THE COMMODITY EXCHANGE OF THE DEVELOPED COUNTRIES AND LATIN AMERICAN AND CARIBBEAN EXPORTS */

*/ This study was prepared by Mr. Marcelo Regúnaga, a consultant to the International Trade and Development Division of ECLAC, for the Project on the Roles of Commodity Exchanges in the Expansion of Latin American and Caribbean Primary Exports (HOL/87/S55), which has been funded by the Government of the Netherlands. The opinions expressed in this document are those of the author and do not necessarily reflect the views of the Organization.

This document has not been subjected to editorial revision.

90-5-818
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I. BACKGROUND

Commodity exchanges originated in the nineteenth century when the development of modern cities, modes of transport and means of communication (the telegraph) spurred the growth of organized trade between distant locations in Europe, the Americas and the Orient. This form of trade then led to the gradual replacement of the regional market fairs which had periodically been held in those areas by specialized trading centres known as "exchanges". These centres proceeded to evolve from the most rudimentary forms of cash-based commerce to the type of trade carried on today, in which the most advanced information-processing, communications and management-control technologies are used in negotiating the different types of contracts that have been developed to meet the needs of contemporary operators (commodity futures, options, futures on other types of financial instruments, currency futures, etc.).

At first these markets were located at the physical site where products had been collected, and transactions were carried out on an immediate-payment, cash basis (i.e., cash markets). Later on, in order to systematize deliveries and provide greater security in arranging for future sales, contracts concerning merchandise to be delivered at a later time (forward contracts) and forward markets were developed, in which agreements were reached concerning the delivery of a specified quantity and quality of a given product to a certain place at a future date; payment was made upon delivery.

This type of transaction marked a milestone in the development of commodity markets, since by permitting the concentration of a large volume of transactions and information on present and future supply and demand conditions, it helped to make them more representative.

Still later, the use of product samples made it possible to carry out transactions in the absence of the actual merchandise, and these marketplaces were thus transformed into sites where sellers and buyers gathered to negotiate and execute contracts.

Transactions also gradually became standardized in terms of product quality and quantity and delivery dates and locations, thereby paving the way for futures contracts; in addition to facilitating the participation of
traders (who handle the actual merchandise), these contracts also opened the door to speculators (who participate in the market in the hope of making a profit by assuming the risk associated with price changes without intending to deliver or take delivery of the merchandise) and thus helped to increase market liquidity (i.e., the ease with which a position may be opened or closed).

The Chicago Board of Trade, which was founded in 1848, is the oldest commodity exchange and currently has the greatest trading volume not only in grains and related products, but also in terms of total contracts. It now handles the negotiation of futures contracts for wheat, corn, oats, soybeans, soybean oil and soybean meal; options on soybeans, corn, wheat, soybean oil and soybean meal; futures on other products, precious metals, bonds and financial instruments, etc.

The main marketplaces for futures trading in non-ferrous metals are the London Metal Exchange and the New York Commodity Exchange (COMEX). The former is the oldest and largest metals exchange and is the main centre for the industry's transactions. It was officially established in 1876. Futures for seven metals are currently transacted on the London Exchange (copper, aluminium, silver, lead, zinc, nickel and tin) as well as options on six (all of the above except tin). COMEX was founded in New York in 1933 and is primarily used by speculators and investors; it deals in futures contracts for copper and aluminium, among the base metals (it used to handle zinc and tin contracts as well), and for silver and gold, among the precious metals. Copper options are also traded.

The major exchange for tropical products is the Coffee, Sugar and Cocoa Exchange, Inc. of New York (CSCE), which was founded in 1882. Originally created to trade coffee futures, the Exchange added the trading of sugar futures in 1914 and in 1979 it merged with the New York Cocoa Exchange to form the present institution, in which futures contracts and options on all three of these commodities are traded.

Some time after their establishment, the commodity exchanges organized clearing corporations or clearing houses, which are independent bodies formed by exchange members that are in charge of the registration and settlement of futures contracts. At the end of each trading day, these institutions balance
the accounts of each member firm, setting off their sales against their purchases. Clearing corporations guarantee the fulfilment of contracts to market participants, and require deposits or margins from them for that purpose.
II. USE OF COMMODITY EXCHANGES

1. Main roles and benefits

Commodity exchanges are non-profit organizations which provide the infrastructure, regulatory framework and guarantees required for the sale and purchase of commodity and other futures, and in which traders or their representatives operate on the basis of competitive bidding. Their primary responsibility is to ensure the competitiveness of the marketplace and to restrict any sort of manipulation. Exchanges as such do not own merchandise, do not conduct transactions on their own behalf and do not influence the daily price levels prevailing on the floor of the exchange. These prices are immediately transmitted around the world by modern processing and communications systems.

Because of the above-mentioned features, producers, traders, manufacturers and consumers of the products in question throughout the world use the exchanges: a) as sources of market information; b) as a basis for calculations or a source of reference prices for their commercial operations; c) for hedging; d) as a means of expediting financing and reducing capital requirements; and e) for speculation.

a) Sources of market information

The rapid increase in the volume of trading on commodity exchanges has helped to make commodity markets more transparent. Furthermore, the magnitude of the interests at stake has prompted the major brokerage firms to hire market analysts who monitor the trends of the internal and external factors which influence the behaviour of prices. This information is supplied to their clients and is extremely valuable for decision-making purposes.

b) Reference prices

In addition to generating and disseminating information, exchanges have become increasingly important, especially during the past two decades, as sources of reference prices for merchandise trading the world over.

A reference price has been defined as a formula accepted by the majority of buyers and sellers as a basis for determining the price to be used in a commercial transaction. In other words, it serves as a reference point for
pricing the merchandise bought and sold by producers, traders, manufacturers and consumers.

Contracts usually include a base (reference) price to which "premiums" are added or "discounts" are subtracted depending on differences in quality, location, degree of processing, delivery dates, local supply and demand, etc. with respect to the standard conditions pertaining to the reference price (e.g., the conditions specified in a futures contract on an exchange).

The selection of a given market or information source as a reference for price-determination purposes is made by agreement among the market participants as to which best represents the supply and demand for the product in question. Thus, as time has passed differing reference prices have been used for different products, depending on the bargaining power of the various parties involved (market structure) and on changes in the economy and in international trade.

During periods when producers (suppliers) wielded a great deal of bargaining power, the reference prices were often unilaterally-established price levels such as those corresponding to what are known as producer prices (set by oligopolistic industrial firms or groups of firms), as frequently occurred in the cases of copper, aluminium and nickel sales, or the prices officially established by the government authorities of the countries which controlled exports of the goods in question.

In other instances, reference prices have been taken from specialized journals which publish the quotations used in the actual transactions taking place in a given marketplace, as in the case of Gulf of Mexico FOB prices for grains or the published trading prices for long-term contracts involving large quantities of some minerals, such as iron ore and bauxite.

Beginning in the 1970s, as these markets became more competitive and the balance of power became less skewed towards suppliers, as well as more unstable due to the changes occurring in the world economy, the prices quoted on the exchanges came to be of greater importance as reference prices. Thus, in the past two decades exchange quotations have increasingly been used as reference prices for major Latin American and Caribbean export items; traders around the world have used them as a basis for hedging operations; and
speculators have employed them in establishing trading positions with an eye to financial gain.

The Chicago Board of Trade is used as the source of reference prices for the main grains and related products exported by Latin America, especially in the case of deferred sales. The FOB prices at Argentine or Brazilian ports for corn, sorghum, soybeans, and soybean and sunflower oil and pellets are calculated at premiums or discounts on their Chicago quotations, and these export contracts therefore often involve making delivery on futures contracts from that market and the payment (or deduction) of the basis.1/ In some cases (especially that of Argentine grain sales for nearby shipments) sales are made at a flat price and therefore, although the exchange's quotations are taken into account, they do not entail futures contracts. The prevailing prices for metals on the world market are those of the London Metal Exchange. Although the London Exchange is the main reference market for transactions by producers, traders and manufacturers, COMEX attracts a larger proportion of speculative transactions. London Metal Exchange quotations are used as reference prices for copper, zinc, lead, tin and nickel transactions. While they are also used for Brazilian and Venezuelan exports of aluminium, European and United States sales of this metal continue to be based on other pricing formulas.

Most of Latin America's and the Caribbean's exports of coffee, sugar and cocoa are based on the price quotations of the New York Coffee, Sugar and Cocoa Exchange. With the exception of Cuban sales to socialist countries, exports of these products are channeled through traders who hedge them on the Exchange, and its quotations are therefore used as a point of reference.

c) Hedging

The prices of the various commodities (grains and related products, metals, coffee, sugar, cocoa) fluctuate within each business cycle and from year to year. These price swings are linked to the existence of time lags between supply and demand, as well as to such other factors as government action (production and trade subsidies, devaluations, supply controls, management of stocks, etc.), changes in the prices of other products and assets, the various countries' rates of inflation, changes in per capita consumption levels, etc.
The existence of time lags between the moment when a firm takes a decision (relating to production, processing, exportation, etc.) and the time when the results of its decision materialize, as well as the price variations that usually occur during that time span, represent disturbances which affect its performance. Hence, one of the main reasons for the emergence of commodity exchanges as a site for the negotiation of futures contracts was to permit the coverage of the risk represented by temporary price fluctuations. Indeed, since their establishment, the main commodity exchanges have played a highly important role in providing a means of covering, or hedging against, these types of risks.

Firms which do not hedge on the futures market are subject to variations in the price of the product on the spot market, and therefore must assume all of the associated price risk during the course of the goods' production, processing or marketing. The greater a firm's share in the production costs of, or earnings from, the inputs or merchandise which have not been covered, the greater its risk exposure. Therefore, producers whose costs are low are at less risk of loss due to price variations, whereas processors and traders are much more vulnerable.

Consequently, the propensity of the different branches of industry or production subsectors to hedge on the commodity exchanges is related to the amount of value they add to the original raw material. The most extreme case is that of traders, who, because their activity adds very little value to the purchase price of the product, are therefore the most vulnerable to price risk.

Hedging involves taking a position in a futures market which is roughly equivalent but opposite to an existing position or a position to be taken (held) at a future date on the physical cash market; in other words, it entails the use of a futures contract as a temporary substitute for a transaction planned for the future in the spot market for the commodity in question. Hedging allows producers, traders and processors to transfer at least part of the risk associated with price fluctuations to a speculator who operates on the exchange; for his part, the speculator hopes to realize a profit as a result of the variation (in his favour) of the price of the
commodity in question. It is the speculator who provides the necessary liquidity and continuity to allow the market to function smoothly.

There are various ways in which futures markets can be used for hedging. 2/ A "short" or "selling" hedge entails owning or buying a product on the spot market and simultaneously selling an equivalent quantity on a futures market in order to cover oneself against price drops. This operation is typically carried out by producers or traders who wish to hedge their inventories, or, in other words, who wish to protect the value of the products they own during the time they are in storage, as well as covering the associated costs. If a firm takes a short hedge and the price then drops, the loss it suffers when it sells the product on the spot market will be offset by the profit it makes on the futures market when its short position is closed (repurchased). On the other side of the coin, if the spot price of the good rises, the profit it makes on the spot market will go to cover its loss on the futures market.

A "long" or "buying" hedge consists of selling a product on the forward market and simultaneously buying an equivalent quantity on the futures market in order to protect oneself against possible price increases during the time needed to obtain (produce or purchase) the product on the cash market. Long hedges are typically undertaken by raw material processors or commodity exporters, who sell products on the external market and who must then purchase them on the domestic market.

In cases where futures market quotations include both primary and processed products (e.g., soybeans and soybean oil and meal), processors can engage in combined hedges whereby, in this example, they would purchase soybean futures and sell soybean oil and meal futures, thereby fixing the processing (milling) margin prior to the actual purchase of the soybeans and the sale of soybean oil and meal on the spot market.

Another alternative offered by commodity exchanges for hedging and speculation which has come into wide use during the present decade is that of call (purchase) or put (sale) options on futures contracts, which are also traded on the floor of the exchange. The possibilities are: i) to purchase put options, ii) to purchase call options, iii) to sell put options, and iv) to sell call options.
During the life of the option contract, the option holder may, if he finds it to be in his interest after comparing the market price with the price specified in the contract, exercise his right to buy or sell the futures at the specified price; to do so, he pays the seller of the option a "premium", which is negotiated on the floor in much the same way as is done with futures. The seller or "writer" undertakes to execute the option and assumes the risk involved in possible price variations, in return for which he is paid the premium. In order to ensure fulfilment, the exchange requires that the seller deposit a margin to cover price variations, whereas the buyer pays only the premium.

Purchasing a put option allows a producer, processor or exporter to set a minimum sale price, which will be equivalent to the price fixed in the contract minus the premium paid for the option. Thus, during the production cycle or prior to the production decision, a minimum future sale price can be "locked in". If, during the life of option, the market price falls, the holder will sell; if the price rises, he will not exercise his option but will instead make a profit from the price increase. Consequently, this alternative has an advantage over the usual system of hedging by means of a futures contract, with the trade-off being the cost of the option (i.e., the premium).

Purchasing a call option permits a processor or trader to lock in a maximum purchase price, which will be equivalent to the price specified in the contract plus the option premium. If the market price rises, the holder will exercise the option (and has thus been protected against future price increases); if the market price declines, he does not exercise the option but will instead realize the profit represented by purchasing the product at a lower price than originally planned.

The purchase of put or call options may also be used for purposes of speculation in much the same way as is done with the sale of call or put options, when the sellers do not expect prices to change, in which case the buyers will not exercise the options and the option writers will then receive the premium.

d) **A means of obtaining financing or of reducing capital requirements**

Futures contracts may be used as temporary substitutes for physical transactions planned for the future. This reduces the capital requirements of
processors, manufacturers, etc., in terms of both storage infrastructure and merchandise inventories. In addition, futures contracts are used as high-ranking collateral for loans from financial institutions.

e) Speculation by production, processing or export firms

Futures markets may be used by business firms for anticipatory hedging on the sale (or purchase) of products on the spot market. Most of the hedging done by producers prior to the harvesting (or mining) of their products, some of the forward sales made by exporters, some of the purchases (or sales) made by processors, and a substantial portion of the potential hedging operations conducted by importers are forms of anticipatory hedging.

Anticipatory hedging is conceptually different from the other types of hedging discussed above because its purpose is primarily speculative, since a given moment is chosen for making a sale or purchase based on an assessment of the prevailing price levels in the futures market. In this type of operation, the hedger decides to fix a price at what he regards as a good level based on an analysis of the market or on some criterion of commercial operation (i.e., a decision similar to that taken by a speculator on the exchanges), or on the basis of a comparison with the prices of the inputs used to produce the product. The risk reduction afforded by anticipatory hedging is not of the same scope as that provided by the types of hedges described earlier and cannot be quantified.

The anticipatory hedges used by producers or processors prior to the production decision or during the production cycle are designed to protect them against any decrease in the prevailing price between then and the time of the actual sale. Once the decision to produce has been taken, forward contracts or future contracts can be negotiated.

Both possibilities have advantages and disadvantages, but they can be used in tandem in order to optimize the effectiveness of firms' commercial strategies. This is particularly true in view of the fact that forward sales cannot always be negotiated at the time and over the term desired by the seller, whereas futures contracts can be, since they are an on-going and more liquid alternative whose fulfilment is guaranteed by an institution with a great deal of economic backing (a clearing house or a futures market); this is
not the case with forward sale contracts, which are less liquid and carry a
greater risk of non-fulfilment.

Anticipatory hedges are extremely attractive for agencies and export
firms that regularly purchase products on the local market which they will
later export (grain boards, co-operatives, government export enterprises,
etc.). These organizations' systematic monitoring of the market enables them
to assess the advantages of negotiating sales at points in time when they do
not as yet have the product available (or when their regular buyers are not in
the market) but expect the price to decrease. The Australian Wheat Board
routinely uses this form of hedging to improve its sales prices.

A number of experts have also pointed out the usefulness of anticipatory
hedges for Latin American and Caribbean importers of grain and other products.
The purchase of futures allows them to fix the prices when they deem it
advisable, helps to define their foreign exchange needs in advance, and
lessens the need to store stocks over long periods of time (Peck, 1982).

The flexibility in selecting the time of sale (or purchase) afforded by
anticipatory hedging might, in theory, permit the average sale (purchase)
price to be raised (lowered); however, since the studies conducted on futures
prices indicate that they are unbiased predictors of future variations in spot
commodity prices (Fry and Kofi, 1983; Just and Rausser, 1981), it cannot be
statistically proven that this flexibility provides price advantages. Its
main advantage is instead associated with the merit of the speculative
operations entered into by each firm.

The purchase of call options can be used by producers or exporters in a
similar but opposite way to anticipatory hedging; when they expect prices to
rise in the future but cannot hold back their merchandise owing to financial
restrictions, limited storage capacity, etc., they may sell it on the spot
market and buy call options. The cost of this type of speculation in the
expectation of price increases is the cost of the premium paid for the option.

Commodity producers, processors and traders can write (sell) call options
to raise their sale prices if they expect prices to remain stable. If this
proves to be the case, the purchaser will not exercise the option, and the
seller will receive the premium. Much the same thing occurs with the sale of
put options.
f) **Spot-market and commodity-exchange prices: alignment, basis risk and its coverage**

The difference between a given cash or spot price and a future price is known as the basis. A spot price corresponds to a specified product quality and location which may frequently not match the specifications of futures contracts (in terms of standardized quality and pre-established delivery points), and sales of physical merchandise therefore involve a premium or discount on the futures-market quotation.

There is a close correlation between the spot prices and the closer maturity-date futures quotations for a product, and futures markets are therefore reliable predictors of spot prices. A number of studies also show, however, that the relationship is not the same for all products. Grain prices on the two markets exhibit a stronger correlation than do the prices for tropical products and other commodities traded on the exchanges (Fry and Kofi, 1983).

However, the basis changes over time (depending on the location, since the factors influencing prices at each location may change at any time); variations may occur in transport costs, carrying charges, the need for a given quality of product, handling and processing costs, export margins, and local conditions of demand and supply in general. Even in cases where the delivery site for the spot and futures markets is the same, the two prices may not wholly coincide due to technical, financial or other reasons.

The lack of parallelism in price trends on the different markets somewhat lessens the benefits to Latin American and Caribbean export firms of using futures markets as part of their commercial strategies, since it reduces the efficiency (impact) of hedges, arbitrage and speculative operations. An analysis of the historical price series of the United States and London exchanges and of the series corresponding to the exports of Latin American and Caribbean countries shows that the basis frequently changes; indeed, in extreme cases, the basis may vary more than prices do.

It is therefore extremely important to analyse the basis, especially in the case of goods having a low unit value (grain and related products), in order to decide when and in which markets hedging should be undertaken. The quantification of basis risk and the identification of the determinants of basis trends are essential tools for operating on futures markets and have
opened the way for another trading alternative, which is a speculative operation known as "hedging the basis". A great deal of literature and numerous systematic analyses of this alternative are available in the developed countries, particularly the United States. This is not the case in Latin America and the Caribbean, however, and it is a lack which hinders the use of futures markets by the countries of the region, since such reference material is essential if the firms in those countries are to use them efficiently.

2. **Use of commodity exchanges by Latin American and Caribbean firms**

a) **Forms of access**

In order to operate in the United States and London commodity exchanges, firms in the region may either become members of an exchange or may trade through brokers. The first alternative is not very common due to the high price of the shares required to acquire a seat on the exchange and the large cost of setting up and running an office in the city where the exchange is located (Chicago, New York, London).3/

Most Latin American and Caribbean firms that operate on the exchanges do so through member brokers or commission houses, which may either specialize in such brokerage operations or may also take part in physical trading operations. In order to work through a commission house (some of them have offices in Latin American and Caribbean countries), a firm must open an account and deposit the sum required as an initial margin.

Some commission houses make it a practice to assist their clients to obtain the financing they need to operate on the exchange and, depending on their financial resources, they may even provide their clients with the necessary funds themselves.

These firms charge a commission on each contract (independently of its value). In the case of grain, brokers' commissions range from US$ 15 to US$ 100 per contract (for 5,000 bushels), depending on the size of the client firm; in most cases, the commission is around US$ 20 to US$ 25, and therefore represents a very small percentage of the value of the contract (0.1%–0.2%). For tropical products, the commissions charged in the New York exchange also
vary from one client and brokerage house to another, but the highest is equivalent to less than 0.3% of the value of the contract. On the London Metal Exchange, the size of the commission also varies and is negotiated between the broker and the client; usually it is not over 0.5% of the traded value for copper, aluminium, nickel and silver and not more than 0.75% for lead and zinc, but in most cases it is equivalent to 0.25% of the contract.

b) Frequency of use

The frequency with which private and public firms in Latin America and the Caribbean use the commodity exchanges depends on many different factors, some of which are the following: the type and size of the firm, the closeness of its ties with firms operating in developed countries, the extent of its risk exposure, its familiarity with the operations conducted on futures markets, the degree to which futures markets can provide the firm with effective coverage against the price risk associated with its physical trading operations (basis risk), the firm's ability to finance the margins and other deposits required by commission houses, and official regulations concerning the transfer of foreign exchange out of each country.

The three groups of commodities analysed here are exported by both private and public firms. In the case of grain, most of Argentina's and Brazil's exports (the main exporters in the region) are made by private firms that are either subsidiaries of transnational corporations or have branches or offices abroad, which not only makes it easier for them to maintain a position in outside markets but also gives them access to international financing and to the futures markets themselves.

It is extremely difficult to monitor the offshore activities of these firms, and this limits the possibility of accurately quantifying the frequency with which they use United States markets for grain futures; hence, the studies which have been conducted in an attempt to quantify the use of such markets by foreign traders as a whole (Powers and Tosini, 1977; Thompson and Bond, 1985) have major limitations which are virtually insoluble by means of secondary methods of the type used in such calculations.

Direct surveys of a sample of the main firms which export grain and related products from Argentina and Brazil indicate that such firms frequently (although neither always nor systematically) hedge on the grain futures
markets, but they also usually use combination hedges involving other commodities, financial futures or exchange rates.

The situation with respect to public institutions specializing in grain exports (such as the National Grain Board (JNG) of Argentina and its counterparts in other possible exporting countries of Latin America) is different, in that they use the United States exchanges as a source of information and as a reference market for contractual purposes, but do not engage in speculative trading hedges on those exchanges.

Latin American and Caribbean firms make relatively little use of the CSCE for hedging operations. Firms in a few countries have only recently, and then only sporadically, used such hedges, primarily for coffee and to a lesser extent for sugar. The majority of coffee exports from Brazil, the Dominican Republic and Ecuador and most sugar exports from Costa Rica, Guatemala and Chile are made by large private firms which have the necessary know-how and financial resources to operate on futures markets; use of the commodity exchanges for such operations by the rest of the countries is very limited. On the other hand, the setting of prices on the exchanges by means of executable orders is quite common in almost all the countries of the region, since this operation does not require the deposit of initial margins or margin calls, which are paid by the firms purchasing the physical merchandise (these latter firms being the ones that deal in futures); thus, most Latin American and Caribbean commodity exports (except those sold by Cuba to the socialist market) give rise to hedging on the part of the purchasing firms, which are operators.

In the case of metals, the most active participant in the exchanges is the region's copper industry, and particularly those of its branches which are the most exposed to price risk (such as manufacturers of semi-finished goods). In recent years the major public and private copper exporters of Chile, Peru, Mexico and Brazil have regularly made use of the exchanges for hedging. The London Metal Exchange plays a less important role in the aluminium industry, where semi-State enterprises in the largest Latin American producers (Brazil and Venezuela) have formed partnerships with the "majors" or with Japanese consumers, and a portion of their output and exports is therefore covered by long-term contracts or is marketed by subsidiaries of the majors. The
region's main tin exporter is Brazil, and Paranapanema, a private company which controls two-thirds of its output of refined tin, has operated on the London Metal Exchange since 1983.
III. UNRESOLVED ISSUES AND LIMITATIONS REGARDING THE USE OF THE COMMODITY EXCHANGES BY THE COUNTRIES OF LATIN AMERICA AND THE CARIBBEAN

In the preceding chapter mention was made of a number of the advantages associated with a proper use of the commodity exchanges of the United States and Europe by firms operating in the region. Nevertheless, the current level of such use is relatively low.

There are a number of reasons for this, including a lack of familiarity with the operations of these markets, as well as various unresolved issues relating to their usefulness and objective limitations in that respect. Among the latter, the following are often mentioned:

-- Questions as to the correlation between commodity-exchange prices and the basic conditions existing in physical markets;
-- The limitations inherent in their lack of correlation to local supply and demand conditions in the Latin American and Caribbean countries;
-- The volatility of exchange quotations; and
-- The barriers which hinder Latin American and Caribbean countries from operating and participating in the exchanges.

1. Correlation between commodity-exchange prices and the fundamentals that influence physical markets

One of the criticisms frequently voiced by producers and manufacturers —for whom reference prices are long-term equilibrium prices— is that the prices quoted on commodity exchanges are not representative of the supply and demand conditions prevailing on physical markets. They argue that the exchanges do not express, or only partially reflect, factors relating to the production, consumption and inventory levels of each product ("fundamentals") and that this price distortion produces adverse effects by sending incorrect signals to the market.

Two main elements are cited by the critics as being the causes of the unrepresentative nature of commodity-exchange prices: a) the effects of speculation, and b) the operational characteristics of the exchanges, which permit market interference.
a) Speculation and price representativity

The volume of transactions on commodity exchanges is enormous. In the past two decades the growth of world trade has been accompanied by a dramatic increase in the use of futures markets, whose trading volumes far exceed that of world trade and the total output of the products concerned.

A comparison of the total volume traded on futures markets with the total volume of physical trade or with total output reveals the essentially speculative nature of the commodity exchanges. The proportion of trading represented by the hedges used by traders to reduce the risk of price swings, which can be measured by comparing what is known as "open interest" with world production or supply, is of relatively minor significance. This does not, however, negate the importance of the exchanges to physical commodity traders as a means of hedging against sudden price changes, a practice which has increased rapidly in the past two decades and which, as noted earlier, has been facilitated by the existence of speculators. Indeed, in the hedging operations used by traders to transfer price risk, the tendency is for sales of futures to exceed purchases of such contracts; thus, speculators who are willing to assume price risk through the purchase of futures contracts are needed to balance out these excess sales. In short, the participation of speculators in the exchanges is necessary in order for price hedging to operate efficiently.

The growth in trading volumes associated with a preponderance of speculators in the marketplace has resulted in the incorporation of additional information into the price-determination process which takes place in the commodity exchanges and, hence, in world trade. Consequently, speculators' expectations now influence the equilibrium prices of those markets more than producers' expectations do.4/

The increase in speculative paper transactions has caused today's product, factor and other markets to become increasingly interdependent, and it would therefore be a mistake to try to plot the future price trends of a given product without taking into account the broader economic context within which that good will be competing for the limited resources of the different markets (Kipnis, 1984). A vast array of factors and events influence market behaviour, including business cycles in the United States and other countries;
fluctuations in the parities of the major currencies; changes in the prices of precious metals, financial assets and petroleum; political events which may affect the East-West balance; and changes in interest rates and in credit availability. International recognition of these linkages prompted their analysis as one of the main subjects dealt with at the most recent international conference of agricultural economists (which focussed on the topic of "agriculture and governments in an interdependent world"), and various models have been designed to measure, in the aggregate, the different factors that distort international markets and prices.

The participation of speculators may have stabilizing or destabilizing effects on prices, depending on the characteristics of the market and the actors concerned. Which type of effect will predominate is determined by the relative magnitude of production and consumption (flows) as compared to the stocks or inventories of the product (Ackley, 1983).

The stabilizing effect of speculation is clearly illustrated in the case of seasonal non-perishable farm products. In the case of agricultural products that cannot be stored, the market price will fall at harvest time so that all of the output can be consumed immediately, while prices should climb during the rest of the year so as to stimulate intensive production. In such cases (e.g., fresh flowers), random fluctuations in production or demand are fully reflected in the price at the time the fluctuation occurs. On the other hand, if a farm product can be stored, then seasonal price differences will motivate producers to accumulate inventories.5/

However, empirical evidence, which reveals an absence of consistent seasonal price variations in the commodities for which high-volume futures markets have developed, owing to the presence of speculators (e.g., corn and soybeans), attests to the stabilizing effect of these market participants. The participation of speculators, who purchase futures at harvest time (since, in net terms, speculators generally take a long position in hedging operations) helps to increase the price during the harvest and to lower it during the rest of the business cycle (as a result of which inverted markets or seasonal variations that do not cover carrying charges are frequently observed).6/
Therefore, in contrast to an argument often used by critics of the exchanges, who contend that they depress prices, Hieronymus (1978) asserts that the price levels of a product are higher if there is an active futures market in that commodity than in the case of its absence, because, in net terms, speculators take long positions most of the time and hedgers are willing to pay for risk coverage. The truth of the matter is that these two theories refer to different situations. If producers (or exporters) had so much bargaining power that they were able to set reference prices unilaterally (as was once often the case in the markets for metals and some primary products), they might be able to obtain higher price levels than those reached on the exchanges, where suppliers' ability to set prices is held in check. On the other hand, when there is a balance of bargaining power between suppliers and purchasers, futures markets can help to raise price levels during harvest time.

In the case of metals, storage costs are relatively low and inventories may therefore amount to the equivalent of several months' or years' worth of output. Due to the presence of these stocks, speculation may stabilize prices in the face of random variations in production or consumption. However, it may also have a destabilizing effect, since in the case of some metals, the existence of large stocks creates the possibility of "speculative bubbles". Gold —considered as a commodity rather than as money— is a case in which stocks are enormous in comparison to yearly production and industrial consumption, and variations in its price therefore have very little effect on total supply. The market price for gold is primarily determined by expectations as to its future price, and a change in those expectations has no significant impact on inventory levels. Consequently, even if one assumes the existence of a long-term equilibrium price which would balance the production and industrial consumption of gold, its impact in terms of any correction of the going price —through its influence on production, consumption and stocks— would be very slight.

The presence of such a large number of speculators in the commodity exchanges calls for a more in-depth analysis of their behaviour. In principle, the objective of speculative operations is to adjust future prices in line with expected events, which would tend to produce greater price
stability; if all price determinants were predictable and if prices could be adjusted to fully reflect the effects of such factors, then commodity quotations would not depart from equilibrium price levels. Consequently, if price fluctuations are a yardstick of market imperfections, then futures markets must be far from perfect.

Price variability is related to the frequency of change in speculators' opinions as to future price trends. However, it is not clear whether prices vary because increasing uncertainty about production, stocks, consumption or other events cause speculators' expectations to change frequently, or whether it is their participation in these markets as such which generates price swings. Although in theory measuring the effects of speculation is a simple matter, in practice it is difficult, since one cannot simultaneously observe one situation in which there is speculation in a product and another in which it is absent.

For a long time those who argued against speculation carried the day, and speculation was regarded as a necessary evil which made hedging possible, i.e., which provided the necessary liquidity to allow futures markets to function smoothly. This school of thought bases its view on the following factors: a) the participation of poorly-informed speculators who follow market trends without considering the fundamentals, b) psychological reasons for thinking that speculators increase price variability, and c) the possibility that speculators could manipulate or distort the balance of market forces.

Many speculators, however, do base their decisions on an analysis of the underlying factors or, in other words, on a model that shows how supply and demand affect the price of a product, as well as how production capacities, macroeconomic and financial conditions and other factors affect supply and demand. If a large number of agents were to incorporate all this information into their decisions, then the effects of changes in the fundamentals would be brought forward; in an ideal situation of absolute rationality, the price would immediately incorporate all the available information.

The fundamentals play a very important role in markets for farm commodities, where prices tend to lead to a long-term equilibrium between production and consumption. In other instances, such as that of precious
metals, existing stocks are a much more important factor than the derived reaction in the form of adjustments in production or consumption, and expectations as to price movements or trends in the fundamentals play a predominant role. The situation with respect to base metals is somewhere between that of precious metals and that of farm products. However, because of the high degree of uncertainty as to the duration of trends and cycles in raw materials markets, coupled with the high financial costs involved, few operators take very long-term positions based on an analysis of the fundamentals. This fact reinforces the idea that medium- and long-term expectations regarding production and consumption do not have a great impact in terms of price determination.

Other speculators operate on the basis of a technical analysis which is in turn founded on a hypothesis as to the behaviour of market agents and prices. Based on information about prices, trading volumes, open-interest positions and other indicators, these speculators take positions in the market; when a large number of them make the same sort of decision, their activity tends to bear out their short-run forecasts.

Because they base their decisions on technical factors, these speculators often prompt price movements which run counter to the trends of the fundamentals, thereby distorting the market's long-term signals to industry. This is why criticism as to the unrepresentative nature of exchange prices is usually voiced by industry, which claims that the prices quoted on commodity exchanges are often far removed from long-term equilibrium prices. This argument assumes that a model exists to indicate what price level would balance production and consumption, taking into consideration all pertinent factors; however, no single, agreed model of this type exists, and the same price may therefore be regarded as representative by some producers and unrepresentative by others.

b) Other problems of representativity

Critics frequently confuse speculation with attempts to manipulate the exchanges. These are actually two distinct issues, since the latter constitutes an attempt to distort or modify the bases of market competition by maintaining or setting artificial prices in relation to the normal market conditions of supply and demand.
There are various ways of manipulating a market. One is for a market participant to amass all the positions for a given delivery date, thereby becoming the only seller for that date. This operation is known as a "corner" or "squeeze", and a number of such cases have been observed in the history of the exchanges. Another form of manipulation is illustrated by the International Tin Council's (ITC) intervention in the London Metal Exchange. As part of its price-stabilization scheme, the ITC made purchases on the London Metal Exchange and in Malaysian markets, thereby sustaining an artificially high price in the face of a steady rise in tin production and sluggish demand; this instance of manipulation set off the famous tin crisis of October 1985.

In order to remedy these problems the United States exchanges have developed a number of control mechanisms whereby they specify which practices are regarded as distorting the market, establish commercial regulations for brokers and place limits on speculation. The Government of the United States has also stepped in to establish regulations and create supervisory agencies; the Commodity Futures Trading Commission (CFTC) is currently the official agency responsible for the regulation of futures markets, although it has always relied heavily on self-regulation by the exchanges. The regular monitoring of price movements and analyses of each firm's positions (in futures and in merchandise stocks) carried out by the United States exchanges and the CFTC are designed to permit the early detection and prevention of attempts to manipulate the market and other prohibited practices. As a result, there have been very few problems of this type in the United States exchanges for quite some time now. The situation was somewhat different up to 1987 in the London Metal Exchange, whose mode of operation permitted the occurrence of the 1985 crash in tin prices mentioned earlier.

Since the reorganization of the London Metal Exchange, the reliability of the United States and London commodity exchanges can be said to be relatively high in terms of their ability to forestall attempts to manipulate or distort the market by exchange dealers.

Another problem which is often cited by those who argue that exchange prices are unrepresentative is that the prices set in the exchanges correspond to a relatively limited number of physical transactions. Thus, a small number
of operations determine the price for all of the output of a given commodity. However, this is also a characteristic of auction markets, where the equilibrium price corresponds to marginal transactions. The reference price, which is then adjusted to take into account the differing circumstances involved in most of the transactions that are based on exchange quotations, is no more than the closing price of an exchange session or of a trading day, but it is as close as possible to an equilibrium price, given the information available at the time. Because the available supply of information is constantly changing, extending the duration of an exchange session would not necessarily result in a greater number of operations settling on a single price, since the equilibrium price is continually changing as well.

The fact that only a small fraction of the physical volumes being marketed -- but a fraction sufficient to permit price discovery -- is traded on the exchanges helps to preclude the shipment of merchandise to delivery sites where it will not be used; this gives rise to a more efficient and direct flow of merchandise (grain, tropical products, metals) from the producer to the consumer, thereby avoiding unnecessary transport and storage costs.

Another frequent criticism is that some agents have access to information which is not available to all operators and that their use of such information allows them to make a profit at the expense of other market participants. Although the possibility of such practices exists, it is nonetheless a difficult hypothesis to corroborate; in point of fact, an investigation carried out by the CFTC in 1984 failed to uncover sufficient evidence of insider trading.

Finally, another aspect of commodity exchanges that is often regarded as a weakness is the fact that the specifications of futures contracts do not match those of the underlying physical merchandise and that it is not always possible to make a hedge on an exchange which will "fit" the physical transactions in question. The first of these problems often arises because the standard product quality grades and delivery points used in futures contracts often differ from those corresponding to the exports of some of the countries in the region. In this connection it should be noted that the premiums added to (or the discounts subtracted from) the prices quoted in futures contracts tend to reflect these differences, among others.
The advantage of using standardized contracts is that they make it possible to attract speculators and thus give liquidity to the market (which is essential to its proper operation). If contract specifications are too narrow, they restrict the product universe to a relatively small volume of merchandise. This may be very attractive to producers and consumers, but it will be less so to speculators because the stocks involved will then be smaller and therefore more easily influenced by industry. Consequently, it is necessary to strike a balance between the liquidity of futures contracts and the accuracy with which they represent the physical merchandise being traded. It should be mentioned that in the case of metals and tropical products, in some instances futures contracts have differed so significantly from the physical markets for these commodities that they have given rise to price distortion.9/

The second problem frequently arises in connection with the three main groups of commodities exported by the Latin American countries, since only very rarely do the operators who hedge such transactions on the United States or London exchanges have the opportunity to fulfill the contracts by making delivery of the physical merchandise; in most cases, contract sales are covered by offsetting futures purchases, regardless of the advantages or disadvantages of actually making or taking delivery. Therefore, local participants find a comparative advantage in using the exchanges,10/ especially when the premiums do not fully reflect the differences in costs and quality between the products available on the physical market and futures contracts. In addition, when the currency in which the commodities are quoted on the exchanges differs from that used in physical transactions, it often becomes necessary to make simultaneous hedges in currency futures in order to cover possible losses stemming from relative changes in exchange rates.

2. Limitations arising out of the lack of correlation between commodity-exchange quotations and local supply and demand in the countries of Latin America and the Caribbean

This problem constitutes a major obstacle to hedging on the United States and London futures markets by firms in countries whose commodity exports play no significant role in determining their prices on the world market. If
variations in local supply and demand are not reflected—or are only partially so—in developed-country markets, then price trends will not be parallel. As discussed by Regnaga (1989, chapter IV) in reference to grain quotations, Chicago and Kansas price patterns sometimes differ from those of the FOB and FAS markets of the Latin American exporting countries.

This lack of parallelism is also seen in the changes made in the basis used to define FOB prices. These modifications are made in response to a variety of factors, some of the most important of which are: a) the fact that the fundamentals influencing the supply and demand of these countries may differ from those corresponding to the United States exchanges, especially in view of the fact that Brazil and Argentina are competitors of the United States and what is bullish information for a competitor country (e.g., a sale to an important country) may have a bearish effect on the United States exchange; b) interference in the form of direct and indirect foreign trade subsidies granted by the United States and other developed countries (the most typical example is the effect of the directly subsidized FOB prices provided for under the United States' Export Enhancement Program for wheat and soybean oil, whose transitory nature generates a lack of parallelism between domestic prices in the United States and the export prices of competitor countries; c) the logistical problems faced by each exporting country do not generally arise simultaneously and are not always reflected in the United States exchanges; and d) changes in transport costs from different shipment points are a major cause of price swings in products having a low unit value.

An even greater lack of parallelism exists between the domestic prices of the countries of the region and United States and London exchange quotations. There are a number of reasons for this, including the frequent changes which occur in the costs and margins associated with Latin American countries' merchandise shipments or exports as a result of the modification of government policies (exchange rates, taxes on exports, foreign-exchange prefinancing arrangements, drawbacks and refunds, etc.) and changes in market performance (Lamarca, 1988; Regnaga, 1988).

Owing to the differences between price trends in the United States and London exchanges and those of the Latin American countries' domestic and export markets, the variability of the basis may be greater than that of
prices, in which case hedging on the futures markets becomes a less effective means of covering risk.

If the discrepancies between the price patterns of two different markets can be forecast, it becomes possible to "arbitrage the basis". Unfortunately, not enough studies in reference to the Latin American markets have been done to permit a systematic use of this type of arbitrage. This lack points up the need to carry out such studies in the countries of the region and to provide operators with the necessary professional training to enable them to follow the markets.

3. The volatility of exchange quotations

Another frequent criticism made by producers and exporters of raw materials is that the exchanges help to increase price variability, thereby making their income flows more unstable and discouraging production. The evidence cited for this argument is the greater variability of futures quotations as compared to that of producer prices and the fact that price volatility appears to increase as the influence of speculators in those markets grows (for example, on the CSCE, sugar is both the commodity in which there is the most speculation and the one whose prices are the most volatile).

One of the reasons for this is that exchange quotations incorporate expectations and information concerning world supply and demand and other influential factors much more rapidly than producer prices do. A simple comparison of the annual averages for exchange quotations and producer prices shows that when the former climb sharply, the latter lag behind and sometimes never rise as high, and that when exchange quotations plummet, producer prices fall less steeply. The overall price-variation coefficients of the exchanges are also higher than those of producer prices.

The low price elasticities of primary-product consumption and supply help to make these markets highly sensitive to the information and expectations regarding changes in basic factors which are constantly flowing into the exchanges and which immediately influence the prices of futures contracts. This does not occur in the case of goods that are not traded on the exchanges or in producer prices for commodities that are traded on them.
Many authors also contend that the behaviour of speculators is another factor which tends to heighten price volatility by prompting over-reactions in the short term. Although this theory is still controversial, some studies (CRU, 1985) have borne out the hypothesis that speculation (measured by the long and short open-interest positions established by speculators) pushes exchange quotations away from the price levels that would be indicated by a model based solely on the fundamental factors. The use of technical analyses or programmed trading systems by speculators may increase price volatility (as in the case of commodity funds) by setting in motion a large volume of transactions which then spark over-reactions in the short term. Other experts point out, however, that for every speculator who sells, there must be another who buys, with each speculator who follows the market's lead being obliged to find another who is going against the current, and that the theory that speculation itself generates volatility is therefore debatable (Gray and Rutledge, 1971).

Although there is a great deal of literature which mentions the exchanges' possible influence in heightening price volatility in the very short term, it seems to be generally agreed that speculation tends to smooth out seasonal swings in commodity prices (Hieronymus, 1978; Britto, 1985). Indeed, speculation often flattens out seasonal variations so much that the "market prices of storage" do not even cover carrying charges.

4. Barriers to participation by Latin American and Caribbean firms in the United States and London exchanges

Criticism regarding the difficulty of gaining access to the commodity exchanges generally centres around two elements: a) the obstacles which hinder firms in the countries of the region from operating on those markets, and b) restrictions on institutional participation.

Some of the main obstacles faced by firms that wish to operate on the exchanges are the amount of funds (in hard currencies) needed to cover the margins required by brokers or commission houses, the unfamiliarity of many Latin American firms with the way in which the exchanges function and their prejudices in this respect, and a lack of operational expertise on the part of local firms in the use of futures markets. The need to transfer large sums
of foreign exchange in order to cover margins is certainly a major constraint for some firms in the developing countries of the region, especially smaller businesses and government institutions. Large production or export enterprises have less difficulty in financing this type of operation either with their own capital or that of third parties, and this is all the more true in the case of transnational corporations. The same cannot be said of small mining companies or grain co-operatives, however, which have a hard time obtaining such financing in hard currencies, or of the public agencies of some countries which place legal restrictions on the transfer of funds out of the country.

Whether due to a lack of knowledge about the exchanges or to prejudices against this type of trading, or as a consequence of official exchange controls and limitations on the transfer of foreign exchange, many countries of the region restrict futures trading in order to prevent the flight of foreign exchange out of the country or to avoid a drop in export earnings as a result of adverse hedges. This would seem to belie ignorance of the fact that a hedger's loss on the exchange will be offset by a gain on the physical market or vice versa and that problems of this type can therefore be resolved, provided that the monetary authorities (Central Bank) properly control futures trading so as to forestall speculative positions and to ensure that foreign exchange transfers correspond to the hedging operations actually undertaken.

Unfamiliarity with the exchanges may also be an obstacle to their use by companies even in countries where operations on the United States and London exchanges are authorized and regulated by the government. In addition, the practice of recording the adverse effects of price hedging as a separate item, due to the use of accounting procedures which do not fully reflect its implications in terms of the net result, often poses a problem in the case of State firms; actually, such changes in record-keeping are difficult to implement in business firms as well. The directors of business firms may consequently come under fire for suffering losses on futures markets which have actually been offset by gains in the physical market because this is not made clear in the firm's books (since such gains are recorded as a higher sale price, without the increment in that price being attributed to hedging).
Other problems which stand in the way of a fuller use of the United States and London exchanges arise out of a lack of trading experience and know-how on the part of firms in developing countries. There are very few technical experts with training in this area in Latin America and the Caribbean, and very few studies on the behaviour of local markets and their relationship to the exchanges. This situation constitutes a very real and major problem which prevents the countries of the region from taking greater advantage of the benefits to be derived from the use of the various alternatives offered by the futures markets of the developed countries.

The exchanges also place limitations on the institutional participation of the production sectors of the Latin American and Caribbean exporting countries (i.e., the mining and metals industry, the tropical products sector, and producers of grains and related products). The institutional framework of the exchanges is such that they must reconcile the interests of all the participants, and they therefore do not permit interference from the commercial strategies of any one sector. Generally speaking, the exchanges are run by brokers, most of whom are the owners of firms that deal on the exchanges. Latin American and Caribbean firms can become members and can even participate as such in the various committees in charge of regulating, monitoring and supervising exchange activities, and by this means might urge them to take sectoral interests into account. However, it seems rather unrealistic to think that they could manage to secure preferential conditions favouring a given sector.

Moreover, the fact that the commodity exchanges are private institutions and have a long tradition of self-regulation makes it highly unlikely that governments of Latin American and Caribbean countries could come to play an institutional role in the management of exchange activities.
IV. CONCLUSIONS

The modern-day marketing of commodities involves three basic types of sales, which are used complementarily: a) Spot sales, which are cash transactions for immediate delivery whereby the price is fixed and ownership of the merchandise is transferred simultaneously. Spot prices are influenced by the delivery site and the quality of the merchandise involved in each transaction; b) Forward contracts, in which the merchandise is to be delivered at a future date. Since this type of sale incorporates a time dimension, forward contracts specify the price, quantity and quality of the merchandise, the delivery site, and the point in time in which the transfer of ownership is to take place. Payment is generally made upon delivery. This type of contract is frequently used for exports; and c) Futures contracts, which are standardized contracts entered into on the commodity exchanges that provide for the future delivery of merchandise. These contracts, which specify the quantity and quality of the merchandise and the delivery site and date, are rarely used for physical transactions but are instead used in combination with the above-mentioned types of transactions in order to improve the operation of the commercial system.

The importance of the exchanges in terms of worldwide trade in the various commodities has changed with time and has varied depending on the product concerned. By virtue of the fact that the United States has accounted for the lion's share of world exports of grain and related products, the United States grain exchanges have traditionally played a very significant role in world trade in terms of price determination and dissemination, the negotiation of export transactions (reference prices) and business firms' commercial strategies (hedging, speculation, etc.). On the other hand, until about 20 years ago the CSCE played a less important role in international trade in sugar, cocoa and coffee because these commodities (which are primarily exported by the countries of the region) have been subject to international agreements and other pricing methods. The production and world trade of metals have also been concentrated in a few countries and firms, and for many years the prices set by producers were therefore the most important. It was not until the early 1970s that these markets became more competitive
and producers' ability to set prices began to wane, after which the use of producer prices gradually began to give way to that of published prices and quotations on the London Metal Exchange and COMEX.

In recent decades, changes in world trade patterns and flows and the greater interdependence of factor, commodity and securities markets have led to an increasing use of the United States and London commodity exchanges not only by speculators but also by firms that deal in those products. The essentially speculative nature of the commodity exchanges does not negate their importance as price-determination mechanisms for world trade; in fact, futures markets, which are widely used by the major firms involved in the trade of primary products, now play a fundamental role in world trade as a mechanism for determining and disseminating prices and for stabilizing prices and earnings (in the latter case, through hedging). Indeed, hedging by commodity traders was one of the factors which accounted for the sharp increase in the use of the exchanges seen during the 1970s.

The interdependence of modern-day markets is steadily growing, and they are increasingly influenced by the production and trade policies of the major trading countries. Hence, a large number of variables directly and indirectly connected with production and demand in these countries play a part in determining the price of each product. One common mistake which producers, among others, often make when attempting to forecast the future price levels of a given product is that of failing to take into account the broader economic context in which that product will be competing for the scarce resources of the various markets. Considered from this standpoint, the commodity exchanges, which act as centres for the instantaneous reception of information about the main events affecting world trade, are a basic price-determination tool. Because of this, they are increasingly being used as a source of reference prices, even in the case of countries where government or semi-public institutions monopolize foreign trade (e.g., the Australian Wheat Board and the official import agencies of the Latin American countries and the socialist nations).

Despite the foregoing, however, the production, processing and export firms of Latin America and the Caribbean make relatively little use of the United States and London exchanges, especially for hedging. Although a large
part of the grain and related products exported from the region is channeled through transnational corporations or very large national companies which use the futures markets both for determining prices and for hedging, the smaller firms and government agencies use them only as sources of information and as a point of reference for contractual purposes, rather than for hedging.

Hedging on the CSCE by Latin American and Caribbean sugar and cocoa exporters is also limited, but most coffee exports from Brazil, the Dominican Republic and Ecuador are made by large private enterprises which deal in the futures market. The region's copper industry is the sector that participates most actively in the metals exchanges for purposes of pricing and hedging (the main public and private exporting firms of Chile, Peru, Mexico and Brazil use them regularly).

The degree to which Latin American and Caribbean firms use the United States and London exchanges depends on many factors, including: the type and size of the firm and the closeness of its links with companies operating in developed countries; how much the firm's personnel know about the advantages and limitations of trading on the exchanges; the extent to which the United States and London futures markets provide the firm with an effective means of covering the price risk associated with its merchandise trade; whether or not the firm can finance the margins and other deposits required by exchange brokers and commission houses; and government regulations concerning the transfer of foreign exchange out of each country.

Relatively little is known about the United States and London futures markets in the public and private sectors of most of the countries of the region. This is one of the reasons why public institutions in some countries (e.g., Argentina) do not use the exchanges as part of their commercial strategies and why restrictions have been placed on their use by private firms. Local firms' lack of operational experience and technical expertise is also a factor in the limited use made of the exchanges.

Another of the main problems hindering Latin American and Caribbean firms' use of the commodity exchanges as part of their commercial strategies is the lack of parallelism between the prices on the different markets, which reduces the effectiveness of hedging on the exchanges. Indeed, for some products and countries, the basis risk may be greater than the price risk as a
consequence of interference from the trade policies of certain exporting countries or because the factors influencing supply and demand in each competitor country differ. Changes in exchange rates (the frequent and inconsistent over- or under-valuation of Latin American currencies in terms of the dollar or the pound sterling) are another cause of discrepancies between domestic and international prices. These factors are part of the reason why the variability of the basis for grain has sometimes been greater than the variability of FOB prices at Latin American ports in recent years, and hedges are not effective under such circumstances. The lack of studies on this subject hinders a systematic and judicious use of hedging operations on the United States and London exchanges.

The necessity of using hard currencies to cover the margin and other deposits required by brokers and commission houses is also a serious constraint on the large-scale use of United States futures markets by firms in the region. The lack of access to unlimited financing (since the total amount of such deposits cannot be estimated beforehand) is a major hurdle for most public and small private firms. In addition, some countries restrict foreign-exchange transfers, which gives rise to a greater degree of interference and discrimination against local firms that do not have international corporate links. Unfortunately, the margin system cannot be done away with, since it is essential in order to ensure the smooth operation of the exchanges, and some means of providing sufficient financing to Latin American and Caribbean firms that wish to deal in the futures markets will therefore have to be found.

In many cases the reason why public institutions in the developing countries do not participate in the exchanges is not related to restrictions placed on them by those markets (on the contrary, commission houses have shown a great deal of interest in attracting some public agencies, such as the National Grain Board (JNG) of Argentina) but instead to national regulations and policies. Whether due to a lack of knowledge about the exchanges or to other reasons, in many countries official prohibitions or unofficial barriers still prevent public enterprises or agencies from trading on futures markets.\(^{13}\) This places such institutions at a comparative disadvantage when they have to compete against firms which deal in futures as part of their commercial strategies.
One of the most common criticisms made of the commodity exchanges is based on the argument that speculation distorts prices and that exchange quotations therefore do not correspond to long-term equilibrium levels in terms of the fundamentals. Thus, exchange quotations, which are a short-term indicator, do not necessarily constitute an accurate market signal on which to base medium- and long-term decisions about production and consumption. This is because, in the short run, the price elasticities of commodities are low, and adjustments in production and consumption are therefore made slowly. Because it takes a long time to correct the fundamentals pertaining to most commodities, new disturbances often occur in the interim which cause commodity prices to veer away from a trend which would eventually align them with long-term equilibrium prices. Consequently, even when speculators correctly predict the influence of the fundamental factors (which is not always the case, since many of them base their decisions on technical analyses and the extrapolation of existing trends, thereby magnifying the movement of the market in a given direction and destabilizing it), this information is subject to discounting and interference over time.

Most of the trading done on the commodity exchanges is speculative. In order for the exchanges to fulfill their role as a mechanism for price hedging by means of futures contracts and options, the participation of speculators is necessary, since they provide the market with liquidity and assume the risk which hedgers are trying to reduce. Thus, the incorporation of speculators into any exchange is fundamental, and their absence from the existing futures markets of some Latin American countries, such as Argentina, is one of the main reasons why these markets are poorly developed and of little importance in terms of local trade. Although it is true that when speculators enter a market, their expectations and behaviour become a decisive factor in price determination, it is also true that in some instances speculation has a stabilizing effect on prices. This is what occurs in the case of seasonal swings in the prices of non-perishable agricultural goods; the presence of speculators, who in net terms generally take long positions at harvest time, tends to smooth out seasonal variations by raising prices during the harvest (the period during which producers make most of their sales) and lowering them
during the rest of the business cycle. In these cases speculation tends to push up price levels.

Nevertheless, in the short run speculation often prompts over-reactions whereby the movement of the market in a given direction is accentuated, thereby increasing its volatility. Commodity exchange quotations are indeed extremely volatile and fluctuate more than producer prices do, although swings in producer prices have also widened in recent decades as the influence exerted upon them by changes in exchange quotations has grown. In fact, a trend towards greater volatility is being observed in all commodity prices as a consequence of the increasing variability of the world economy and growing market interdependence. This is an irreversible process, and it therefore seems highly unrealistic to attempt to isolate the region's commodity markets.

It should be noted, however, that not all countries can use the United States and London exchanges with the same degree of effectiveness. In addition to the lack of parallelism between price trends in futures contracts and in the local markets of Latin American and Caribbean exporting countries, there are other problems of representativity, such as the fact that the contracts traded on the exchanges do not always accurately represent the physical merchandise being traded and that delivery points sometimes do not correspond to actual exports, thereby making it difficult to obtain a good "fit" between the two. It is not always easy to reconcile the interests of producers and consumers (contract specificity) with those of speculators (contract standardization).

Despite these problems, the use of the United States and London commodity exchanges offers a number of advantages to Latin American and Caribbean firms. Some of the main benefits are the following: a) the generation and dissemination of price information which can be used as a reference point for commercial operations and of market information which can be valuable in designing commercial strategies; b) hedging; c) the use of the instruments provided by the exchanges (futures contracts, options) in connection with the sale (or purchase) of products or inputs; and d) the use of futures trading to reduce capital requirements or as an aid in obtaining financing. All these alternatives, which have been discussed in detail in chapter III of each of the studies conducted by ECLAC in this area (Regúnaga, 1989; Bande and
Mardones, 1989; López Huebe, 1989), can be extremely useful to Latin American and Caribbean production, processing and export firms and can work against them if they are used in a piecemeal fashion by some of the participants in those markets. A firm places itself in a weaker position if it fails to use the information and analyses provided by the commodity exchanges, assumes the whole of the risk represented by seasonal price swings, and confines its sale and purchasing strategies to operations on the physical market —and it will be at an even greater disadvantage if other firms in the same market do use the exchanges.

The problems which the asymmetry of price trends in the different markets pose in terms of Latin American and Caribbean firms' ability to use the United States and London exchanges efficiently could be at least partially surmounted through the development of local exchanges. At present, futures markets for grains exist only in Argentina and Brazil, and there are no local futures markets at all for tropical products or metals.

Brazil's futures markets are of recent date and thus far have not reached a significant level of development. In Argentina, on the other hand, local futures markets played a very influential role in the 1920s and 1930s, when a free trade regime, the stability of Argentina's currency and the country's importance in world trade led traders and speculators to participate actively in these exchanges. Changing circumstances,15 as well as a failure to develop additional instruments or to update existing ones so as to ensure the proper operation of these exchanges, have caused Argentina's futures markets to decline in importance during the past two decades and to become limited to a small number of operations which are conducted mainly by traders, with little or no participation by speculators.

These markets' lack of liquidity is one of the main reasons cited for their relative unimportance at the present time. The absence of active local futures markets means that local traders cannot establish complementary positions on local and United States exchanges as a means of coping with the problems created by differences between domestic and international prices. It should be noted, however, that in the case of products whose local prices are more closely linked to international prices (e.g., metals), local exchanges would be less useful.
The above-mentioned limitations in respect of local exchanges, which are manifested in their having insufficient liquidity to function effectively, also militate against the success of any attempt to set up regional commodity exchanges. It seems very unlikely that such exchanges could generate sufficient liquidity (which is provided by speculators) in countries that have poorly developed financial systems and exchange controls and where there is a risk of government intervention aimed at influencing prices. Indeed, these weaknesses would not only tend to discourage the active participation of speculators, but would also make it difficult to attract traders from other countries.
V. RECOMMENDATIONS

1. **Promotion of the growth and use of the commodity exchanges of the developed countries**

A more active and effective use of the United States and London commodity exchanges could help to increase the value of the exports of the Latin American and Caribbean countries by aiding the firms in the region which deal in commodities to improve their commercial strategies. This is all the more true in view of the fact that -- owing to the way in which world trade in factors, commodities and other assets has evolved -- these exchanges have come to play an increasingly pivotal role in determining international commodity prices. A recognition of this fact and of the advantages to be derived from a more effective use of the instruments offered by the exchanges points up the need to remove the barriers and obstacles which currently limit their use by the public and private firms of the region.

The lack of familiarity with the commodity exchanges and how they work and the prejudices against them observed in most of the Latin American and Caribbean countries have been identified as one of the chief obstacles to a more active and effective use of the exchanges. It is therefore important to promote a greater understanding within the region of the exchanges, their operations, and the advantages and disadvantages of using them as a means of strengthening the commercial policies of the region's exporting firms. This could be accomplished by means of a training and technical assistance programme which would include the following components:

Training of government officials in charge of defining policies and regulations governing activities relating to the exchanges. This would include officials from ministries of economic affairs, finance and foreign trade, Central Banks, regulatory agencies concerned with commerce, etc.

The aim of such training would be to increase government officials' knowledge about the benefits offered by the exchanges and to work with these officials in identifying the factors in each country which hinder the effective use of such markets with a view to the eventual elimination of those obstacles.
In view of the types of activities such training would entail, it would be advisable for this component to be organized by national or international institutions working in the area of technical or financial assistance.

Training of technicians from government institutions and private firms (co-operatives, small and medium-sized producers or exporters) in the effective use of the exchanges as a means of improving their management of commercial undertakings. This component could be co-ordinated by national or international institutions, and at least some of the training could be provided by member brokers or commission houses of the corresponding exchanges, since they have the necessary expertise, often organize this type of activity, and could benefit from the eventual use of their services by those receiving this form of technical assistance. Depending upon the circumstances of each country and of the firms contacted, thought might be given to organizing training activities of varying levels of intensiveness and complexity (seminars or longer courses which might in some cases involve visits to the headquarters of the exchanges).

This programme should be supplemented by studies on the behaviour of local markets and their relationship to the United States and London exchanges and by the dissemination of their findings. Given the dynamic nature of this type of information, it is recommended that the research be organized on the basis of a programme of technical and financial assistance (for its initial dissemination) for the public or private body or bodies in charge of monitoring and distributing market information. This type of organizational basis would help to ensure the continuity of the research effort.

Another major constraint which limits a widespread use of the United States and London exchanges is the need to deposit initial margins and margin calls, which involve the transfer of funds to the exchange's headquarters. This requirement raises a number of difficulties, including: the problems faced in some countries of the region by a firm wishing to make a foreign-exchange transfer which is not offset by a matching import operation, a lack of access to the necessary financing (both for the initial margin and for any subsequent margins calls or other deposits, whose total sum cannot be estimated beforehand), and the problems posed by accounting procedures for
recording offshore transactions (especially if an instance of futures trading results in a loss).

The first of these problems, i.e., the need to transfer funds to cover margin deposits, is related to the economic policies of the different countries. Proposing the modification of such policies would be beyond the scope of the recommendations made in this study. However, as discussed in connection with the proposal that a training programme be organized for government officials, a better understanding on the part of the monetary authorities of each country of the advantages of using futures markets and the opportunities offered by the exchanges for strictly controlling the deposit requirements for these operations could help lead to the institution of regulations which would make these activities viable.

The second problem associated with margin requirements is, as mentioned above, that many firms (particularly smaller enterprises and those in the public sector) are able to borrow no more than a limited amount in their own country and lack access to international financing, especially on the terms required by the exchanges, since, in 24-hour trading, a firm may be required to deposit large sums without any warning as a result of sudden changes in the market. Bearing in mind the possibility of setting off gains and losses among the operators of a country or group of countries, it has been proposed that a special fund for financing margins should be set up by some multilateral lending or development-assistance agency, which would then administer and monitor the fund as well. Another idea that has been suggested is the possibility of using the "second window" of the UNCTAD Common Fund for Commodities. Although, in essence, these proposals envisage the provision of collateral to the commission houses—which could be furnished by some agency such as the World Bank, IDB or IMF—this course of action would involve highly complex international negotiations, since the authorities of these institutions regard it as a high-risk alternative which would represent a departure from their traditional focus on investments in borrower countries.

Another possibility about which very little is known in the developing countries is options trading. One advantage of this market is that option margins, or premiums, are set at a fixed sum, which eliminates the need for a variable and indefinite amount of financing. Moreover, options trading
methods have been developed which permit producers to finance these premiums but at the same time allowing them to take advantage of increases in futures prices.

In the case of metals, experimentation with forms of intermediation between solidly-backed State or private processing or marketing firms and small or medium-scale producers has met with a fair amount of success. The basic idea is that the former's ability to obtain lines of credit for covering margins from brokers or commission houses can be extended to include small and medium-scale producers that wish to deal in futures by using (physical) merchandise supply contracts between the two parties as collateral.

In regard to the last of the obstacles mentioned above, the research to be carried out as part of the training programme proposed earlier in this section should include studies on appropriate accounting methods for recording the results of physical and futures operations.

2. **Strengthening local commodity exchanges**

The organization or strengthening of local markets could, in combination with the use of the United States and London exchanges, help to improve commodity marketing systems. This is of particular importance for those countries and products in which marked differences exist between local FAS or FOB prices and international market quotations, as is the case, for example, in the grain markets of Argentina and Brazil.

The weakness of existing local markets is linked to a number of factors: problems of institutional policy arising out of unpredictable, discretionary and sometimes arbitrary government intervention in such markets; cultural barriers associated with a negative attitude towards speculation; a lack of knowledge about the benefits to be derived from the use of such markets by producers, industrialists and traders; and the fact that existing instruments have not been adapted to function in inflationary situations. These factors have resulted in poorly developed markets involving very little speculation and, hence, a low level of liquidity.

The removal of these barriers will entail a modification of the laws and regulations that limit trading and speculation, as well as the dissemination
of information and the training of potential users. A first step towards the modification of such regulations could be taken through the implementation of technical assistance programmes for government officials, which could be organized along the lines of those described in section V.1. In view of the political arrangements involved in carrying out this type of activity, a prior agreement would have to be reached with the governments concerned.

At a later stage, thought should be given to a programme for the mass dissemination of information and for the training of producers, industrialists and traders.

Notes

1/ The reference price for Argentine wheat is taken from the Kansas City exchange, since it trades in wheat of a similar quality (only soft wheat is traded on the Chicago exchange).

2/ For an in-depth discussion of the benefits which firms can derive from the use of the various instruments available on the futures markets for grains, tropical products and metals, see chapter III of each of these studies.

3/ On the Chicago exchange, the shares for full membership traded at between US$ 400 000 and US$ 500 000 in 1988; on the CSCE, such shares trade for around US$ 60 000.

4/ On markets where producer prices predominated, quotations incorporated only the expectations of producers themselves. Price changes were rare, occurring only when evidence accumulated as to the existence of imbalances between production and consumption over the medium or long term (since producers tend to take a longer-term view).

5/ In theory, the only products that will be stored are those whose seasonal price swings cover their carrying charges, or the total costs of storing them.

6/ For further details, see table 3 (Requénaga, 1989) and tables IV.4, V.5 and V.6 (López Huebe, 1989).

7/ One of the reasons cited in the specialized literature for the failure or poor performance of these markets is a lack of liquidity (Marsana, 1988, in reference to the futures market for Argentine grain; Gray, 1965, in reference to the United States).
8/ One of the most famous is the case of the Hunt Brothers on the COMEX silver market.

9/ A classic example of this occurred in the early 1980s when refined copper wirebar contracts were being traded on the London Metal Exchange at a time when this product had already been displaced by high-grade copper cathodes.

10/ If the local traders could not, if they so desired, cover their positions with physical merchandise either, it would pose a serious problem in terms of market performance.

11/ For a detailed discussion of this issue in respect of grain, tropical products and metals, see Regúnaga (chapter IV, 1989), Bande and Mardones (1989) and López Huebe (1989).

12/ In fact, in the balance sheets used by some countries, such as Argentina, the tax treatment of losses or gains outside the country cannot be mixed with that corresponding to operations within the country.

13/ This is also true of countries such as Canada, where the Canadian Wheat Board— unlike the Australian Wheat Board— is not authorized to trade on the exchanges.

14/ In such cases inverted markets or markets whose seasonal price swings do not cover carrying charges are frequently observed.

15/ The State intervened in the grain trade and even in the exchanges themselves, exchange controls were instituted, exchange rates became increasingly unstable and Argentina's share in world trade shrank.
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