can see in appendix VI

4.7 Trading Volume and Capitalization (COMEN)

COMEN is the pioneer commodity derivative exchange for Nepal so it is necessary to look after the transaction volume of the exchange so that it can be forecast and realized the market condition and use of public fund on the market during a particular time period.

Realizing these matters the following data of transaction volume of COMEN during the year of 2065/66 has analyzed as follows:-

Table -4.7

Commodities & Metal Exchange Nepal Ltd.

Volume & capitalization in F/Y 2065/66

Date / Total	Shrawan 2065	Bhadra	Aswin	Kartik	Mangshir	Poush	Magh	Falgun	Chaitra	Baishakh 2066	Jestha	Ashad
Sum of unit	5636	2710	3897	4174	5523	5136	8873	9758	15792	9469	1335	240

Source- COMEN Dealing Department

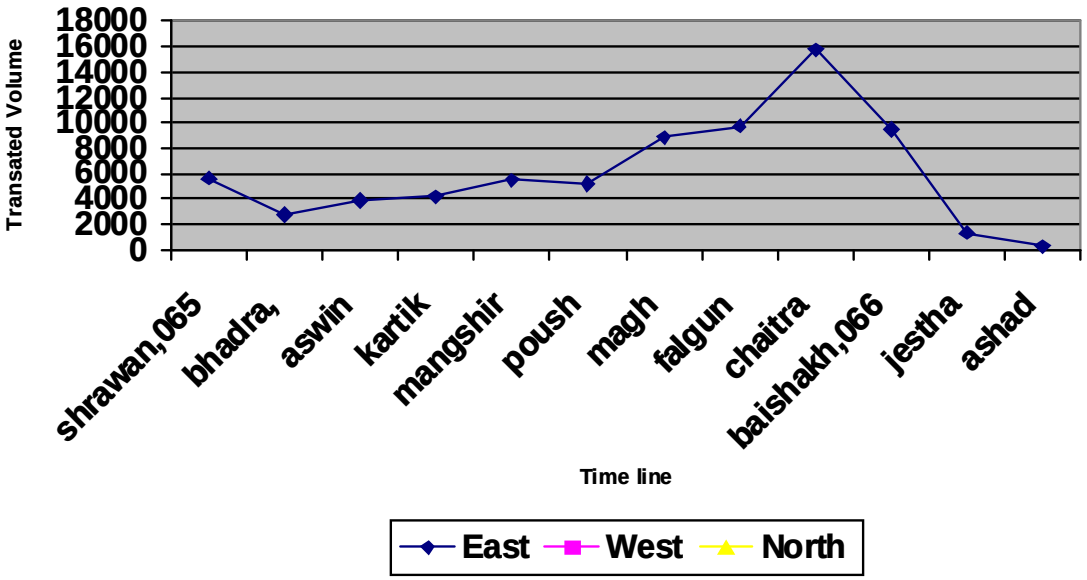
In the table it is presented the transaction volume of COMEN during the forth quarter base on the year 2065/66. we can see that the transaction volumes are fluctuating during the year like it was 5636 in Shrawan 2065 and decreased to 2710 in Bhadra then after, mostly it was taking upward movement. But due to the some changes in internal management of COMEN it became passive during the first few month 2066 so its transactions has decreased at that time.

Besides this, it can be said that the commodity derivative market is a volatile market as per the national and international economic and political factors and indicators. Which affect directly and indirectly in the Nepalese commodity derivative market? For its simple presentation the following diagram has been developed.

Figure 4.5

Commodities & Metal Exchange Nepal Ltd.

Volume & capitalization in year 65/66



4.8 Quarterly analysis of Trading Volume and Capitalization (COMEN)

To know about the periodic changes and status of trading volume and capitalization on the market its is required to analyze on the data quarterly. So the the available data of COMEN has divided into fourth quarter and shown below:-

Table 4.7

Commodities & Metal Exchange Nepal Ltd.

Volume & capitalization in F/Y 2065/66

(Quarterly analysis)

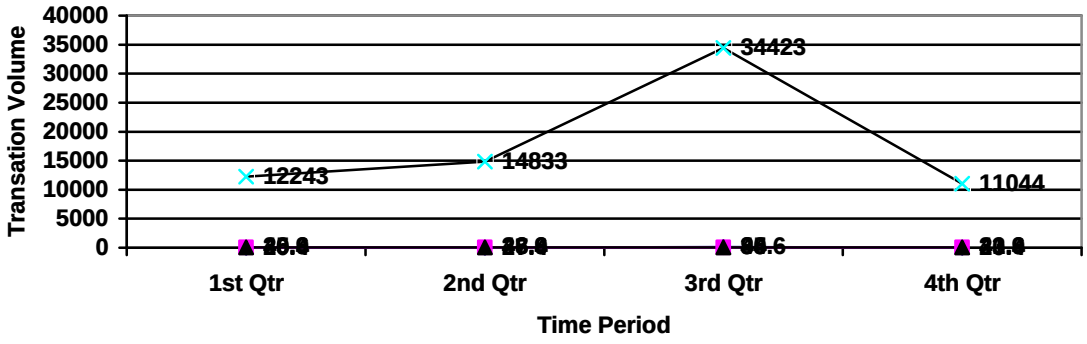
Quarter	Time Period	Transaction Volume (Unit)
1st Quarter	(shrawan 2065—Aswin 2065)	12243
2nd Quarter	(Kartik 2065—Poush 2065)	14833
3rd Quarter	(Magh 2065—Chaitra 2065)	34423
4th Quarter	(Baishakh 2066—Ashad 2066)	11044

Source: Dealing Department of COMEN

On the table 4.7 it can be seen that the trading volume was 12243 units in 1st quarter which slowly increased and touched the point of 14833 unit in 2nd quarter and increased fast in 3rd quarter to reach the point of 34423 units but it decreased in 4th quarter and declined to 11044 unit.

By this we can analyze that the commodity derivative market is moveable as per the national and international indicators like economy, inflation, demand & supply, employment etc which are also the indicators of stock market.
The data of table also can be shown in simple diagram as follow;-

Figure 4.6
Commodities & Metal Exchange Nepal Ltd.
Volume & capitalization in F/Y 2065/66
(Quarterly analysis)



4.7 An Empirical Analysis.

An empirical investigation conducted in order to find out various aspects of derivative and commodity trading in case of Nepal. The major tool used for this purpose was an opinion questionnaire, which was dispatched to 37 selected persons as sample size representing tax brokers and investors

The questionnaire was either asked for yes/no response or asked form alternatives where most one was important. For this purpose, structured questionnaire was developed and distributed to all the selected respondents in the field visits. The sample of questionnaire was shown in appendix-VII.

To analyze easily and identify views of the respondents it has been categories, selected respondents as sample size to make study easy and save the time and coded them as A and B. Considering the value of time, only 12 questions were developed to response.

The following table shows the groups of respondents and code used to represent them.

Table 4.8: Group of Respondents and Codes Used.

S.N	Group of respondents	Sample size	Code used
1	Brokers	12	A
2	Investors	25	B
	Total	**37**	

Brokers mean the selected registered brokers of derivative exchanges and those who are involving and investing in derivative market and who were in the contact with me during the period of field survey.

The structured questionnaire had been distributed to 37 respondents to know the respondents opinions about the main and reliable means of raising public revenue.

4.7.1 Awareness on Commodity Market.

Investment is a sensitive matter. So there should be full awareness of the sector in which the people are investing their time, effort and money. To know the whether investors are involving in derivative & commodity market with full awareness or not, the above structured questionnaire has been distributed & requested to choose the most correct one from the given options (yes/ no). How the respondents had responded? It has been tabulated as below.

Table 4.9 Awareness on Commodity Market.

Responses / Respondents	Yes		No		Total	
	No.	%	No.	%	No.	%
A	12	32.43	-	-	12	32.43
B	23	62.16	2	5.41	25	67.57
Total	35	94.59	2	5.41	37	100

Source: Field Survey 2010.

In the above table the respondents answers were classified according to the given structured question and options. In 37 respondents, 12 from Brokers and 25 from Investors showed positive response towards the awareness about commodity market but two investors are found unaware and investing without the full awareness. It found that 94.50% respondents are fully aware about the market and only 5.41% are unaware. So that we it can be concluded that the most of the participants of the commodity market are aware about the derivative commodity market.

4.7.2 The Most Preferable Commodity Exchange

It is necessary to know that among the three existing derivative & commodity exchanges which one is the mostly preferred exchange by the investors and brokers as per its mechanism & performances. So that the structured questionnaire has been distributed and their responses are recorded as in the table 4.10.

Table 4.10 The Most Preferable Commodity Exchange

Responses / Respondents	**COMEN**		**MEX**		**NDEX**		**Total**	
	No.	%	No.	%	No.	%	No.	%
A	4	10.81	7	16.22	2	5.41	12	32.43
B	7	18.92	13	35.14	5	13.51	25	67.57
Total	11	29.73	19	51.36	7	18.92	37	100

Source: Field Survey 2010.

The table state that 29.73% prefer COMEN, 51.36 prefer MEX and 18.92% prefer NDEX. So it comes to know that most of the brokers & investors prefer MEX for the transactions due to its performances and effective mechanism along with the dynamic facilities. That's means MEX is the has more market coverage than others two exchanges.

4.7.3 The Most Preferable Commodity for Investment

Among the umbers of commodities in the market, it is important to know the investors interest to invest in a particular commodity as per their knowledge and priority towards the commodities so the structured questionnaire has been distributed & observed the table 4.11.

Table 4.11 The Most Preferable Commodity for Investment

Responses / Respondents	**Metal**		**Agro-product**		**Energy**		**Total**	
	No.	%	No.	%	No.	%	**No.**	**%**
A	8	21.62	1	2.70	3	8.11	12	32.43
B	15	40.54	3	8.11	7	18.92	25	67.57
Total	**23**	62.16	4	10.81	10	27.03	37	100

Source: Field Survey 2010.

In the table 4.11, 23 respondents choused Metal,4 Agro-Product & 10 Energy to invest. 62.16% has chose metal and 10.81% selected agro product and remaining 27.03% preferred energy which show that metal is being the popular product for investment among the investors.Metal is the worldwide popular product so the investors' trend is being increase to invest on it that other product.

4.7.4 Perception Toward Commodity Market

To know about the perception of respondents towards commodity market the questionnaires has been distributed and have the following details:-

Table 4.12 Perception Toward Commodity Market

Responses / Respondents	**Risky**		**Very Risky**		**Less Risky**		**Total**	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
A	1	2.70	11	29.73	--	--	12	32.43
B	---	---	25	67.57	--	--	25	67.57
Total	1	2.70	35	97.30			37	100

Source: Field Survey 2010.

The table showed that only 1 respondents answered to be risky & others all 97.30% respondents perceived that the commodity derivative market is so Very risky and none of the respondent said that the market less risky during the research. That means commodity derivative is a highly risky sector. As per the perceptions of the respondents the investors bearing high risk investing in the market.

4.7.5 Commodity Market Advertisement (Hording, Print Media etc) are Explanatory Enough to give Needed Useful Information or Not?

Nowadays the exchanges are advertising their service using some of the advertising tools (hording, print media etc). It is essential to know that whether these practices being able to attract & to give reliable information to possible possible and existing investors or not? So that the structured questionnaire has been provided to the respondents and got the following result:-

Table 4.13 Commodity Market Advertisement (Hording, Print Media etc) are Explanatory Enough to give Needed Useful Information or Not?

Responses / Respondents	Yes		No		Total	
	No.	%	No.	%	No.	%
A	2	5.41	10	27.03	12	32.43
B	1	2.70	24	64.87	25	67.57
Total	3	8.11	34	91.90	37	100

Source: Field Survey 2010.

In the above table most of the respondent i.e. 91.90% said 'No' and very few i.e. 8.11% said 'Yes'. Hence the current practices are not so effective, it need to develop with good marketing & effective information strategies to make the

concern persons more aware & to provide them the close information about the market.

4.7.6 Current System of the First Commodity Exchange of Nepal COMEN.

COMEN is the 1st derivative and commodity exchange of Nepal. It is updating itself as pet the time, condition and competition. Even that, it is an important to adjust itself for betterment of its services in international standard. The table 4. 4.14 shows the respondents' vision, suggestion to the COMEN:-

Table 4.14 Current System of the First Commodity Exchange of Nepal COMEN

Responses / Respondents	**Good**		**Need To Improve**		**Bad**		**Total**	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
A	2	5.45	10	27.03	---	---	12	32.43
B	7	18.92	18	48.65	---	---	25	67.57
Total	9	24.37	28	75.68	---	---	37	100

Source: Field Survey 2010.

By the table it is clear that 24.37% respondents viewed that COMEN doing well & the present services are good whereas 75.68% viewed that the COMEN need to improve its services further and none of the respondents viewed that COMEN is bad.

Due to the introductions of advance & fastest services in the market the brokers & investors wants to used them through COMEN also for the efficiency in their investment.

4.7.7 The Purpose of Introducing in This Market

Investors are being attracted in this market day by day. To know about the cause of this trend of investors towards the market the respondents are asked the structured questionnaire and their responses are tabulated.

Table 4.15 The Purpose of Introducing in This Market

Responses / Respondents	As an alternate Of share market		As the lack of Other investment sector		To learn about it		Total	
	No.	%	No.	%	No.	%	No.	%
A	7	18.92	5	13.51	---	---	12	32.43
B	8	21.62	14	37.84	3	8.11	25	67.57
Total	15	40.54	19	51.35	3	8.11	37	100

Source: Field Survey 2010.

As per the above table, respondent A(Brokers) are in this market as an alternate of share market & the rest 5 brokers are involving in this market due to lack of other investment sectors. In case of respondents B (Investors),8 of the investors are investing in this market as alternate of share market, 14 are in this market due to lack of investment sectors and the rest 3 are in this market to learn about its practical aspects.

Hence, it can be said that this market is being one of the new investment sectors as well as alternate of share market. Most of the investors are enjoying the sector for their investment to utilize their idle money and few are investing to learn it.

4.7.8 Knowledge about RSI & Hedging

RSI & Hedging both are the important terms of derivative market. RSI is the tools which help the investor to forecast the trend of the market and hedging is the aspect used to diversify the risk. So these two aspects should know by investors as well as by the brokers. The respondents' responses are shown in the table:-

Table 4.16 Knowledge about RSI & Hedging

Responses / Respondents	Yes		No		Total	
	No.	%	No.	%	No.	%
A	12	32.43	---	---	12	32.43
B	24	64.87	1	2.70	25	67.57
Total	36	97.30	1	2.71	37	100

Source: Field Survey 2010.

In the above table, all the respondents 'A' responded that they know about RSI & Hedging and 24 respondents 'B' also said that they know it but 1 investor is found unknown about these tools.

Due to the 97.30% positive answer, it can be conclude that the participants of this market have the good knowledge of RSI & Hedging and few participants need to train more about the tools.

4.7.9 The Most Effective Means of Information for This Market

It is essential to get the effective information to suggest someone & to trade. So it is vital to choose the best means of information for both broker and investors. Among the different means the preference level of respondents are shown by the table below:-

4.17 The Most Effective Means of Information for This Market

Responses / Respondents	T.V channel		Internet		Newspapers		Total	
	No.	%	No.	%	No.	%	No.	%
A	1	2.70	11	29.73	---	---	12	32.43
B	4	10.81	19	51.35	2	5.41	25	67.57
Total	5	13.51	30	81.08	2	5.41	37	100

Source: Field Survey 2010.

In the table 13.51% respondents preferred TV Channel, 81.08% preferred Internet & rest 5.41% preferred Newspapers / magazines as the effective means of information.

Hence, internet can be use as the best source of effective, reliable and effective sources of information than the TV Channels and other print Medias.

4.7.10 Involvement in This Market

There are some differences in traders and brokers. Some are taking this derivative market as their profession but some involving in this market just as the alternative way of their daily transactions or works. To get the clear information about the investors and brokers participations, the structured questionnaire has been given to the selected respondents and drawn the following table:-

Table 4.18 Involvement in This Market

Response / Respondents	Daily		Once a week		Once a month		Seldom		Never		Total	
	Nos	%	Nos	%	Nos	%	Nos	%	Nos	%	Nos	%
A	11	29.73	1	2.70	-	-	-	-	-	-	12	32.43
B	19	51.39	3	8.11	3	8.11	-	-	-	-	25	67.57
Total	30	81.12	4	10.81	3	8.11	-	-	-	-	37	100

Source: Field Survey 2010.

The table show that 81.12% respondents are involving in the trade everyday, 10.81% involve once week and 8.11% involve once a month.

Therefore it can be conclude that most of the people who are doing trade in this market, they are taking it as a part of their daily life and in professional way. Few are those people who invest as per their credit time and stock of money i.e. weekly & monthly.

4.7.11 Factors Affecting for Price Movement.

There are some factors which directly affect the price movement or price of the commodity. Those prices affecting variable need to measure as per their weight of effect towards the price. Investors and brokers are familiar with the factors so the questionnaire has been distributed to them to have weight or rank. The respondent's acceptance or rejections on the rank created are viewed in the table.

Table 4.19 Ranking of Variables (Factors Affecting Commodity Future Price)

S.N	Variables	Rank
1	Financial indicators	I
2	International economic system	II
3	Political Situation	III
4	Change in rules & regulations	IV
5	International company's rules & regulations	V
6	Investors attitude	VI
7	Whims and rumor	VII

Table 4.20 Response on The Rankings of Variables

Responses / Respondents	Accept		Reject		Total	
	No.	%	No.	%	No.	%
A	12	32.43	---	---	12	32.43
B	23	62.16	2	5.41	25	67.57
Total	35	94.59	2	5.41	37	100

Source: Field Survey 2010.

The table interpreted that the rank has been developed/proposed as per the respondents. By the acceptance of 94.59% respondents the rank of the variable has been approved.

Hence, investors can invest and forecast the price movement as per the franked variable and the data including in formations of the variables. At first the investor should look at financial indicators of the international financial market then after that other factors as given in the table should be clearly need to analyze before investment.

4.7.12 The Basis of Your Decision to invest on Commodity Derivative

Investor tries to invest ideally as far as possible. They decide to invest in their own way or as per the time and condition along with some advice of persons. To know about the decision making attitude of investors the structured questionnaire has distributed to the investors and prepared the table below:-

Table 4.21The Basis of Your Decision to invest on Commodity Derivative

Response	Rumor		Current market price		Experts' advise		Own analysis		Total	
Respondents	Nos	%	Nos	%	Nos	%	Nos	%	Nos	%
A	-	-	3	8.11	2	5.41	6	16.22	12	32.43
B	5	13.51	10	27.03	6	16.22	4	10.81	25	67.57
Total	5	13.51	13	35.14	8	21.63	10	27.03	37	100

Source: Field Survey, 2010.

In the table we can see that 13.515 investors investing just in rumor. 35.14% investing as per the current price and trend, 21.63% investing in reference of experts' advice and rest 27.03% invest in their own analysis.

Hence, most of the investors are there who are investing looking at the market trend and price movement which is a good basis of investment. Investors are aware to have experts' advice which is also one of the best way or basis of taking investment decision and some others especially brokers are investing as per their own analysis because they are already well trained. Some of the investors still need to train well because they are investing in rumors.

4.8 Major Findings

Findings are the main points which were taken out or perceive by the researcher on his/ her study. Like this when this study was conducted, some important points were also found out and these major findings of the study has categorized into two groups as findings from secondary data and findings from primary data.

4.8.1 Findings from the Secondary Data.

The secondary data were the information which was collected from the departments of COMEN, MEX and from the broker offices.

It included some articles, rules, regulations and financial as well as trade statements which are necessary for the analysis of the study. From such available information, the following points are found out:-

1) The numbers of brokers are increasing in Nepal for the commodity derivative market. Due to the increment in numbers of investors the numbers of brokers are also increasing under the affiliation of the existing commodity exchanges. From the fiscal 2066/67 to fiscal year 2067/68 the trend of brokerage in the market is in increasing way.
2) In Nepalese commodity derivative market ,the capitalization ratio of precious metal is more that means the market size of precious metals is large than that of other commodities like agro product, energy etc. and gold occupied more percentage in metal trading. Most of the investors are choosing gold contracts for their investment.
3) The correlation coefficient between NEPSE & COMMODITY DERIVATIVE is negative. By the calculation it found that the correlation coefficient (r) is less than 6xP.E which indicate that the correlation coefficient is insignificant. So it found that the increment in stock market will be the cause of decrement in commodity futures market and vice versa.
   In the same way, the calculate figure of standard deviation between NEPSE and COMMODITY DERIVTIVE in reference of the data of F/Y 2065/66 show that S.D of NEPSE is 71.58 & S.D of COMMODITY DERIVTIVE is 195.48 which is more than double of the S.D of NEPSE. So it round that the COMMODITY DERIVATIVE is highly riskier than that of stock market
4) The commodity derivative market is one of the volatile markets. It trading activities can be highly affected by the various factors like national and international political movements, economic indicators, price of dollar, war, climate etc.
   COMEN's trading volume was decreased during the 4^{th} quarter i.e (2066 Baishakh to 2066 Ashad) due to its internal practices. During that time it was passive for the necessary improvement and adjustment on its mechanism
5) The factors affecting commodity derivative markets are demand – supply of commodity, climate , inflation, political practices, national –international economic indicators, price of dollar, contracts between the countries, employment rate, stock market activity, bank interest rate, export and import, consumption ,saving , production etc.

6) The most usable tools and formula to forecast the price and trend are RSI,Moving Average,Standard Deviation,Stochastic Indicator,William's R%, Commodity channel Index ,Bollinger Bands etc.

4.8.2 Findings of Empirical Investigation

On the basis of receding chapters and data presentation & analysis, some important findings can be drawn. The major findings of this research study are summarized below.

1) The participants of the commodity derivative market are aware about its overall aspects. They are trained and oriented before entering on the transaction.
2) Most of the investors and participants are interested to trade under Mercantile Exchange Nepal Limited due to its good mechanism than other existing exchanges.
3) The maximum investors like to trade for Metal Product. Their 1st choice is metallic Product like Gold, Silver, Copper etc and secondly they prefer Energy Product like Crude oil, heated oil etc then after they prefer agro products like wheat, maize, soybean etc
4) Commodity future trading is not only risk but highly risky trade. One must have capacity to bear the high risk if he/she wants to involve on it.
5) Only the hording, print media and paper advertisement are not the sufficient and reliable means of information for the concern parties of the market. There should be available and fruitful means of information to have extra rapidity in the market.
6) COMEN is the pioneer exchange which introduce the commodity futures market in Nepal and trying its best to provide good service to its participants like brokers and investors. Even that it still need to improve more for the best service to them.
7) People are involving and investing in this market due to the lack of effective investment sectors in Nepal and as the alternative investment sector of stock market.
8) The investors and brokers who are involving in this market, they know about the use and calculation of RSI & Hedging, which are very important matters for the market.

9) Internet is the most reliable and effective means of information source this market. Then after the related T.V channel also a fast source of information for it. Besides them newspapers and bulletins on the matter also can be use as extra source of information.

10) The participants of the market are involving professionally in this market during their participation period. Most of the investors involve everyday and trading professionally whereas some investors are investing just casually.

11) The factors which affect the price and trend of the market can be ranked as follow:-

S.N	Variables	Rank
1	Financial indicators	I
2	International economic system	II
3	Political Situation	III
4	Change in rules & regulations	IV
5	International company's rules & regulations	V
6	Investors attitude	VI
7	Whims and rumor	VII

12) The investors are investing and trading as per the current market price movement along with expert's advice and their own analysis. Besides that some new investors are trading on the basis of rumor on the market.

CHAPTER-V

SUMMARY, CONCLUSION AND RECOMMENDATION

This is the final chapter of this study which will provide necessary and gist points and opinions of the whole study. This chapter shall be able to glance out whole the study in short time. This study helps us to summary and conclusion drawn by the researcher and plays supportive roles to the new researcher on this related topic. And again, this chapter also helps the brokers as well as investors for the necessary terms and tactics about the commodity derivatives and futures market in Nepalese context. Besides that, specially it help the government of Nepal to know about the commodity derivative and futures market and to formulate the necessary rules, regulations, terms & conditions for the market and for the establishment as well as effective mechanism development of regulatory body in Nepal for the commodity and derivative market in the country .

5.1 Summary

The study was conducted with the main objective to analyze the commodity derivative market in reference of the existing exchanges i e.COMEN and MEX It is mainly focused to developed the model accordingly and its empirical test in previous chapter. The model tries to associate and examine the relation of stock market with commodity derivative market. Along with correlation coefficient analysis, standard deviation, risk and correlation coefficient, price analysis, and questionnaire were adopted as test methodologies.

Chapter I began presenting a background of study and concluded with the organization of study. It established the thesis was motivated by the lack of comprehensive studies on commodity derivative behavior of Nepal. The chapter also discussed the objectives, limitations and possible significance of the study.

Chapter II dealt with review of literature. It began with conceptual framework and concluded with review of related articles and books. Furthermore, the chapter again reviewed some unpublished thesis conducted by the previous researchers.

Chapter III described research design, population and sample used, source of data, research questions, test methodology, financial and statistical tools used. The descriptive as well analytical research design was used in this study.

Chapter IV presented the survey results of the commodity market behavior of in Nepal. Before analyzing the results of test, the overview of the Nepalese commodity markets has been sketched. The recent position and performance of market in Nepal has been analyzed.

5.2 Conclusion

Once when teaching the subject of finance in academic institutions, it was only dream to show an illustrative derivative instrument for the students in Nepal. Some banks started to introduce forward foreign exchange agreements attaching if with the Letter of credit (L/C) contracts opened by their clients for the purpose of importing goods from abroad. Still there is not any progress from the part of the state to realize the benefit of this instrument in Nepal. However private sector initiative in this respect is commendable nowadays. Some derivative exchanges started to work with futures**.** A long history of commodity exchanges from Havana Cigar exchange, Perking Duck Exchange to Chicago Board of Trade is the milestone for both restricted and open type of economies. Nepal Mercantile Exchange, COMEN and NDEX in conforming to the international standard deals with commodity future thought commodities are not Nepali originated.

In many personal opinions, derivatives markets are now need of the time in Nepal. This market crates both backward and forward linkages to develop the economy. Particularly, commodity futures market will help to discover the real prices of the commodity, ensure the quality products, promote warehousing and buffer stocks and enhance the financing for agricultural and industrial products. Investors will benefit from the market from speculative returns and traders might take advantages of risk hedging. The ultimate net result is the well functioning of the market that provides risk reduction opportunities tailoring the needs of the stakeholders.

.Challenge to develop market culture has driven us to organize an Exchange at juncture of isolated physical market. The factors of markets are various but the willingness of happiness with freedom of grower and investor asks us to facilitate an open market economy.

MEX, COMEN and NDEX exists one step further in this regard simply by facilitating the willingness of buyer/seller trying to organize the pattern of demand and supply. We have an example of ethiopedia that during the harvesting season of maize their farmers were not able to get 1/5 of the price of maize were left on field, but after 6 months 90% of the people same country were suffering from starvation.

The equilibrium on demand and supply can be maintained by an organized marketplace, known as commodity exchange. Both supply and demand can be paralleled with the scope of organized marketplace. The accesses, facility, abiding capacities are additional features which define the resistant capabilities of an exchange.

The problem of Nepalese market is the challenges of the market itself. Isolated commodity markets are other factors to generate the difference in purchasing power parity from one religion to another region, which creates the unequal drawing for equal work.

Fair and transparent price discovery and commercialization of Nepalese agro sectors are being focused; MEX, COMEN and NDEX are initiating the steps toward these sectors. Transformation of traditional agro economy to market economy is challenge to us for our success and for nations as well. But we are in market with strong determination for this transformation.

Without clearing and settlement mechanism, none of the company can claim itself as an exchange with effective clearing and settlement and risk mitigating system.

A team with sharp brain and dedication, leadership with vision, commitment to serve the objective of the organized market, makes us more professional to serve all market users.

Prosper of MEX, COMEN and NDEX lies on the trust of market users and services offered by them. We are not ready to lose these assets at any cost and by maintaining these assets we are going to provide a new dimension for the country's economy, which can be claimed within years.

However, derivatives are complex instruments and require sophisticated knowledge to handle. In addition, there should be legal, regulatory and supervisory institutions in place to safeguard the interest of the stakeholders. The government and Nepal Rastra Bank should take initiatives in this regard as soon as possible to foster the market and reap the benefits of instrument for the betterment of the economic development

5.3 Recommendations

Considering the major findings and findings and issues found in course of this research study, some recommendations are presented. It is hoped that this recommendation will certainly be proved milestone to overcome existing issues in this field. Thus, the following recommendations can be outlined.

1. From the study it seems that Nepalese investors have limited knowledge about commodity derivative future market. It lacks of professional investors. Hence, the concerned authority is recommended to make aware about the security market to the general public so that they are interested to invest in derivative market and the previous investors could change as professional investors.
2. As per the study, investors are trading the commodity derivative without proper analyzing of the financial indicators of concerned with national and international aspects. Hence, investors are recommended for the empirical study of the financial indicators of those related aspects before trading the commodity futures and they must be alert to exploit the opportunities through the short term speculation.
3. Brokers are suggested not only at their interest but also be sincere and cooperate with investors. Since they have greater level of practical knowledge they should provide rational and accurate advice to their clients/investors and promote professionalism.
4. To check the possible manipulation and unhealthy competition and also to protect the interest of investors, the number of commodity brokers should be increased.
5. Government should formulate as well as implement effective rules and regulation, code of conduct, for the gradual development of capital market. For this purpose national; as well as international derivative experts should be consulted. Similarly it should encourage independent rating agencies so that the investors will have a confident picture of financial health of future prospects of organization. NEPSE or the any separate party should be established and given authority to encourage the concerned body to organize programs, seminars time to time to create awareness among the investors.
6. Derivative exchanges should attempt to make aware to the investors regarding the factors, which ought to be considered for making less risky and ration investment.

The authorities related to the derivative market should have effective packages and programs to educate and train to the stakeholders who directly involve in commodity transactions. This can be done by the application of the following mechanism:-

- Daily publication of news related to the matters of commodity derivative investment more frequently
- Disseminating the recent information and knowledge through mass media
- Conducting programs like seminars, workshops, training, round table talks etc which develop a skill and awareness among the investors and market makers
- Exchanges can expand their service to regional and local level so that it gives the equal opportunities to all potential investors
- Perfect markets require that all information concerning further risks and return of commodities available to all investors by Exchanges.
- Mobilization of the derivatives experts to needed area of the country.

7. Derivative market covering a huge financial investment day by day. But there is not any regulatory entity up to now. So government needs to establish a separate regulatory entity for the market as soon as possible.
8. The commodity derivative exchanges are facilitating only cash settlement. But they should develop the physical delivery system introducing the warehouse system in major places of the country.
9. The trading mechanism and the financial aspects of commodity derivative exchange need to make more transparent and clear.
10. The subject matter should be mention in the academic courses of university to produce the expert on it and flow its reliable and sufficient concepts to the upcoming generation.
11. After establishment of regulatory board for commodity derivative and future market it should have the following functions:-
    a) To advise the Central Government in respect of the recognition or the withdrawal of recognition from any association or in respect of any other matter arising out of the administration of the Forward Contracts

b) To keep forward markets under observation and to take such action in relation to them, as it may consider necessary, in exercise of the powers assigned to it by or under the Act.
c) To collect and whenever the Commission thinks it necessary, to publish information regarding the trading conditions in respect of goods to which any of the provisions of the act is made applicable, including information regarding supply, demand and prices, and to submit to the Central Government, periodical reports on the working of forward markets relating to such goods;
d) To make recommendations generally with a view to improving the organization and working of forward markets;
e) To undertake the inspection of the accounts and other documents of any recognized association or registered association or any member of such association whenever it considerers it necessary.

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www.nepalsharemarket.com

www.sebonp.com

www.ndex.com

www.mexnepal.com

www.comexnepal.com

www.alparyi .com.

Appendices

Appendix-I
Major Commodity Exchanges

S.No	Name	Contracts Traded
1	Chicago Mercantile Exchange (CME)	Butter, Milk, Diammonium Phosphate, Feeder cattle, Frozen Pork bellies, Lean Hogs, live Cattle, Non-fat Dry Milk, Urea, Urea Ammonium Nitrate, etc.
2	New York Mercantile Exchange (NYMEX)	Light Sweet Crude Oil, Natural Gas, Heating Oil, Gasoline, RBOB Gasoline, Electricity, Propane, Gold, Silver, Copper, Aluminum, Platinum, Palladium, etc.
3	London International Financial Futures and Options Exchange (LIFFE)	Cocoa, Robusta Coffee, Corn, Potato, Rapeseed, White Sugar, Feed Wheat, Milling Wheat, etc.
4	Chicago Board of Trade (CBOT)	Corn, Soybeans, Soybean Oil, Soybean meal, Wheat, Oats, Ethanol, Rough Rice, Gold, Silver, etc.
5	London Metal Exchange (LME)	Aluminum, Copper, Nickel, Lead, Tin, Zinc, Aluminum Alloy, North American Special Aluminum Alloy (NASAAC), Polypropylene, Linear Low Density Polyethylene, etc.
6	Tokyo Commodity Exchange(TOCOM)	Gasoline, Kerosene, Crude Oil, Gold, Silver, Platinum, Palladium, Aluminum, Rubber, etc.
7	Sydney Futures Exchange (SFE)	Greasy Wool, Fine Wool, Broad Wool, Cattle, etc.
8	Dubai Gold and Commodities Exchange (DGCX)	Gold, Silver, Fuel Oil, Steel, Freight Rates, Cotton, etc.
9	Bursa Malaysia Berhad	Refined Bleached Deodorized Palmolein, Crude Palm Oil, Palm Kernel Oil, etc
10	Dalian Commodity Exchange	Corn, Soybean, Soybean Meal, Soy Oil, etc.
11	Central Japan Commodity Exchange	Gasoline, Kerosene, Gas Oil, Eggs, Ferrous Scrap, etc.
12	Shanghai Futures Exchange (SHFE)	Copper, Aluminum, Natural Rubber, Plywood & Long Grained Rice
13	Osaka Mercantile Exchange	(Ribbed Smoked Sheets) RSS3, (Technically Specified Rubber) TSR20, Nickel, Aluminum, Rubber Index
14	Kansai Commodity Exchange	Soybean, Raw Sugar, Raw Silk, Shrimp (frozen), Coffee, Corn, Azuki beans (Red), etc.
15	Brazilian Mercantile and Futures Exchange	Anhydrous Fuel Alcohol, Arabica Coffee, Robusta-Conillon Coffee, Corn, Cotton, Feeder cattle, Live Cattle, Soybean, Crystal Sugar, Gold, etc.
16	Tokyo Grain Exchange (TGE)	Corn, Soybean Meal, Soybeans, Red Beans, Coffee, Sugar, Raw Silk, Vegetables, etc.
17	Intercontinental Exchange (ICE)	Brent Crude Oil, Coal, Electricity, Emissions, Gas Oil, Heating Oil, Gasoline (RBOB), Natural Gas, WTI and all the futures contracts of its subsidiary - The International Petroleum Exchange (IPE)

Appendix-II

COMMODITIES & METAL EXCHANGE NEPAL LTD.
Creates Earning Opportunities

COMEN Trading Directory

1) Recently COMEN software include 3 gold contract (1 kg, 500 gm & 100 gm), 2 silver
contract (30 kg & 5 kg) with a contract of 1 ton copper and a contract of 5 ton zink.
2). The criteria for the contracts are as below:-

Contract & Margin Specifications (COMEN)

Contract	Code	Initial Margin	Commission	Overnight Equity to be Held
1 kg	GC	50000	1000	100000
500 gm	SGC	25000	500	50000
100 gm	MGC	5000	100	10000
30 kg	SLV	50000	1000	100000
5 kg	SLVM	5000	100	10000
1 ton	CU	50000	1000	50000
5 ton	ZN	50000	1000	50000

3) If the equity amount is not sufficient for overnight transaction the position will be settled by the software itself. If more than one ticker is to settle the settlement will be on the basis of FIFO.
4) The contingent order will be in the nature of Good Till Day (GTD). There should be two tick limit for the Stop Loss Order, Take Profit Order and for new buy/sell order.
5) The Sell Limit should not be less than the current price and the Buy Limit should not
6) If the transaction of Day Trading touch the Stop Loss and Take Profit the conditions more than the current price will be as follows:-
a) Suppose your limit is Rs 24000 and the price increase from Rs 23990 to Rs 24010. In this condition the limit of Rs 24000 will settle in Rs 24010.
b) If the current price is Rs 24000 as per your limit the settlement will be in same price.
7) While trading if the equity amount is hitted & became more loss due to loss in trading the liability should face the trader. But if the trader quite from that liability the liability should response by the broker
8) Once cannot trade more than 5 trade in a one ticker.
9) If there remain any open position till the day of contract stop/settle day the position
10) For the overnight position the trader should keep sufficient amount in the concern account of clearing agency will be by the software itself in the last price of the day.
11) The margin call will be in the loss is 75% of equity and if the margin is not fulfilled the trading will automatically settled by the software itself in the loss of 90% of equity.

Note: - (COMEN can change the above points/criteria as per the time and conditions)

Appendix-III

COMMODITIES & METAL EXCHANGE NEPAL LTD.
Creates Earning Opportunities

Lists of Brokers: Trading Brokers.

Trading Brokerage Code: 01
Standard Commodities Pvt. Ltd.
Kathmandu-31, Kamalpokhari(Back side of Jyoti Bikash Bank, Char Burja Marg) Ph:014414285; Fax:977-01-4414522
Contact Person: Binod Dhakal,Gokul Dhakal,Ramchandra K.C.
Email:standardcommodities@gmail.com/info@standardcommodities.com
URL: http://www.standardcommodities.com/

Trading Brokerage Code: 02
Superstar Investment Nepal Pvt. Ltd.
Lalitpur-14, Mahalaxmithan
Cell: 977-9841220231
Contact Person: Shakespeare Pandey
Email: superstarnepal@gmail.com

Trading Brokerage Code: 03
Investment Support Pvt. Ltd.
Kathmandu, Lazimpat
Ph:014414285; Fax:977-01-4414522
Cell: +977-9851074777
Contact Person: Binod Dhakal
Email: investmentsupport@gmail.com

Trading Brokerage Code: 04
Kamal Vinayak Securities & Investment Pvt. Ltd.
Galaxy Marg, Gyaneshwor;Kathmandu
Cell: 977-9841553258/98413666454
Contact Person: Damodar Lohani;monoj bhuju
Email: loha_dams@hotmail.com

Trading Brokerage Code: 07
Aastra Commodities Investment Pvt. Ltd.Ichangu Narayan-9 Kathmandu
Ph:016203057/014219010
Cell: 9841385520
Contact Person: Nabin Shrestha
Email: shresthabinod77@yahoo.com

Trading Brokerage Code: 08
Shine Investment Pvt. Ltd.
Balaju-16 Kathmandu
Cell: 9841234174
Contact Person:Gagan Kumar Dangol
Email: investmentshine@gmail.com

Trading Brokerage Code: 10
Onyx Investment Pvt. Ltd.
Gongabu, Kathmandu.
Cell:977-9851103587
Contact Person: Dinesh Shrestha
Email: onyxcoin@gmail.com

Trading Brokerage Code:P-27
Info Comet Investment Pvt. Ltd.
Gairapatan, Pokhra
Cell:977-9846084391
Tell No: 061-526877
Contact Person: Bishal Adhikari
Email: bishal.adhikari@hotmail.com

Trading Brokerage Code: 28
Vaibhav Laxmi Investment Pvt. Ltd.
New Baneshwor,Kathmandu
Cell:9841281369
Contact Person: Prakash Ghimere
Email: prakashghimire680@yahoo.com

Trading Cum Clearing Brokerage Code:29
Mass Capitals Pvt. Ltd.
Ravi Bhavawan, Kathmandu
Tell No: 01-4276129
Contact Person: Shreya Rajbhandari / Bhupesh Rajbhandari
Email: saroj@mass.com.np

Trading Brokerage Code: 30
Kohinoor Futures Pvt. Ltd.
Bahadur Bhawan, Kathmandu
Cell: 9851001508
Contact Person: Achyoot Kumar Budhathoki

Trading Brokerage Code:33
Guru Investment Pvt. Ltd.
Dallu,Kathmandu
Cell:981354245
Contact Person: Prabin Lal Bajracharya
Email: guruinvestment@yahoo.com

Trading Cum Clearing Brokerage Code: 35
Shree Krishna Financial Services Pvt. Ltd. Lal Durbar, Kathmandu

Trading Brokerage Code: 09
Golden Investment Company Pvt. Ltd.
Putalisadak, Kathmandu
Cell:9841343328
Contact Person: Amrit Rajbhandari
Email: poisonamrit@hotmail.com

Trading Brokerage Code: 50
Pancha Buddha Futures Investment Pvt. Ltd.
Tangal, Lalitpur
Cell: 9841801606
Contact Person: Sagun Bajracharya
Eamil: jl_bajra@yahoo.com

Trading Brokerage Code: 51
Birat Financial & Commodities Services
Putalisadak, Kathmandu
Cell:9841583201,Phone:4232006
Contact Person: Mahesh Kumar Sarawagi.
Email:bifcoms.services@gmail.com

Trading Brokerage Code:62
Siddhi Binayak Capital Investment Pvt. Ltd.Putalisa
Kathmandu
Cell: 9803657362
Contact Person: Sudeep Sharma
Email: gimmi_2063@hotmail.com

Trading Brokerage Code: 69
Gild Investment Pvt. Ltd.
Shiv Shakti Galli, Bafal, Kathmandu
Ph: 01-4281344
Contact Person: Raju Harsha Bajracharya
Eamil: sabirahaj@gmail.com

Trading Brokerage Code: 44
Najir Investment & Brokerage Co. Pvt.Ltd.
Khichapokhari, 22, Kathmandu
Cell: 9851010750 Phone: 4231471
Contact Person: Ramesh Sharma Khatiwada
Email: najirinvest@yahoo.com

Trading Brokerage Code:92
Paradise Securities Pvt. Ltd.
Sinamangal-9,Kathmandu
Cell: 9841337511/ 9841606424
Contact Person: Rabindra Acharya
Email: idkrishna@gmail.com

Trading Brokerage Code:99
Emerging South Asia Pvt. Ltd.
Anamnagar, Kumari Galli (Near APCA HOUSE)
Contact Person: Santosh Pradhan
Cell No.: 9851109487
Phone No. 014770917/4770637
Email: info@nepalcomexmarket.com
Website: http://nepalcomexmarket.com

Trading Brokerage Code: 101
Nepal Bulls Financial Services Pvt. Ltd.
Bhimsengola, 9, Kathmandu
Cell: 9841467980
Contact Person: Dirghayu Bhari
Eamil: dirghayu@hotmail.com

Trading Brokerage Code: 109
Red Bull Securities Pvt. Ltd.
Nayabazar, Kathmandu
Cell: 9841329317/ 9803438530
Contact Person: Shekhar Man Singh Maskey / Rajendra Shrestha

Appendix-IV

Commission Chargeable to Clients by NCM

Products	Maximum commission chargeable to clients in NPR per one lots (Buy and Sell)
GOLD	1200 + VAT
CRUDE OIL	1200 + VAT
HEATING OIL	1200 + VAT
NATURAL GAS	1200 + VAT
CRUDE SOY OIL	1200 + VAT
SILVER	1000 + VAT
COTTON	1000 + VAT
COFFEE	1000 + VAT
COPPER	600 + VAT
SOYBEAN	600 + VAT
WHEAT	600 + VAT
GOLD MINI	600 + VAT
CRUDE OIL MINI	600 + VAT
SILVER MINI	600 + VAT
COPPER MINI	600 + VAT
SUGAR	600 + VAT
CORN	600 + VAT
COCOA	600 + VAT

Mercantile Exchange Nepal Limited

Alliance Tower, Fourth Floor, Charkhal, Dillibazar, Kathmandu, Nepal
Tel: +977-1-4011542/43/44, Fax: +977-1-4011545
e-mail: info@mexnepal.com | Web: www.mexnepal.com

Products	Exchange Commission (Rs)	CM—NCM Commission (Rs)	NCM—Client Commission (Rs)
GOLD	60	162	600
CRUDE OIL	60	162	600
HEATING OIL	60	162	600
NATURAL GAS	60	162	600
CRUDE SOY OIL	60	162	600
SILVER	50	135	500
COTTON	50	135	500
COFFEE	50	135	500
COPPER	30	81	300
SOYBEAN	30	81	300
WHEAT	30	81	300
MINI GOLD	30	81	300
MINI CRUDE OIL	30	81	300

Contract & Margin Specifications (MEX)

Commodity	Contract Size	Margin (NPR)	Price Quoted On MEX
Wheat (WHT)	20,000 Kg	35,000	NPR/Kg
Soybean (SOY)	20,000 Kg	35,000	NPR/Kg
Crude Soy Oil (SBO)	22,000 Liters	70,000	NPR/Liter
Cotton (COT)	10,000	35,000	NPR/Kg
Coffee (COF)	5000 Kg	45,000	NPR/Kg
Crude Oil (CRU)	250 US Barrels	70,000	NPR/Barrel
Natural Gas (NAG)	2500 Mmbtu	60,000	NPR/Mmbtu
Heating Oil (HEA)	10,000 Liters	70,000	NPR/Liter
Gold (GOL)	1 Kg	81,000	NPR/10 Grams
Silver (SIL)	30 Kg	60,000	NPR/10 Grams
Copper (COP)	1000 Kg	35,000	NPR/ Kg
Mini gold (MGOL)	200 Grams	25,000	NPR/ 10 Grams
Mini Crude Oil (MCRU)	50 US Barrels	35,000	NPR/Barrel
Mini Silver	1 Kg	20,000	NPR/ Kg
Mini Copper	500 Kg	20,000	NPR/ Kg

MEX Revised Fee Structure for NCM (Effective from January 1, 2010)

S.No	Particulars	Individual/Institution/Professional
1	Admission fee	1,25,000+VAT
2	Advance transaction margin	50,000
3	Capital requirement	3,00,000
4	Settlement Guarantee Fund	1,00,000

Appendix-V

Stochastic Oscillator (Fast, Slow, and Full)

(Hypothetical data and calculation)

%K =	100 x (	Recent Close − Lowest Low (n) / Highest High(n) − Lowest Low(n)	)
%D =	3-period moving average of %K		
(n)=	Number of periods used in calculation		

Periods	High	Low	Close
1	119.50	116.00	119.13
2	119.94	116.00	116.75
3	118.44	111.63	113.50
4	114.19	110.06	111.56
5	112.81	109.63	112.25
6	113.44	109.13	110.00
7	116.81	110.38	113.50
8	117.50	114.06	117.13
9	118.44	114.81	115.63
10	116.88	113.13	114.13
11	119.00	116.19	118.81
12	119.75	117.00	117.38
13	119.13	116.88	119.13
14	119.44	114.56	115.38

%K =	100 x (	115.38 − 109.13 / 119.94 − 109.13	)	= 57.81

Appendix-VI

Correlation Coefficient Analysis between NEPSE & COMMODITY DERIVATIVE

X1	X2	d1	d2	$(d1)^2$	$(d2)^2$	d1d2
656.8	281.8	39.48	-46.85	1558.67	2194.923	-1849.64
675.8	135.5	58.48	-193.15	3419.91	37306.92	-11295.4
681.3	194.85	63.98	-133.8	4093.44	17902.44	-8560.52
713.18	208.7	95.86	-119.95	9189.14	14388	-11498.4
697.07	276.15	79.75	-52.5	6360.063	2756.25	-4186.88
634.69	256.8	17.37	-71.85	301.7169	5162.423	-1248.03
603.11	443.65	-14.21	115	201.9241	13225	-1634.15
563.98	487.9	-53.34	159.25	2845.156	25360.56	-8494.4
539.4	789.6	-77.92	460.95	6071.526	212474.9	-35917.2
526.65	473.45	-90.67	144.8	8221.049	20967.04	-13129
498.56	66.75	-118.76	-261.9	14103.94	68591.61	31103.24
∑X=16790.54	**∑X2=3615.15**	**0.02**	**0**	**56366.53**	**420330.1**	**-66710.4**
$\overline{X}1$ **=617.32**	$\overline{X}2$ **=328.65**					
S.D=71.58	**S.D=71.58**					
c.v=0.1160	**c.v**=0.5948					

Coefficient of Correlation,

$$r_{12} = \frac{N\sum d1d2 - (\sum d1 \sum d2)}{\sqrt{N\sum d1^2 - \left(\sum d2\right)^2}\sqrt{N\sum (d2)^2 - \left(\sum d2\right)^2}} = -0.4334$$

Probable Error (P.E) = $0.6745 \times \frac{1-r^2}{\sqrt{n}} = 0.1652$

Standard Deviation $\pm X1 = \sqrt{\frac{\sum (X1 - \overline{X})^2}{N}} = 71.5837$

Standard Deviation $\pm X2 = \sqrt{\frac{\sum (X2 - \overline{X})^2}{N}} = 195.4785$

Where,

N= no. of observation of two variable

X1= average value of NEPSE INDEX & X2= average of commodity derivative Transaction

d1= deviation between variable X1 and mean of X1 i.e. $(X1 - \overline{X}1)$

d2= deviation between variable X2 and mean of X2 i.e. $(X2 - \overline{X}2)$

∑d1= sum of deviation between variable X1 and mean of X1 i.e. $(X1 - \overline{X}1)$

∑d2= deviation between variable X2 and mean of X2 i.e. $(X2 - \overline{X}2)$

C.V= Covariance i. e Standard deviation devided by mean

$$\text{Coefficient of Variation (CV)} = \frac{\pm x}{\bar{x}_j}$$

Appendix-VII

Questionnaire

Dear Sir/Madam,

I am conducting a research on the topic of **"**DERIVATIVE-COMMODITY MARKET IN NEPAL & FACTORS OF COMMODITY FUTURE PRICE" This questionnaire has been developed before you as a part of my study which will help me to understand your opinion about the factor affecting the Commodity Derivatives in Nepalese perspective. Therefore, I humbly request you to fill it up with the best of your knowledge. Your king co-operation in this regard will be the fruitful for my research.

I shall be grateful for your kind response.

Researcher

Ram Gopal Rajchal

Roll no: 189/2061

Masters in Business Studies

Nepal Commerce Campus
Minbhawan, Kathmandu

Respondent

Name:

Designation:

Organization:

Gender: -a) Male b) Female

Age Group: -

a) Below 21
b) 21- 30 years
c) 31-40 years
d) 41-50 years
e) Above 50 years

Income Group (Per month):

a) Nil
b) Below Rs 10000
c) Rs 10000—20000
d) Above Rs 20000

Please answer the following questions with tick mark and rank in appropriate space as required by the question

1) Do you aware about commodity market?
   a) Yes b) No

2) If yes, which commodity exchange you will prefer for investment?
   a) COMEN b) MEX c) NDEX
3) In which commodity you will prefer to invest?
   a) Metal(Gold,Silver,Copper etc) b) agro-product c) energy

4) What is your perception toward commodity market?

a) Risky b) Very risky c) less risky

5) What do you think commodity market advertisement (hording, print media etc) are explanatory enough to give needed useful information?
   a) Yes b) No

6) What about the current system of COMEN?
   a) Good b) Need to improve c) Bad

7) The purpose of introducing in this market.
   a) As an alternate of share market b) as the lack of other investment sectors
   c) To learn about it

8) Do you know about Hedging & RSI?
   a) No b) Yes

9) The effective means of information for this market is:-
   a) T.V Channel b) Internet c) Newspapers

17) I involve in this trade:-
   a) Daily b) once a week c) once a month d) seldom e) Never

18) Do you agree on the following rank of factors affecting for price movement

S.N	Variables	Rank
1	Financial indicators	I
2	International economic system	II
3	Political Situation	III
4	Change in rules & regulations	IV
5	International company's rules & regulations	V
6	Investors attitude	VI
7	Whims and rumor	VII

a) Yes b) No

19) Which is the Basis of Investors Decision to Invest on Derivative?

S.N	Research Variable
1	Rumor
2	Current Market Price
3	Expert's Advice
4	Own Analysis

Thank You

Curriculum vitae

Name	: -	**Ram Gopal Rajchal**
Father's Name	: -	Kumar Rajchal
Permanent Address	: -	Yachhen-5, Bhaktapur
Contact Phone	: -	**9841693022(cell), 016618921(Res)**
E-mail	:-	**ur_gentleboy@yahoo.com**
Nationality	: -	Nepali
Date of Birth	: -	13th Feb 1985
Marital Status	: -	Single

Academic Qualification:-

Master Degree in Business Studies
Specialization: **a] Financial Institutions & Markets**
b] Investment Analysis
(Nepal Commerce Campus)

2001—2004. **Bachelors Degree in Business Studies**
Specialization: **Business Account**
(Nabadurga Multiple Campus)

1999—2001. I.com (Nabadurga Multiple Campus)

1998: S.L.C (Bagiswori Higher Secondary School)

Employment /Experiences

- **Trader (**Handicraft and Wood Carving Products**)**
- **Account Coordinator** (Educational Institutions)
- **Account cum Marketing Officer** (Shree Shakti Bread & Bakery Industry, Bhaktapur

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Trainings

*Basic level Computer Training
*computer Accounting Package
*Basic level English Language

Language : - English (Fluently), Nepali, Newary and Hindi
Hobby : - Traveling,Photography and Music