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**PRICE DISCOVERY MECHANISM UNDER
PEPPER FUTURES TRADING**

By

SANOJ.P.G



PROJECT REPORT

Submitted in partial fulfillment of the requirement for the degree of

Bachelor of Science in Co-operation & Banking

Faculty of Agriculture

**COLLEGE OF CO-OPERATION, BANKING & MANAGEMENT
KERALA AGRICULTURAL UNIVERSITY
VELLANIKKARA, THRISSUR -680656**

KERALA, INDIA

2004

DECLARATION

I, the undersigned, declare that the project report entitled "PRICE DISCOVERY AND HEDGING UNDER PEPPER FUTURES TRADING" is a record of work done by me during the course of project work and that it has not previously been submitted for any degree or diploma, certificate or other title of any other university or society.

Yours faithfully,
[Signature]

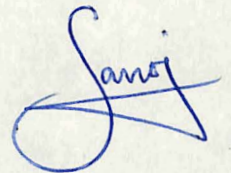
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I hereby declare that this project report entitled "**PRICE DISCOVERY MECHANISM UNDER PEPPER FUTURES TRADING**" is a record of work done by me during the course of project work and that it has not previously formed the basis for the award to me for any degree/ diploma, associateship, fellowship or other similar title, of any other university or society.

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16-03-2004



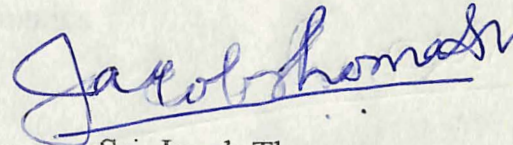
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CERTIFICATE

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Certified that this project report entitled "**PRICE DISCOVERY MECHANISM UNDER PEPPER FUTURES TRADING**" is a record of work done by Mr. Sanoj.P.G, under my guidance and supervision and that it has not previously formed the basis for the award of any degree/ diploma, associateship, fellowship to him.



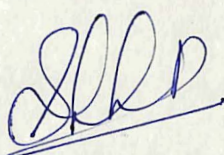
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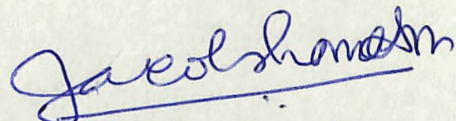
We, the undersigned members of the Viva-Voce Board of **Mr. Sanoj.P.G**, a candidate for the degree of BSc. (Co-operation, Banking) agree that the project report entitled "**PRICE DISCOVERY MECHANISM UNDER PEPPER FUTURES TRADING**" may be submitted in partial requirement for the degree.



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Once again I thank God for giving me the best parents, caring brother, committed teachers, devoted friends as well as great opportunities and nice experiences.

Needless to say, I alone am liable for any imperfection, which may remain ...

SANOJ.P.G

Dedicated to

MY EVER LOVING FRIEND

ACHAYAN

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LIST OF ABBREVIATIONS

DGCI&S	- Director General of Commercial Intelligence and Statistics
FCCCI	- First Commodities Clearing Corporation of India
FIPB	- Foreign Investment Promotion Board
GATT	- General Agreement on Trade and Tariffs
GOI	- Government of India
IPC	- International Pepper Community
IPSTA	- India Pepper and Spice Traders Association
IPSTA (ICE)	- India Pepper and Spice Traders Association International Commodity Exchange
MG-1	- Malabar Garbled- 1 st Quality
WTO	- World Trade Organisation
UNCTAD	- United Nations Conference for Trade And Development

DESIGN OF THE STUDY

CHAPTER 1

DESIGN OF THE STUDY

1.1 INTRODUCTION

For over three decades since the mid – sixties of the 20th century, the commodity trade in the country was crying gravely for resumption of futures trading in major farm commodities and their products. Time and again, they highlighted the utility of such trading for not only price discovery and risk management, but also seasonal and intra – seasonal price stability, although, to a small extent. But labouring under the misconception that speculation in commodity futures does not assist in developing the “socialistic pattern of society”, the Government authorities paid little heed to the trade demand, though the successive expert committees headed by the eminent economists recognized the useful role of speculation and recommended the early revival of futures trading in most farm commodities.

Following the collapse of communism in the former Soviet union and the Eastern Europe, and under pressure from the International Monetary Fund and the World Bank, to whom the country approached for assistance after the acute foreign exchange crisis in the early 1990s, the Government Of India (GOI) at long last abandoned its idea of socialism and began to lead the nation on the path of privatization, liberalization, and market orientation. As a signatory to the General Agreement on Trade and Tariffs (GATT), India also soon there after became a member of World Trade Organization (WTO), and

started opening up the economy by reducing and removing in stages the quantitative restrictions and fiscal barriers on commodity imports and exports.

Meanwhile, the World Bank and United Nations Conference for Trade And Development (UNCTAD) in their combined report submitted to the GOI in 1996 strongly recommended the opening of futures markets in agricultural commodities, in view of the impending liberalization of the external front in accordance with WTO Charter. With this report, the authorities eventually realized the need for futures trading in major commodities and their products for efficient price discovery and effective risk management so as to enhance competitive strength of Indian commodity trade and industry in the global market.

1.2 GENESIS OF THE PROBLEM

There are large price risks in the world pepper economy. Pepper is one of the most volatile commodities traded internationally with prices more often than not changing by more than five percent from one month to another. This creates large risks for farmers, traders and buyers of pepper, as well as government intent on protecting their farmer's income. Farmers run large risks because they do not know what prices they will receive for the pepper they are producing - current prices offer meager guidelines for decisions on the allocation of labour or on the purchasing of inputs. Traders often carry large inventories, the value of which can be significantly affected by price changes. Moreover, they are forced to enter into uncovered fixed price forward contracts for relatively long duration, which puts them at the risk that prices will increase before they can cover their physical obligations. Buyers of pepper try to a large extent to lay off their price risks to the producing countries (through longer term fixed price forward contracts), but this is only an imperfect protection and

also exposes them to the risk of counterpart default. Governments occasionally feel obliged to make up for the deficits of their country's pepper sector when there are large price declines, often at high costs.

Thus there appears to be a need for a risk management mechanism. Such a mechanism can come in the form of intergovernmental control over production and prices, e.g. through production management schemes and coordinated pricing policies. However, such arrangements are difficult to negotiate and to implement. Therefore there needs to be the creation of a mechanism which allows the various participants in the pepper economy to lay off their risks to the extent that they wish; that is, a pepper futures market.

1.3 STATEMENT OF THE PROBLEM

In a competitive environment, where supplies are uncertain and prices frequently move up and down, there is a need for protection from losses. There are various ways to cope with this problem. Apart from increasing the stability of market, various participants in the farm sector can better manage their activities in an environment of unstable prices through derivative markets.

...
Futures price is the predicted price. It reflects the price expectation at any given time of both buyers and sellers at the time of delivery. Therefore, it is subject to continuous change. The commodity futures market acts as a place for price discovery. It is in the market place where supply and demand factors come together to determine the price.

The Price discovery function performed by commodity futures market allows important economic decisions to be made viz. which

commodities to produce, how to produce, how much to sell and at what prices, how much to store and for how long, how much to consume and at what prices. The answers to these questions have an important bearing on the manufacturing and service sector. In this context, the present study aims to analyze the existing price discovery mechanism under pepper futures trading.

1.4 REVIEW OF LITERATURE

A limited number of studies have looked into the price discovery of pepper futures. The studies on the pepper exchange in general and the price discovery in particular are discussed here.

The Kabra Committee (1993) recommended allowing futures trading in seventeen commodity groups. It also recommended strengthening of Forward Markets Commission and amendments to Forward Contracts (Regulation) Act, 1952. The major amendments include allowing options in goods, increase in outer limit for delivery and payment from 11 days to 30 days for the contract to remain ready delivery contract and registration of brokers with Forward Markets Commission.

Shankerlal Guru Committee (1993) recommended linkage of spot and forward markets, introduction of electronic warehouse receipt system, inclusion of more and more commodities under futures trading and promotion of national system of warehouse receipt.

The "Feasibility study on a world wide pepper futures contract" (UNCTAD, 1993) pointed out that there is now only one immediate and open price discovery mechanism, namely the Indian futures market. In other markets

price publications are based on interviews or officially reported prices. It also pointed out that in order for a futures market to provide a viable price discovery and risk management mechanism, the pricing of both the futures contract and the underlying physical commodity must be by free market forces, without monopolistic or government control.

The Standing Committee on Commodities (1994) agreed that Government and those operating on commodity markets, especially in developing countries in transition, needed to become more aware of the potential uses of market based risk management instruments and of the risks associated with their use.

Development Committee of the World Bank and IMF (1994) found that for many countries and products, hedging instruments in commercial futures markets permit private agents to protect themselves against price fluctuations, although there remain a number of legal, financial and technical barriers.

Regional Workshop on Commodity Exchanges (1994) commented that price discovery mechanisms need to be transparent in terms not only of information on prices (publication of futures prices is at least on a daily basis and price information easily accessible world wide at a cost) but also in terms of information on structure of participation.

Duncan Ron (1996) opined that there is need for substantial education on the role of financial markets at all levels – Producers, consumers, intermediaries, and governments. The design and implementation of a coherent strategy for the management of commodity price risk needs to involve (1) analysis of the incidence of exposure to price risks; (2) an examination of

the regulatory and institutional systems in place and identification of changes needed to give appropriate incentives to the management of price risk;(3) examination of legal and regulatory systems to identify any barrier to the free movement of commodities and foreign currency and the securitisation of commodity stocks; and (4) identification of other measures for improving creditworthiness.

Vidyasagar. T. (1996) pointed out that An International Exchange would give the players adequate exposure to competitiveness prevailing in the international market. Since pepper is predominantly an export oriented produce, globalization of pepper market will enlarge the extent of hedging facility available to the pepper producing countries.

Rutten L (1996) found that the relation between commodity exchanges and the government need not be of adversaries. Insufficient understanding of the role and usefulness of commodity exchanges can indeed lead to policies that hurt the exchanges and their users. But exchanges cannot do without the government, without a framework, which can only be created by the government. Governments need to police the exchanges so that direct and indirect users can rest assured, that indeed the exchanges serve the public rather than a particular private interest, and they need to facilitate –or rather, enable – the functioning of exchanges through the provision of an appropriate legal and regulatory framework.

Benoit Blarel (1996) opined that in order to succeed futures markets need to be integrated within comprehensive agricultural policies. In isolation, commodity futures markets will not succeed, and will not contribute to their full potential. The distribution of risks and the interdependencies between risk

bearers depends upon the structure in commodity production, processing, marketing and distribution.

Mishra.G.S etal. (1998) argued that the price discovery first takes place in the futures market and then it is transmitted to the spot market.

The World Bank (1999) pointed out that The Pepper Exchange, despite its good quality service, is not as dynamic a business entity as its counterparts in other countries are. It has not been very active in the promotion of available services among potential users; it does not even have a marketing division.

Sahadevan. K.G (2002) pointed out that many of the commodity futures exchanges fail to provide an efficient hedge against the risk emerging from volatile prices of many farm products in which they carry out futures trading.

1.5 OBJECTIVE OF THE STUDY

To analyze the price discovery mechanism under pepper futures trading.

1.6 METHODOLOGY

The study is based on secondary data. Time series data of daily future and spot prices of pepper for a period of twelve months (January 2002-December2002) were collected from the official records of IPSTA, Mattanchery .The information relating to the organization of the exchange,

terms and conditions of pepper futures contract structure clearing house and delivery mechanism and other details were collected from the byelaws of IPSTA. To the possible extent the latest amendments to these byelaws will be incorporated in the study. Also discussions with the authorities of the IPSTA were sought for the purpose of the study.

1.7 SCOPE OF THE STUDY

The present study has the scope for generating attraction to pepper futures market and help the farmers, exporters and traders who are potentially interested in gaining access to a hedging vehicle.

1.8 LIMITATIONS OF THE STUDY

The influence of various other demand and supply factors in determining the prices of pepper are not studied. The non-availability of sophisticated statistical packages for correcting serial correlation is another limitation to the present study.

1.9 SCHEME OF THE STUDY

The report is divided into five chapters. The second chapter deals with theory and principles of futures trading. The third chapter describes the organizational profile of IPSTA. In the fourth chapter an econometric analysis of spot and future prices of pepper have been carried out to analyze the price discovery and the concluding chapter provides summary of findings and conclusion.

THEORY AND PRINCIPLES OF FUTURES TRADING

CHAPTER II

THEORY AND PRINCIPLES OF FUTURES TRADING

2.1 INTRODUCTION

Private traders and Governments in developing countries have utilized a variety of risk management instruments. The main instruments were buffer stocks, price stabilization and controls, diversification programmes, crop insurance, trade quotas and reserve management, bilateral and multilateral commodity agreements. These instruments have often proven to be fiscally unsustainable or administratively difficult to uphold and misleading for the business community. These recurrent difficulties thus highlight the need for other complementary risk management mechanisms to strengthen public and private sector ability to invest and manage their commercial operations better. Futures market offers one possibility for improving short to medium term risk management.

2.2 EVOLUTIONARY MARKET DEVELOPMENT

Futures markets have evolved from spot and forward markets in response to two types of risk: price fluctuations and contract default. A spot market (also known as cash, physical, or prompt market) transaction involves the buying or selling of commodities for immediate delivery. For Example, when an orange grower sells the orchard output on the local market, some negotiation over price occurs, and upon agreement over the final price, the oranges were weighted and the farmer is paid in cash for the produce. In cases where spot markets are volatile, farmer revenues as well as trader or processor input costs can fluctuate widely; both therefore are exposed to significant price

risks. In this context, intermediaries face risks on the fluctuation of price differentials only (between their input and output markets), while producers and consumers face the risk of fluctuation of the price itself, the latter usually being larger.

Like a spot market transaction, the specifications (e.g., location and date of delivery, quality of the product, size of the delivery, date and place of payment) are incorporated in forward transaction, as mentioned in a forward contract, and tend to vary from one transaction to another. However, although price is set when the contract is entered into, physical delivery, payment, and the transfer of commodity ownership do not occur until some pre-agreed date in the future. As a consequence of this, a forward contract is quite non volatile or non tradable. It is relevant only to the two contracting parties and, therefore difficult to offset if conditions change and the buyer no longer needs the commodity. In domestic markets, forward contracts generally do not include a performance bond for either buyer or seller. Consequently, as buyer needs, seller supply, or market prices change over time, there is an incentive for either party to default on the contract and the degree of risk of default rests solely on the integrity of the contracting parties. Forward contracts are used extensively in the export and import of commodities mainly because the physical movement of commodities takes time. They are also widely used by agricultural processors.

Futures contracts are standardized forward contracts and futures markets are where the organized trading of those contracts occurs. All futures contracts are identical in that they are obligations to make or take delivery of a fixed quantity and quality of a commodity, at a specific location, on a specific future date and time. Thus only the contracting parties negotiate the price. Futures contracts have traditionally been traded in exchanges; in the commodity

“trading pit” or “ring”. In recent years, however electronic trading has been introduced in the commodity exchanges.

Table 2.1. Major characteristics of spot, forward and futures markets

MARKET CHARACTERISTICS	SPOT	FORWARD	FUTURES
LOCATION OF TRADE	Spot market, buyer and seller <i>determined</i>	Buyer and seller determined usually <i>through a brokerage house</i>	Commodity Exchange
PRICE DETERMINATION	Negotiated, usually private	Negotiated, usually private	Market determined, publicly available
PARTIES CONDUCTING TRANSACTION	Buyer and seller	Buyer and seller, usually through a commodity broker	Commodity brokers, guaranteed through clearing house
DELIVERY OF GOODS	Immediate	Commitment to make \take delivery at a specified date	Commitment to make \take delivery (but usually positioned closed before delivery date)
SALE SPECIFICATIONS	<i>Transaction specific</i>	<i>Transaction specific</i>	<i>Standardized</i>
PAYMENT	Immediate payment against transfer of goods	Payment transfer at a specified date, usually at maturity against transfer of goods	Initial deposit required, daily margin calls, full remaining payment at maturity if delivery accepted (but usually position closed before delivery date)
RISK OF DEFAULT	None	Entirely depend on reliability of other party	Prevented by clearing house through initial margin and margin calls\penalties

Open Position and Risk

Futures contracts may or may not be held till maturity. The standardized contract terms, while facilitating liquidity and price discovery, discourages users of physical commodities from accepting delivery. The contract specifications often do not coincide with the precise needs of commercial users in terms of timing, location, quality or quantity. Consequently

maturing futures contracts are either replaced with a more distant one (**roll-over**) or are closed (**offset**) and the physical corresponding to the actual commercial user's needs in terms of timing, location, quantity and quality are acquired elsewhere (e.g., spot or forward market). At any point of time, the difference between the numbers of open commodity contracts held in an account is termed **net long** if futures purchases exceed sales and **net short** if sales exceed purchases. A futures trader may hold open positions to take delivery of commodities (**long position**) or to make delivery of commodities (**short position**).

Protection against default

Two institutional features distinguish futures contracts from forward. These features are margins and the clearinghouse. Margins are performance bonds that both buyer and seller deposit to the clearinghouse before trading. The clearinghouse is an addition to, or a division of the commodity exchange through which transactions executed on the floor of the exchange are settled. The margin is renewed daily and open positions are *marked to market*, i.e., gains or losses resulting from future price changes are calculated for each contract and added to (subtracted from) the initial margin. If adverse price movements result in the initial margin dropping below the minimum level (minimum margin) a margin call is issued by the clearinghouse/a variation margin or additional funds are needed to raise the deposit to initial levels. The minimum margin is the smallest allowable margin for the establishment of a futures position and is tailored to offset the maximum allowable price fluctuation during a day. The clearinghouse acts as a third party to all transactions. Once a bid or offer is accepted, the futures contract is recorded with the clearinghouse and clearing house becomes the opposite party to each contract. It assumes the selling positions to each buyer and the buying position to each seller. Settlements by a clearinghouse enhances market liquidity by

facilitating exit from the market and by depersonalizing contract performance. It reduces the number of contracts which in actual delivery of the physical commodity because traders are able to "close out" their contracts to sell (buy) by taking on an equal amount of contracts to buy (sell). Such an offset trade leaves the trader with a zero net position with the clearing house. In summary, margins and the daily marking of positions to the market reduce the risk of contract default to zero. Standardization of contracts implies that for a specific delivery period, only the price is being determined.

2.3 MAJOR PARTICIPANTS IN COMMODITY FUTURES MARKETS

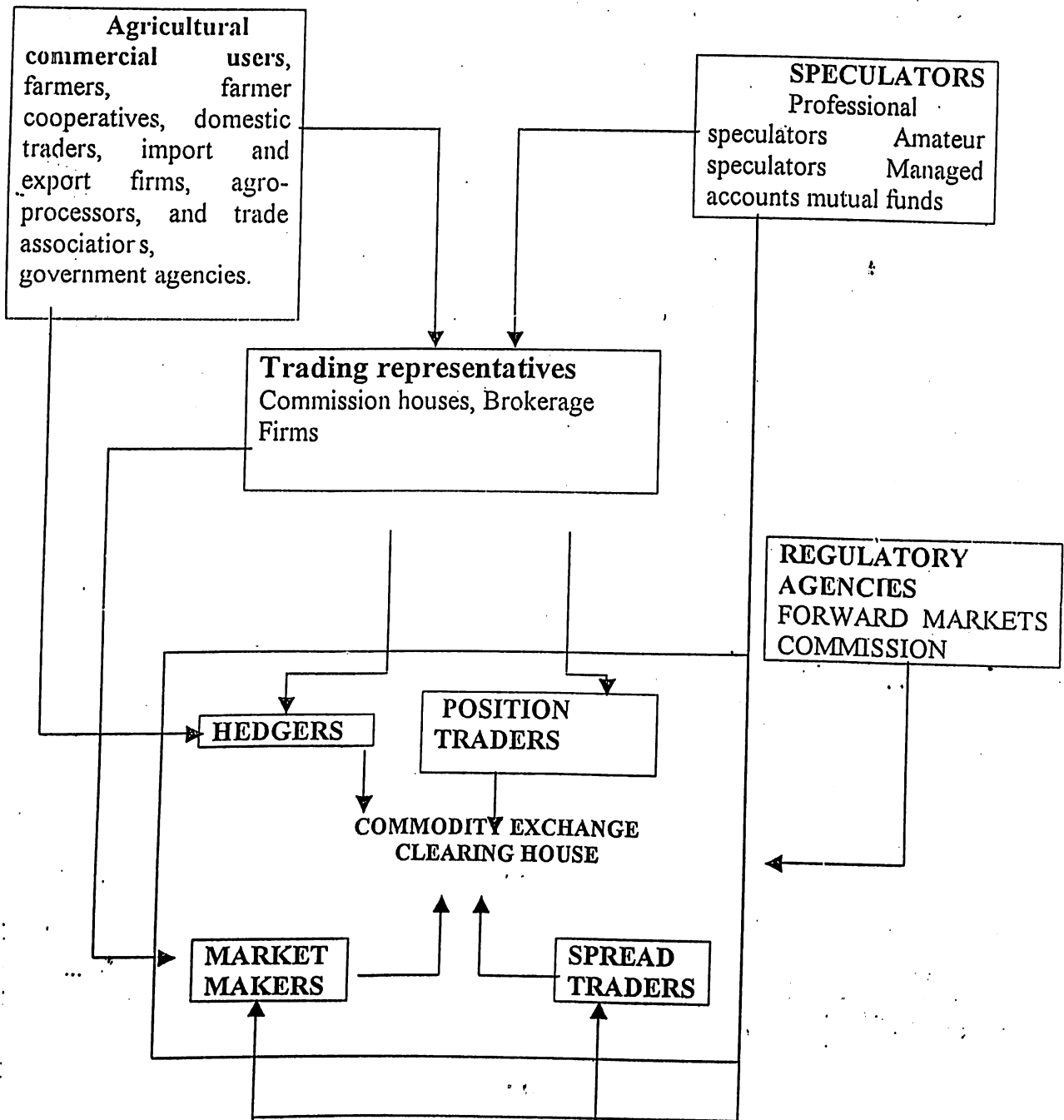
Hedgers and Speculators

The major users of commodity futures markets can be classified into two categories: commercial users and speculators. Commercial users are those who hedge physical transactions to protect themselves from adverse price movements, while speculators participate in the market to profit from these changes in prices. These classifications, however, are not mutually exclusive. Commercial users may take on speculative positions and vice versa. Agricultural commercial users of futures markets may include farmers, feedlot operators, and farmer cooperatives, domestic traders, import and export firms, agro-processors, trade associations and even government agencies.

Role of Speculators

Speculation serves a useful role in futures markets. It helps to provide liquidity to the system. Speculators in futures markets play the vital role of absorbing the frequent imbalance in demands of commercial buyers and sellers. In other words, the net open position by hedgers is taken over by the net open position by speculators. Thus speculators assume the risk, which hedgers seek to avoid, but do so in the hope of making a profit.

Figure 2.1. Major participants in agricultural commodity futures markets



Use of futures markets

Futures markets provide information on Anticipated Supply and Demand:

Futures markets reflect anticipatory supply and demand through prices. This price information is critical because of the lags between planning and realization of production. Consequently, producers can have access to market determined price information to base their production decisions upon, apart from their independent expectations of what prices will be at harvest. Commodity futures trading can thus offer opportunities for improving the management of price risks to producers, domestic merchants and processors, importers/exporters and consumers.

Futures markets guide storage and market transactions

For storable products, the difference between futures prices of different maturities signals the market-determined price of storage. The futures price spread between different delivery dates widens (for instances, price for immediate delivery decreases significantly, but, for future delivery, prices are more stable or decrease less.) when supplies are large, therefore creating the incentive to store. Such price spreads are small or negative when stocks are low thus creating an incentive to further release stocks into the market. Future prices also serve as reference price for anticipated purchases by consumers and processors, or sales of commodities by producers and traders that cannot be undertaken immediately in the cash markets. Consequently traders can buy and sell as their needs state and are not constrained by the physical operation of their businesses.

Futures markets enable exporters and importers to reduce price risks

As in the case of domestic commercial users, the use of future markets provides exporters and importers flexibility, information, and most importantly, the reduction of price risk. Futures markets enable these world market traders to hedge their inventories or their anticipated commercial purchases or sales, against adverse price movements. The direct futures markets also permits the forward pricing of exporters, which may prove critical to some economies, especially if the timing of export sales is vital to foreign exchange management. Similarly, the direct use off futures facilitates the pricing of anticipated imports up to the date of shipment. In both cases, exports and imports significantly large quantities can be priced almost instantaneously or can be priced over a period of months although they are to be shipped at one time.

Futures markets continuously update price information

Another benefit of futures trading is information improvement. In participating directly exporters and importers are able to monitor markets more closely and continuously. In addition, since they are likely to be trading through one or more brokerage houses, emerging information will be continuously analyses and available for further analysis. It may be argued that improved information will lead to improved pricing; although this may not always hold true.

Futures markets contribute to optimal resource allocation

Futures trading can serve as a substitute for actual purchases or sales by firms that do not have adequate storage and marketing facilities to support their operations. They enable firms to buy time while assembling their more

specific commodity needs on more suitable terms with respect to quality, delivery location and timing of delivery. They contribute to the stabilization of prices across crop years by increasing the efficiency of trader storage decisions. Most importantly, as a result of more optimal production processing storage and marketing decisions by firm's futures markets contribute towards optimal resource allocation in the economy.

Commodity futures markets can provide traders of agricultural commodities a mechanism for hedging inventory and for forward pricing. At the same time, the benefits of futures trading extend well beyond the boundaries of individual enterprise activities. Futures trading promote greater inter-and intra -seasonal price stability. It is a source of rational forward prices, leading to more efficient resource allocation.

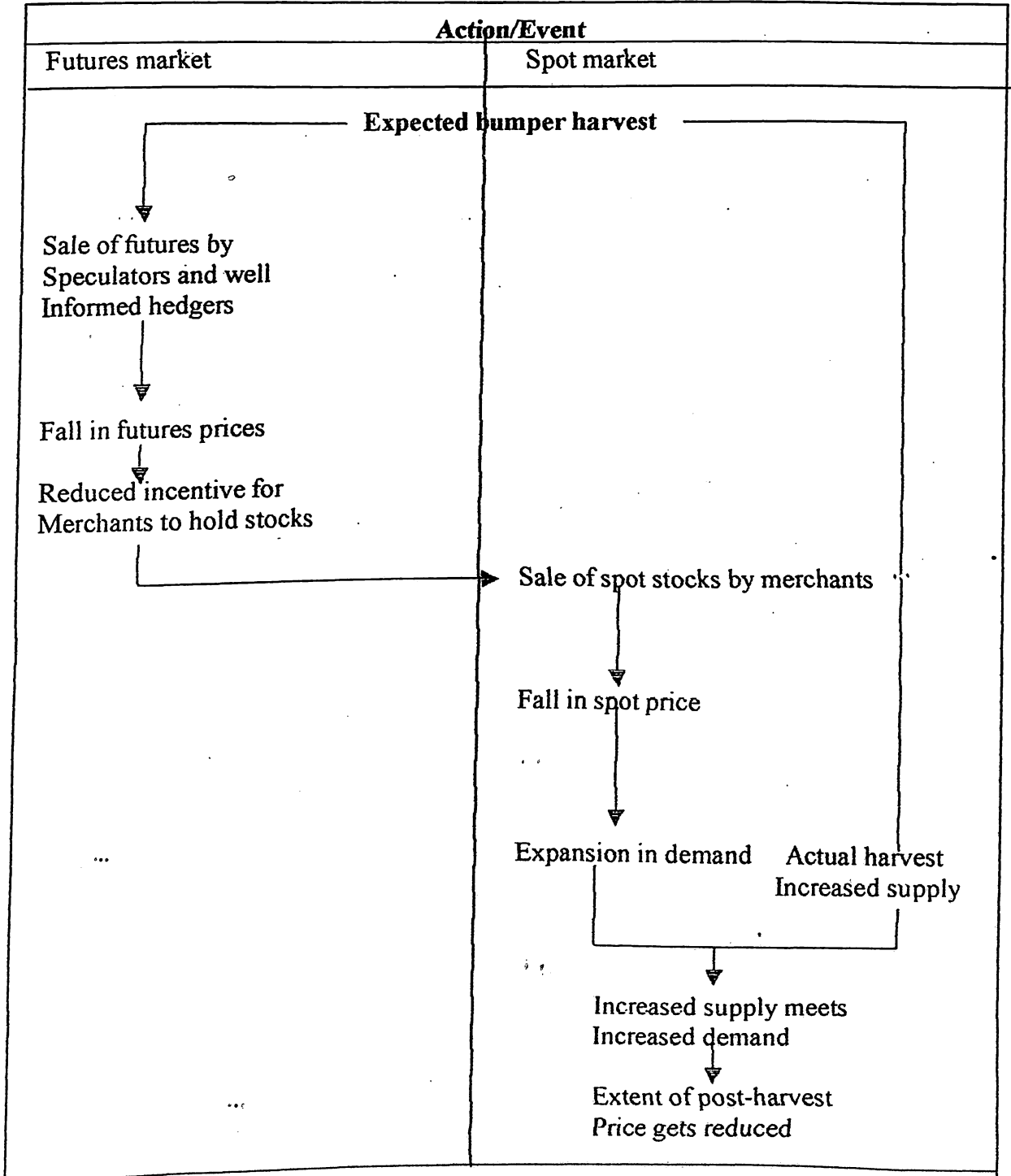
Price stabilizing effect of futures trading

i) Situation of falling price

Futures markets give market participants a very liquid mechanism to use their knowledge of future events to make profits. They give rise to a large class of professional speculators who specialize in obtaining and gathering information on the commodity, analyzing that that information and putting it to use in making speculative profits. On top these, existence of speculation increases the supply of information, and by acting on this information participants shifts the futures price. This in turn leads to corresponding change in spot prices.

For example, professional speculators in a commodity futures market may gather news of a bumper harvest in another country, of a crop exported by India. To take the advantage of this they will sell the futures contracts in India and thereby drive down the futures price. When this happens, spot market traders will notice that the attractiveness of holding stocks of commodity is reduced because the price, which they can expect to get, has come down. As a result spot market traders will move to reduce their stock holdings by discharging ready stocks into the spot market. This will lower the spot price. When this happens demand for the commodity will expand since the price has fallen. (The extent of the expansion will depend on the price elasticity of demand for the commodity) Because of the enhanced demand, the surplus at the time of actual harvest will be less than it would otherwise have been. Accordingly, the post harvest fall in the price will also be of a lesser magnitude than would have occurred in the absence of futures trading. The process by which this happens is illustrated in Figure 2.2.

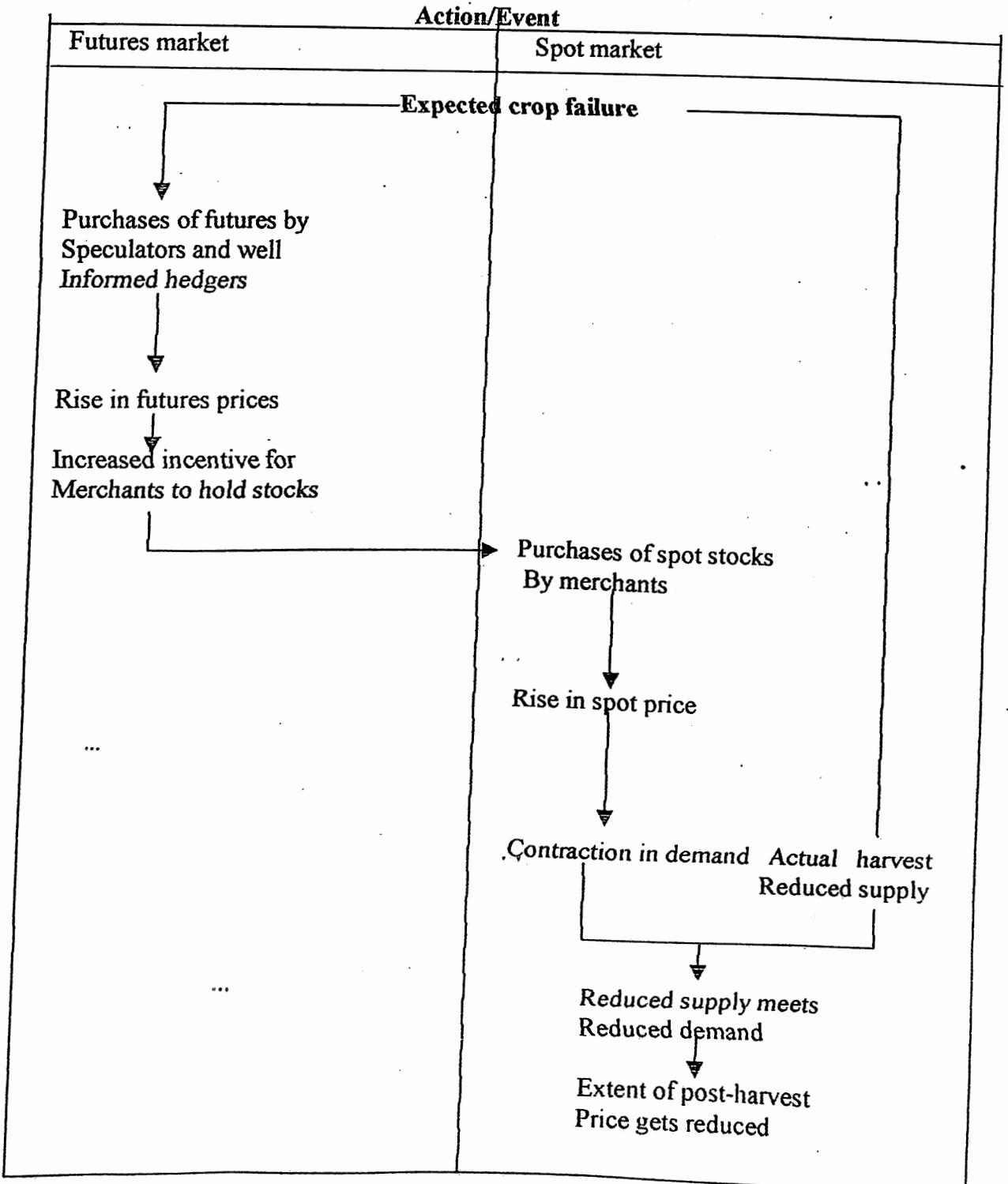
Figure 2.2. Price stabilizing effect of futures trading: Situation of falling price



ii) Situation of rising price

Assume a bad harvest in the foreign country is expected, and this information comes to the notice of professional speculators who monitor price trends all over the world. Speculators will buy up futures contracts for delivery after the harvest period. The act of buying will push up the futures price, giving spot market traders a greater incentive to hold stocks (Since they can anticipate a better return from stock holding than expected earlier). This will result in additional demand for spot, pushing up the spot price. The rise in the spot price will lead to a contraction in the demand for the commodity. (The extent of contraction will depend on the price elasticity of demand) Accordingly, when the crop is harvested, the reduced supply will meet a reduced demand. This will mean that the post-harvest price increase will be smaller than it would have been in the absence of futures trading. Figure 2.3 illustrates this mechanism.

Figure 2.3. Price stabilizing effect of futures trading: Situation of rising price



ORGANISATIONAL PROFILE

CHAPTER III

INDIA PEPPER AND SPICES TRADERS ASSOCIATION

A BRIEF PROFILE

3.1 INTRODUCTION

Futures contracts in commodities trading are generally entered under the auspices of commercial bodies known as commodity exchange or associations. Commodity exchange facilitates organized trading and a regulatory framework for compliance of contracts in terms of quality, delivery, payment and settlements of disputes among the trading members.

India pepper and spice Trade Association is the only association in India now engaged in future trading in pepper trade. The India Pepper and Spice Trade Association (IPSTA) is an Association of members registered under Section 25 of the Company's Act situated in Mattancherry, Kochi established in 1957. IPSTA has been functioning in futures trading in pepper without break since 1957. Futures trading is a price risk management instrument, which offers many advantages to traders, stockists, farmers, exporters and end users by protecting them from adverse price fluctuations. Two main benefits of futures trading are Price Discovery and Hedging. Some of these benefits of futures trading are already reaching you indirectly via the healthy and fair prices issued in the newspapers, magazines, television, etc. every day, which are determined at IPSTA. However, there are certain benefits, which can be taken advantage of by farmers directly becoming members of the Association and trading in the exchange. This helps them to avoid the risk in

price fluctuation. It also helps in planning their requirements by knowing the exact time of expected delivery.

3.2 OBJECTIVES OF IPSTA

1. To promote and protect the home and foreign trade in pepper and other commodities.
2. To collect and circulate statistics regarding production marketing and consumption of and also other information relating to pepper.
3. To establish uniformity in rules, regulations and usages of the trade in pepper, through the formulation of home and shipping standards quality certificate, standard contract forms, certificates of analysis etc and to take steps to enforce adherence to the same.
4. To control and regulate and to make rules and Bye-laws for the control and regulation of ready, forward and other contracts in pepper.
5. To participate in fairs and exhibitions with a view to give publicity to Indian pepper and other spices and to publish bulletins or periodicals in the interest of the trade in pepper.
6. To institute, set up and promote facilities for research on growing and production methods for increasing production and quality of pepper.
7. To make contributions to other bodies protecting the interest of the trade in pepper.

3.3 TRADING FEATURES OF IPSTA (ICE) (DOMESTIC DIVISION)

- Trading takes place according to bye-laws, rules and regulations of the Association.
- The Bye-laws, rules and regulations are distributed to all members free of cost or can be purchased from the office of the Association for a fee of Rs.100/- for outsiders.
- 12 Contracts are traded, one for each calendar month.
- All pepper futures contracts are fully guaranteed by IPSTA leading to no risk by default. For this purpose, a Trade Guarantee Fund has been set up.
- The members can trade directly on the trading floor or through registered brokers of the Association.
- The Association collects a laga of Rs.2/- and Guarantee Fee of Rs.5/- per transaction.
- Unit of trading is 10 quintals (1 tone) on which an advance margin of Rs.8, 000/- is collected by IPSTA.
- Daily clearing (mark-to-market) allows members to collect/disburse their net profits/losses daily through the exchange, as per variation in prices.

- The open position at the end of the contract results in actual physical delivery.
- Malabar Garbled Black Pepper grade is traded for each calendar month.
- For Malabar Garbled Black Pepper grade shall be, well dried with permissible mould up to 1%; free from oil wash; with light pepper permissible up to 2%; with extraneous matter such as bran, chaff, stalks and stones permissible up to 0.5%; and moisture permissible up to 11% with a tolerance of 0.5% during monsoon.
- The position limit per member is restricted to 3000 quintals (300 tones). However, this limit is not applicable to genuine hedgers who submit documentary proof of hedging.
- The exchange puts a restriction of Rs.400/- per quintal on the daily price fluctuation as compared with the previous day's closing price.
- Special margins are collected over and above other margins when the price moves above or below a certain price band.
- On-line trading will start shortly. Members/Registered Non Member Clients can then trade from anywhere in the world with the help of proper authorization and passwords.

HOW TO BECOME A MEMBER IN IPSTA DOMESTIC DIVISION?

- An application form has to be filled and submitted.
- Two existing members of the exchange have to propose and second the new applicant.
- A bank confidential statement has to be submitted stating the credibility of the applicant in the specified format.
- Applicants have the option of executing specific power of attorney to authorize representatives to trade and otherwise deal on behalf of the member.
- A mailing address in Cochin is required.
- A one-time admission fee of Rs.15,000/- and Guarantee Fee of Rs.50,000/- is charged.
- The annual subscription is Rs.1000.
- A security deposit of Rs.500/- is collected which is refundable.

3.4 TRADING FEATURES OF IPSTA (ICE) (INTERNATIONAL DIVISION)

TRADING PATTERN IN IPSTA INTERNATIONAL COMMODITY EXCHANGE DIVISION:

- Trading takes place according to bye-laws, rules and regulations of the Association.
- 18 Contracts are traded, three for each alternate calendar month, MLS ASTA, VB ASTA and FAQ quality for February, April, June, August, October and December.
- All contracts are fully guaranteed by the First Commodities Clearing Corporation of India Ltd. leading to no risk by default.
- Unit of trading is 15 tonnes for MLS ASTA and VB ASTA and 12.5 tonnes for FAQ and price quote shall be for FOB contract.
- The trading limit per member is restricted to 225 tonnes.
- Prices are quoted in US\$ per Tonne.
- All margins and variation margins are collected and disbursed in US Dollars.
- The Exchange will collect a Transaction Fee of 90 cents per transaction for MLS ASTA and VB ASTA and 75 cents per transaction for FAQ.
- Registered Non member clients can trade and deliver through any Composite Clearing Members or Composite Trading Members of the exchange after entering into an agreement for the same.

- Daily clearing (mark-to-market) allows members/non member clients to collect/disburse their net profits/losses daily through the clearing banks, as per variation in prices. Swift transfer of funds is possible through hi tech clearing banks.

DELIVERY PATTERN IN IPSTA

- The open position at the end of the contract results in actual physical delivery.
- The delivery is FOB or can be Ex- Designated Warehouse at the option of the buyer.
- Delivery centers include Kochi, Panjang, Singapore, Kuching, Belem and Bangkok.
- The basis for MLS ASTA and VB ASTA grades shall be pepper with extraneous matters permissible up to 1% by weight; light pepper permissible up to 2% by weight; moisture permissible up to 12% by weight; mould visible to the naked eye permissible up to 1% by weight; mammalian excreta permissible up to 2.2 mg per kg (1 mg per pound); other excreta permissible up to 11.0 mg per kg (5 mg per pound); and insects permissible up to 441 per 100 kg (2 per pound).
- The basis for FAQ quality black pepper grade shall be with light pepper permissible up to 10%, moisture permissible up to 13%, extraneous matter permissible up to 2%, mould permissible up to 2% and free from oil wash.

REQUIREMENTS OF FOREIGN PARTICIPANTS

(Member OR Registered Non-Member Client)

IN IPSTA INTERNATIONAL COMMODITY EXCHANGE DIVISION:

1. Application form of the Exchange for Membership (Form A) duly filled in four sets.
2. Admission fee and annual fees to be paid.

Table 3.2. Category of Membership in IPSTA (ICE)

Category	Net owned funds requirements (US\$)	Admission fee (Rs)	Annual fee (Rs)
Composite Clearing Member (CCM)	50,000	50,000	5,000
Composite Trading Member (CTM)	35,000	35,000	3,500
Trading cum Clearing Member (TCM)	20,000	20,000	2,000
Trading Member (TM)	8,000	15,000	1,500
Institutional Clearing Member (ICM)	N.A.	100,000	10,000
Registered Non-Member (RNM)	Not required	Rs. 1,000	Rs. 600

To become a CCM or a TCM, the applicant should get the approval of the Foreign Investment Promotion Board (FIPB) of the Government of India and be registered as a company in India. FCCCI will present the application to FIPB. The applicant should subscribe to the equity of FCCCI. Clearing members alone need to subscribe to the equity of FCCCI.

Table 3.3. Category of Membership in IPSTA (ICE)

Category	Minimum equity (Rs)	Maximum equity (Rs)
Composite Clearing Member (CCM)	250,000	1,250,000
Trading cum Clearing Member (TCM)	100,000	240,000
Institutional Clearing Member (ICM)	1,000,000	5,000,000

To become a CTM or a TM, the applicant need not apply to FIPB. A branch office would be sufficient; registration as a company is not mandatory.

To become a Registered Non Member, the applicant need not be registered as a company nor have a branch office in India.

1. Application form of the Exchange for Registered-Non-Members (RNM), duly filled (Form A) in triplicate.
2. Registration and processing fee of US\$185 for the Forward Markets Commission for five years and registration fee of US\$21 for the Exchange (RNM) for one year. Subsequently, renewal fee of US\$13 is payable per annum.

3.5 INSTRUMENTS OF REGULATION IN IPSTA (ICE)

The principle instruments of regulation in IPSTA are as follows:

1. **Ordinary margins:** Ordinary margins are deposits to be paid by the members of IPSTA on their outstanding or "open" contacts i.e.; those that have been neither settled by entering in to contracts of an opposite

nature nor fulfilled by giving or taking delivery. The margins are payable at a specified rate for every unit of open business they are collected from the members as a safeguard against a possible default on their part to pay their dues to others case of an possible an adverse change in the price of the contract.

2. ***Special/automatic clearings:*** Special or automatic clearings are provided for in the byelaws of IPSTA to cover the risk involved in abrupt and sharp price fluctuations. Such clearings also reduce the risk of defaults by parties against whom prices have moved.
3. ***Special Margins:*** Special margins are imposed when the futures prices are found to be moving sharply in only one direction and it is suspected that movement is not entirely justified by economic factor. Special margins are deposits to be paid by the members. They are related to a certain levels of prices, commonly known as the Margin Line, the movement beyond which is sought to be restrained by the levy of additional financial burdens on outstanding business.
4. ***Withholding of outward payments of profits:*** This is generally used not independently but to supplement the special margin.
5. ***Limits on open position:*** A limit on open position is at times prescribed and operators in the futures market are not permitted to hold or control an open position in excess of the prescribed limit.
6. ***Suspension or trading:*** When an emergency arises in the market it take some time to judge its character, ascertain its causes, comprehend its

implications and device appropriate measures to remedy the situations. It is obviously undesirable for IPSTA to allow trading to continue during an emergency, as it is likely to aggravate the situation. Such a suspension of trading by IPSTA for a short period gives sufficient time to device corrective measures.

7. ***Prohibition of fresh trading:*** If serious difficulties are anticipated in a futures contract, members are prohibited from entering into fresh commitments with each other though they are permitted to offset their outstanding contracts.
8. ***Limits on price fluctuation:*** A limit on price fluctuation is imposed either on the price rise or on price fall or both on daily/ weekly basis to prevent abrupt upswing or downswing in prices.
9. ***Maximum and minimum price:*** They are prescribed to prevent futures prices from rising above the levels not warranted by genuine supply and demand factors or from falling below the levels that are unremunerative.
10. ***Changes in the tender able varieties:*** The varieties tender able against the hedge contract is laid down in the bye-laws. As the delivery period approaches, sometimes cornering of goods may take place. To counteract such developments, IPSTA may add some non-tender able varieties to increase the total tender able supply against the contract. As a result the chances of an effective corner are reduced.
11. ***Closure of contracts:*** In certain circumstances, none of the instruments of control might prove adequate to restore orderly and healthy trading

conditions and it might become necessary to take the extreme step of stopping forward trading altogether and closing out the contracts outstanding in the market at the time.

12. *Prohibition of futures trading:* When prices of a particular commodity is seen to be going up continuously without any immediate prospect of relief, Prohibition of futures trading altogether is resorted to by IPSTA as an instrument of controlling the rising trend of ready prices.

CHAPTER IV

AN ANALYSIS OF PRICE DISCOVERY

4.1 INTRODUCTION

This chapter aims to carry out an econometric analysis for testing the market efficiency in terms of better price discovery mechanism under pepper futures trading. Also an analysis of price movements of pepper and certain economic aspects of pepper viz. production and export during the period under review is attempted. A critical analysis of the policies of the IPSFA is also undertaken.

The analysis is presented in the following sections. The first section deals with the process of price discovery. Second section analyses the price movements of pepper during the period of 1981-84 to 2001-02. It also carries out the analysis of certain economic aspects of pepper viz. production and export during the period January 2002 to November 2003.

4.1.1

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ANALYSIS

The analysis is presented in the following sections. The first section deals with the process of price discovery. Second section analyses the price movements of pepper during the period of 1981-84 to 2001-02. It also carries out the analysis of certain economic aspects of pepper viz. production and export during the period January 2002 to November 2003.

CHAPTER IV

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The analysis is presented in the following sequence. The first section deals with the process of price discovery. Second section analyses the price movements of pepper during a period of 1981-82 to 2000-01. It also consists of the analysis of certain economic aspects of pepper viz. production and export during the period January 2002 to November 2002.

...

Section I

As mentioned in the introduction, this section analyses the process of price discovery.

...

Futures trade assumes significance in a volatile ready market and price risk management because of price discovery. The price discovery is the process of determining the price of a commodity based on supply and demand factors. The hypothesis is that the current futures price is a consensus forecast

of the value of spot price in the future. The futures market for a commodity is said to be efficient when the 'n' period futures rate ($F_{t,n}$) is equal to the future ready rate (S_{t+n}). The efficient market ensures that the average difference between the today's future rate (with n day maturity) and the subsequent ready rate n days later was zero. The difference, if any represents both the futures rate's forecasting error and the opportunity for gain or loss from open positions in the market. The efficiency of the futures market is usually examined by testing the unbiasedness of futures rate as a predictor of spot rate.

The hypothesis is that the premium or discount in the futures market is an unbiased linear predictor of the price change in the corresponding spot market may be tested using the regression equation

$$DSt+n = \alpha + \beta FPt + \epsilon_{t+n} ,$$

$$t=1, \dots, T,$$

in which

$$(DSt+n) = (St+n - St) \quad \text{and}$$

$$FPt = Ft - St$$

Where S_t and S_{t+n} are the logarithms of the ready rate at time t and $t+n$ respectively, F_t is the logarithm of the futures rate established at time t for period $t+n$, and ϵ_{t+n} is an error term. Here the n is taken for 180 days. In this form, the unbiasedness hypothesis implies that $\alpha=0$ and $\beta=1$. Such a restriction

is consistent with a model of a competitive market with no transaction costs, risk-neutral speculators and market expectations, which are rational.

Testing the unbiasedness hypothesis involves estimating regression equation and determining whether coefficient estimates of $\alpha=0$ and $\beta=1$ are significantly different 0 and 1 respectively. Alternatively, futures rate is an unbiased predictor of the future ready rate. If the average forecast error (ϵ_{t+n}) is not significantly different from zero. The optimal forecast would be one that minimizes the average of the squared forecast error i.e., minimum mean square error (MSE) over the sample period. The forecast error (ϵ_{t+n}) represents the speculative profit for traders who buy futures contracts at F_t and sell in the ready market at S_{t+n} . The forecast error is unlikely to be consistently large and positive because larger profits would attract speculators buying futures, resulting increase in F_t and decrease in ϵ_{t+n} , thus removing profits.

The test results based on the estimates of the regression equation have been represented in table 4.3

TABLE 4.4. Regression coefficients

CONTRACT	α	β	R Square
January2002	0.0889	-0.0184	0.0009
February2002	0.7744	0.2176	0.1630
March2002	0.9175	0.3303	0.4010
April2002	0.5738	-0.2771	0.4031
May2002	0.6821	0.2629	0.3235
June2002	0.5074	0.2257	0.1257
July2002	-1.9458	0.1684	0.3789
August2002	-2.1144	0.1387	0.2591
September2002	-1.8988	0.1131	0.1558
October2002	-0.1086	0.0125	0.0004
November2002	-0.7613	-0.0339	0.0059
December2002	-1.5641	-0.0292	0.0297

The hypothesis that $\alpha=0$ and $\beta=1$ is rejected in all sample cases. The test results indicate that pepper futures market is not effective in predicting the future ready prices.

Section II

In order to compare the International and domestic pepper prices, the annual average unit price of pepper at Cochin market is taken as the domestic pepper price and annual average unit price of pepper quoted at New York market as international price. Table 4.5 shows the comparison of international and domestic prices of pepper.

Table 4. 5. Comparison of domestic and international price of pepper

Year	Domestic price (Rs./kg)	International price (Rs./kg)	International price – domestic price (Rs./kg)
1981-82	12.84 (-)	13.37 (-)	0.53
1982-83	12.36 (-3.7)	14.48 (8.3)	2.12
1983-84	16.17 (30.8)	20.95 (44.7)	4.78
1984-85	25.81 59.6)	27.73 (32.7)	1.92
1985-86	41.21 (59.6)	51.81 (86.8)	10.6
1986-87	54.61 (32.5)	57.39 (10.8)	2.78
1987-88	52.97 (-3.0)	67.23 (17.14)	14.26
1988-89	38.80 (-26.75)	45.78 (-31.9)	6.98
1989-90	42.06 (8.4)	47.62 (4.01)	5.56
1990-91	33.35 (-20.7)	38.55 (-19.0)	5.2
1991-92	33.72 (1.11)	40.95 (6.2)	7.23
1992-93	28.58 (-15.24)	35.2 (-14)	6.62

1993-94	37.69 (31.8)	47.04 (33.6)	9.35
1994-95	62.81 (66.7)	72.8 (54.8)	9.99
1995-96	77.08 (22.7)	83.3 (14.4)	6.22
1996-97	83.75 (8.7)	92.43 (10.9)	8.68
1997-98	173.43 (107.0)	100.33 (8.6)	-73.1
1998-99	206.00 (18.8)	203.67 (103)	-2.33
1999-00	215.00 (4.4)	245.81 (20.7)	30.81
2000-01	174.2 (-18.9)	196.24 (-20.2)	22.04
CAGR	21.0	19.7	-

Source : 1). Spices Statistics, Spices Board, Cochin; 2002

2). Pepper Statistical Year Book, IPC, Jakarta, 2001

Note : Figures in parenthesis indicate percentage change over previous year.

Differential growth in prices can be seen during the post liberalization period also (1991-2001). The first phase of the reform period (till 1995-96), however depicted comparatively lesser momentum in the surging of prices. But after induction of WTO, the price rose in leaps and bounds and reached the peak value of almost Rs250/kg, the highest ever in the history of pepper trade. But for the last year of the decade the price line shows a slight decline due to excess supply of the product in international market. This is Vietnam and Malaysia. Moreover, the relatively lower labour costs reduces the unit cost of production in these countries and they are able to supply the commodity at a lower price in the international market, posing threat to Indian exports.

It can be seen from Table 4.5 that the domestic prices were higher than the international prices during the whole reference period, except in 1997-98 and 1998-99. It was revealed from the discussion with officials in IPSTA,

that the expectations of higher future prices on the part of producers, based on the continuously increasing trend in prices experienced during the past three to four years and the resultant holdings of stock led to a shortage in domestic market which might have caused the unprecedented jump in domestic prices of pepper.

In order to compare the recent changes in the export scenario of pepper, the monthly data of export of various pepper exporting countries have been used. The monthly export data of pepper for the year 2002 were collected for the analysis.

Table 4.6. Monthly Export of Pepper in metric tons for the year 2002

Months	Brazil	India	Indonesia	Malaysia	Sri Lanka	Vietnam	Total
January	2,349	2,000	2,604	1,687	125	895	9,660
February	2,439	2,400	2,147	561	42	3,942	11,530
March	1,714	2,800	2,229	831	38	9,751	17,363
April	1,457	2,500	2,546	1,360	267	11,698	19,827
May	933	2,000	2,547	2,304	1,042	10,162	18,988
June	826	1,500	3,855	2,145	1,287	10,871	20,484
July	1,656	1,100	4,859	2,310	1,082	6,456	17,463
August	2,361	1,100	6,642	2,488	729	7,314	20,634
September	4,684	1,000	5,124	2,497	811	5,788	19,903
October	7,119	1,300	5,908	2,674	977	7,033	25,012
November	6,500	1,500	4,626	2,211	500	2,031	17,368
Total	32,038 (32,358)	19,200	43,085 (56,836)	21,068 (24,471)	6,900 (1,992)	75,941 (55,309)	198,231 (191,865)

Source: Pepper Market Review - November 2002, IPC, Jakarta
(Figures in parenthesis show the export during January – November 2001 in metric tonnes)

During January - November 2002, exports from these six exporting countries totaled to around 198,231 metric tonnes, which was 6,366 metric tonnes or three percent more compared to the export of 191,865 metric tonnes in the last year's corresponding period. **Brazil** has been exported around 32,038 metric tonnes registering a slight decline of one percent compared to the export in the same period last year. Total export of **India** was 19,200 metric tonnes. Total export of **Vietnam** was 75,941 metric tonnes. This quantity represents an increase of 37 percent from 55,309 metric tonnes exported in the last year's corresponding period. Total export of pepper from **Malaysia** has declined by 3,403 metric tonnes (14 %) compared to the export of 24,471 metric tonnes in January - November 2001. **Indonesia** exported 43,085 metric tonnes (15,134 metric tonnes of black and 27,951 metric tonnes of white), of pepper showing a substantial fall of 13,751 metric tonnes or 24 percent compared to the total export of 56,836 metric tonnes in January - November 2001. **Sri Lanka** exported 6,900 metric tonnes of pepper. This quantity was 4,907 metric tonnes more when compared to the total export of 1,992 during January - November 2001.

In order to compare the production of major pepper producing countries the yearly data on production of pepper for the last three years collected and analysed. Table 4.6 shows the production of pepper during the last three years.

Table 4.6. Production of Pepper during 2000, 2001 and 2002 in metric tons

COUNTRY	2000	2001	Change	%	2002	Change	%
Brazil	26,385	43,000	16,615	63%	45,000	2,000	5%
India	58,000	79,000	21,000	36%	80,000	1,000	1%
Indonesia	77,500	59,000	(18,500)	-24%	52,000	(7,000)	-12%
Malaysia	24,000	27,000	3,000	13%	24,000	(3,000)	-11%
Sri Lanka	10,676	7,800	(2,876)	-27%	9,000	1,200	15%
<i>IPC Countries</i>	<i>196,561</i>	<i>215,800</i>	<i>19,239</i>	<i>10%</i>	<i>210,000</i>	<i>-5,800</i>	<i>-3%</i>
Vietnam	36,000	56,000	20,000	56%	60,000	4,000	7%
China, Peo. Rep.	18,000	21,700	3,700	21%	23,000	1,300	6%
Thailand	6,534	8,819	2,285	35%	9,962	1,143	13%
Madagascar	2,091	3,376	1,285	61%	2,500	(876)	-26%
<i>Non-IPC Countries</i>	<i>62,625</i>	<i>89,895</i>	<i>27,270</i>	<i>44%</i>	<i>95,462</i>	<i>5,567</i>	<i>6%</i>
TOTAL	259,186	305,695	46,509	18%	305,462	-233	0%

Source: Pepper Market Review - November 2002, IPC, Jakarta

The increase in world production in 2001 is due to good crop size particularly in Brazil, India and Vietnam. During 2002, the global pepper production was more or less similar to the production level of 2001. Production of pepper from Indonesia, Malaysia and Madagascar decreased, while production from Brazil, India, Sri Lanka, Vietnam, China and Thailand increased.

SUMMARY AND FINDINGS

CHAPTER V

SUMMARY OF FINDINGS AND CONCLUSIONS

5.1 INTRODUCTION

In the market economy, where prices and distribution controls are fewer, the market forces may not always be in the interests of the operators; producers and consumers. The problem of price risk management will remain. To what extent the price risks can be managed properly will depend on various factors, including the self-discipline of the market operators, free import and continuing increase in the production of various commodities. The supply management of essential commodities will continue to be relevant. In this emerging situation, the role of futures and forward market is bound to increase.

5.1 FINDINGS AND CONCLUSIONS

- i) The joint null hypothesis that $\alpha=0$ and $\beta=1$ is rejected in all sample cases of analysis of price discovery. This indicates that pepper futures market is not efficient in predicting the future ready prices.
- ii) Moreover the pepper exchange has thin trade volume.
- iii) The analysis of the domestic and international price revealed that the pattern of movement in both the prices shows close association.
- iv) The analysis of the major economic parameters such as production, export, domestic and international prices of pepper reiterate that, it is not the spot price that alone determines the future price of pepper but there is an amalgam of all these factors along with the perception of various

participants about the futures market that ultimately influence the future price.

- v) In spite of a developed ready market for black pepper, futures market does not attract farmers.
- vi) The pepper exchange, despite its good quality services, is not as dynamic a business entity as its counterparts in other countries are.
- vii) It has been found that the pepper exchange is not very active in the promotion of the available services among potential users; it does not even have a marketing division.
- viii) Access to the market has been made more difficult by rules, which force members of the exchange to obtain a local sales tax registration in accordance with government regulations. This takes a minimum of six months to one year, and is only feasible for those who have an office in Kochi.
- ix) The prices of exchange are not distributed through any information vendors (such as Reuters or Knight -Ridder). If this were done, the relevance of the market to pepper producers, traders and buyers would immediately become larger.

5.3

CONCLUSION

The Pepper Exchange at Cochin has benefited the Indian Pepper Community. The Exchange will have to adopt an action programme to bring it up to a higher operational level. Moreover it would have to consider which practical arrangements need to be made to promote its international visibility and, in particular how to adapt its contract specifications – delivery grades and location, contract currency to make them attractive to both local and

international players. Since this is an era in which multi commodities are traded through commodity exchanges, Pepper Exchange would have to adopt a policy to start commodities other than pepper in order to sustain in the long term. Besides, the participation of farmers should be enhanced. Finally a promotional campaign by the Cochin Pepper Exchange would be essential.

**PRICE DISCOVERY MECHANISM UNDER
PEPPER FUTURES TRADING**

By

SANOJ.P.G

ABSTRACT OF THE PROJECT REPORT

Submitted in partial fulfillment of the requirement for the degree of

Bachelor of Science in Co-operation & Banking

Faculty of Agriculture

COLLEGE OF CO-OPERATION, BANKING & MANAGEMENT

KERALA AGRICULTURAL UNIVERSITY

VELLANIKKARA, THRISSUR -680656

KERALA, INDIA

2004

ABSTRACT OF THE PROJECT REPORT

The study entitled 'Price discovery mechanism under Pepper futures trading' was undertaken to analyze the price discovery of pepper futures market. The study also attempted a critical review of the policies adopted by the India Pepper and Spice Traders Association in the promotion of futures trading in Pepper.

For the purpose of analysis, secondary data on spot and future prices of pepper for a period of twelve months for the year 2002 were used. Also discussions with the authorities of the IPSTA were sought for the purpose of the study.

The null hypotheses that $\alpha=0$ and $\beta=1$ is rejected in all sample cases of analysis of price discovery indicating that pepper futures market is not efficient in predicting the future ready prices. Moreover the Pepper exchange has registered only thin trade volume. In spite of a developed ready market for black pepper, futures market does not attract farmers. Analysis also revealed that Access to the market has been made more difficult by rules, which force members of the exchange to obtain a local sales tax registration in accordance with government regulations. This takes a minimum of six months to one year, and is only feasible for those who have an office in Kochi.

The Exchange will have to adopt an action programme to bring it up to a higher operational level. Since this is an era in which multi commodities are traded through commodity exchanges, Pepper Exchange would have to adopt a policy to start commodities other than pepper in order to sustain in the long term. Besides, the participation of farmers should be enhanced. A

promotional campaign by the Cochin Pepper Exchange would be essential to promote active price discovery.

Thus the study concluded that the Pepper exchange is not effective in price discovery and it would have to consider which practical arrangements need to be made to promote its international visibility and, in particular how to adapt its contract specifications – delivery grades and location, contract currency to make them attractive to both local and international players.

BIBLIOGRAPHY

David East (1980) "Commodity Prices & the Liberalization of Indian Economy: Lessons from Institutional Experience", *New York University Review*, p 37

Harold P. Hoopes, G. & "Commodity Exchanges and Futures Trading", Harper Bros, New York, 1988

John G. S. (1988) "Market Structure and the Discovery of Commodity Prices in India: Evidence from Paper and Commodity Markets", *Journal of Applied Economics*, July-September 1988, p 11

Kolamka, D. (1988) "The Role of Commodity Exchanges in the Development of Commodity Markets in India: A Study of the Commodity Exchanges of India", *Journal of Applied Economics*, p 11

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BIBLIOGRAPHY

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BIBLIOGRAPHY

- Benoit Blarel. (1996). "Commodity Futures & the Liberalization of Indian Economy: Lessons from International Experience", New Delhi, *Assocham Souvenir*, p.37
- Baer J B, Saxon, O G. "Commodity Exchanges and Futures Trading", Harper Bros., New York, 1948.
- Mishra G S et al. (1998). "Market Structure and Price discovery of commodity futures in India: Evidence from Pepper and Castor seed" *Management & Accounting Research* July-September 1998, p.71
- Kolamkar, D.S (2001) "Regulation and policy issues for commodity derivatives in India", National Multi Commodity Exchange of India Limited, Ahamedbad, p.p.5
- Lamon Rutten (1996) "Commodity Exchange Development and the Role of the Government: Policeman and Facilitator", New Delhi, *Assocham Souvenir*, p.5
- Pavaskar, R. "Efficiency of futures trading", Popular Prakashan, Bombay, 1977, p.22
- Ron Duncan (1996) "Managing Commodity Price Instability in Newly Liberalization Economies", New Delhi, *Assocham Souvenir*, p.29
- Sahadevan. K.G. (2002) "Derivatives and Price Risk Management: A Study of Agricultural Commodity Futures in India", p.p (iii)



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48

Somanathan, T V "An Analysis of Financial Futures", *Forward Markets Bulletin*, Vol.XXVIII, No.3, Sept. 1986.

Somaniathan, T V "Commodity and Financial Futures: An economic analysis", pp 98-99

Somanathan, T V "Commodity and Financial Futures: An economic analysis", *op.cit.*, pp 256-260.

UNCTAD (1993) "Feasibility study on a world wide pepper futures contract", *Report by the UNCTAD Secretariat*, Jakarta, p.51

UNCTAD (1993) "Regional Workshop on Commodity Exchanges", *Report by the UNCTAD Secretariat*, Jakarta, p.3

UNCTAD. Standing Committee on Commodities (1994), National Conference on Commodities Futures Markets, April 25-26, 1996, New Delhi, *Assocham Souvenir*, 67.B. p.2

Vidyasagar.T. (1996) "Current Status of Getting the IPSTA (Cochin Exchange) Internationalized", New Delhi, *Assocham Souvenir*, p.73

World Bank and IMF (1994). Development Committee National Conference on Commodities Futures Markets, April 25-26, 1996, New Delhi, *Assocham Souvenir*, 67.B. p.2

World Bank (1999). "Managing Price Risks in India's Liberalized Agriculture Can Futures Markets Help?" p.40

ANNEXURE



ANNEXURE



ANNEXURE

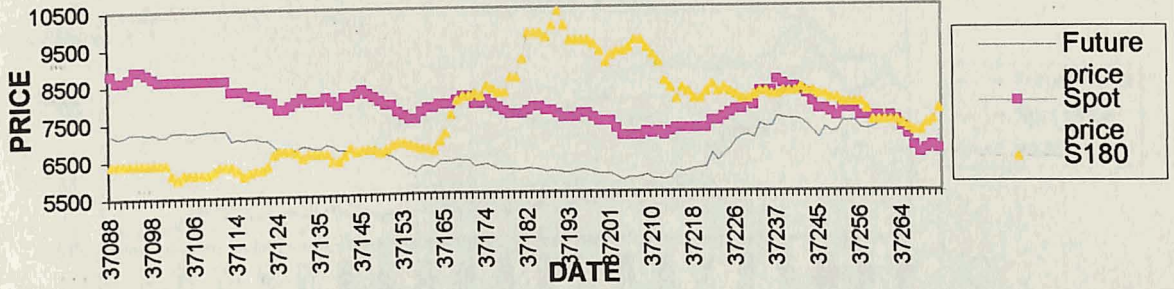


ANNEXURE

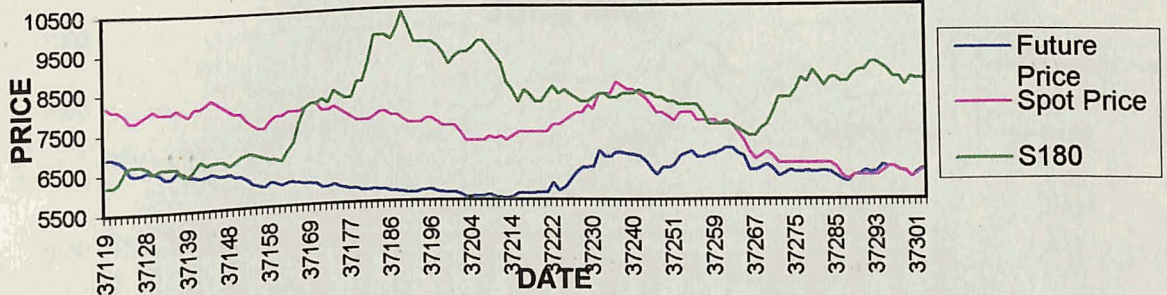


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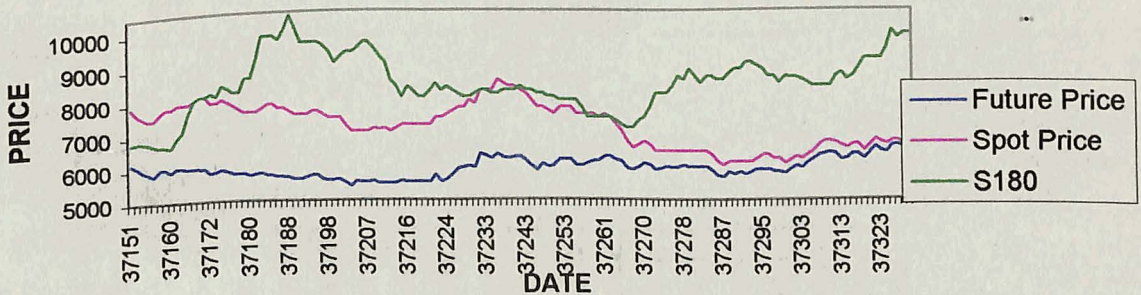
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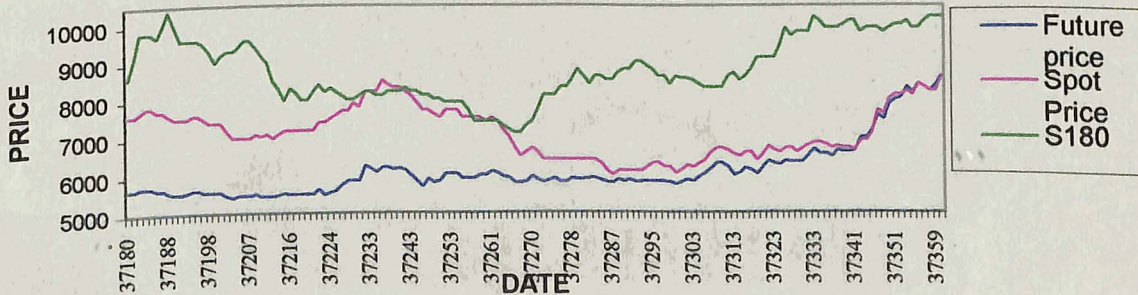
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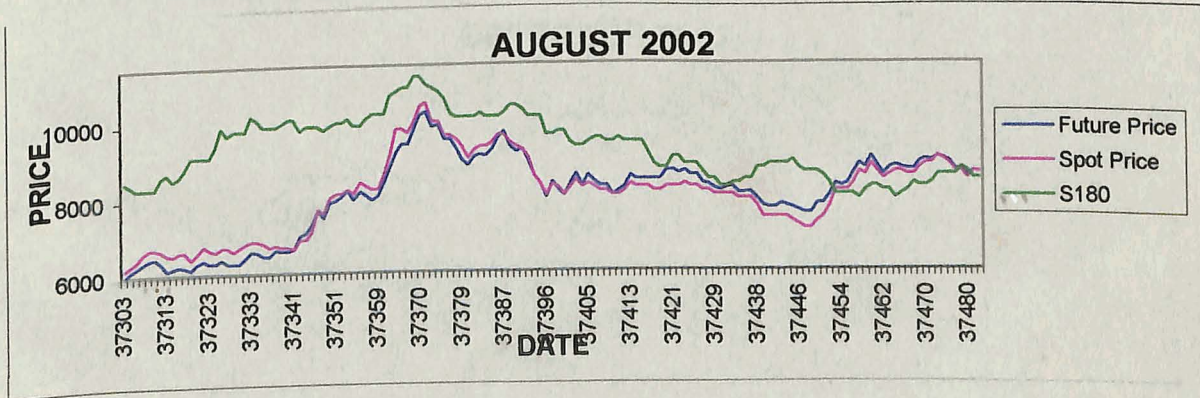
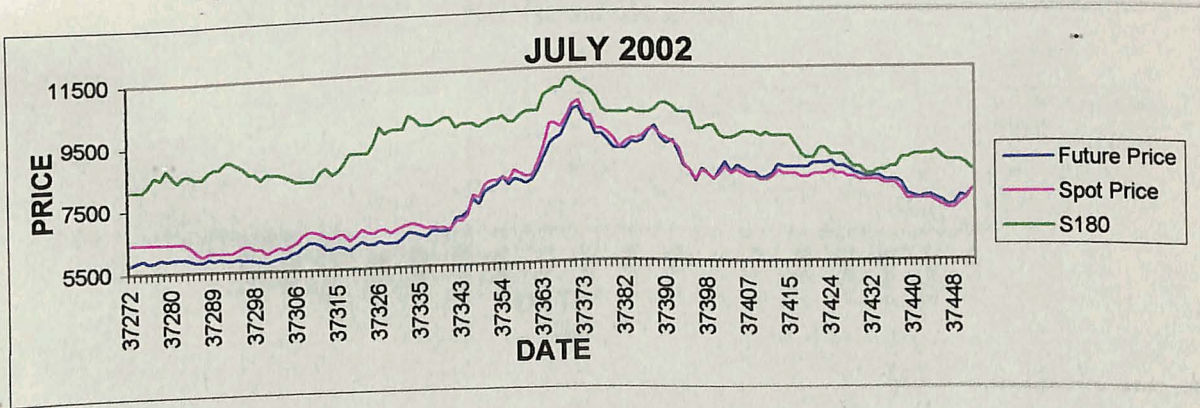
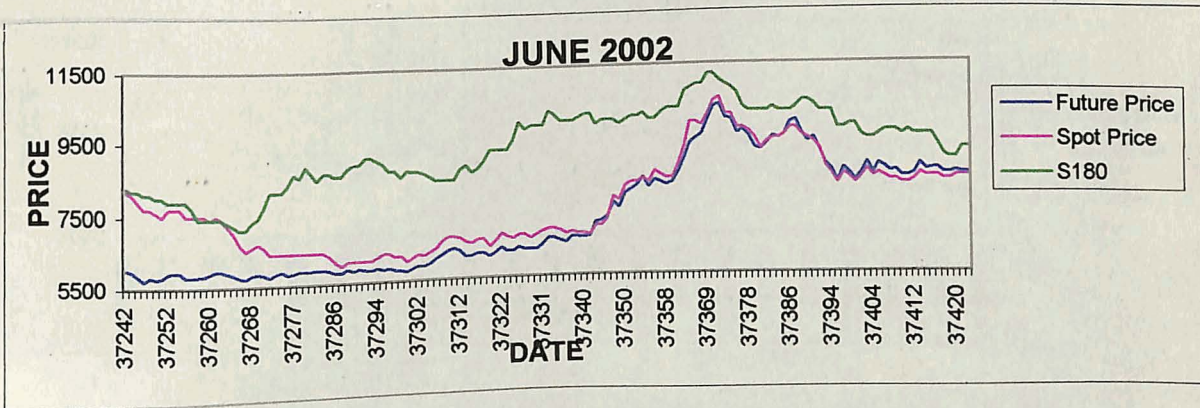
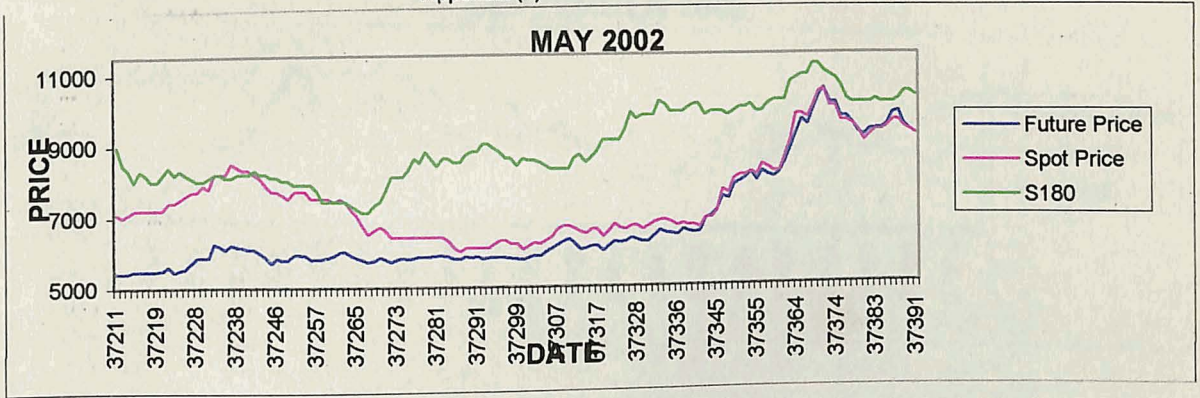
MARCH 2002



APRIL 2002



Appendix (II)



Appendix (III)

