



Institute for Agriculture
and Trade Policy

June 19, 1998

COMMENT

Brooksley Born
Chairperson
Commodity Futures Trading Commission
3 Lafayette Centre
1155 21st, NW
Washington, DC 20581

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Dear Chairperson Born:

I am writing first to thank you for affirming and defending, in the face of enormous pressure from inside and outside the government, the Commission's statutory obligation to regulate the over-the-counter derivatives market. Your June 10 testimony to the Subcommittee on Risk Management and Specialty Crops was a model of how federal officials should inform Congress. Particularly in view of the market debacles of the 1990s, it is irresponsible of other federal officials to attempt to curtail the discussion and possible regulations resulting from Commission's Concept Release. We hope that studies resulting from the Concept Release will be posted on the CFTC Web site, and look forward to the opportunity to submit comments on any proposed regulations resulting from review of information gathered by the Release.

I would also like to bring to your attention a topic that is not new to the Commission's research staff -- U.S. government advocacy of the futures market as a risk management tool in developing countries -- but from a viewpoint that is perhaps new. I am enclosing a fact sheet on the topic by one of our interns, Elizabeth Cleveland, a former employee at the Minneapolis Grain Exchange. Ms. Cleveland subsequently wrote on this topic for her senior thesis, also enclosed. If you or your staff have any questions about these documents, she may be reached at Wilderness Canoe Base, 12477 Gunflint Trail, Grand Marais, MN 55604, until about September 15.

Please accept our best wishes for continued success in your defense of the integrity and responsibility of the futures and options markets.

Sincerely,

Steven Suppan, Ph.D.
Director of Research

cc. Mark Ritchie, President, Institute for Agriculture and Trade Policy
Elizabeth Cleveland

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Sustainable Food Security

No. 7

Fact Sheet

November 1996

The dissolution of international price-stabilizing agreements, and the privatization of state trading organizations by many commodity exporting countries have left mostly small, private firms exposed to world market price and supply volatility. Since the 1970s, the importance of futures and options for seeking protection against price fluctuations and for establishing international commodity prices has been growing. Over the past few years, commodity futures exchanges have been created in countries such as Hungary, Poland, the republics of the former Soviet Union, and China.¹

Reflecting present-day trends of trade liberalization and globalization, the US stated in its May 1996 draft report to the World Food Summit,

"The United States believes that existing risk markets offer significant potential for meeting the needs of both importers and exporters to share food price and availability risks and proposes educational programs to facilitate developing country use of existing risk markets."² Evidence from US futures and options markets indicates, however, that disparities in information and capital

resources among market players restrict the markets' ability to manage price and availability risks, two fundamental factors that affect a country's food security.

Futures and Options: How They Work in the US

Futures and options are the free market tools most often used to manage commodity price risks. A future is a standardized, legally binding agreement to buy or sell a certain amount of a commodity at a pre-determined price at a specific date and place in the future. An option is a contract which gives a buyer the right to buy or sell a specified quantity of a commodity at a pre-determined price within a specified period of time, regardless of the market price of that commodity.³

Buying and selling futures and options makes it possible for participants in commodity markets—commodity dealers, processors, warehouse operators, and farmers—to protect themselves against potential losses from future price fluctuations in commodities which must be stored or which must be bought or sold at a later date. Theoretically, individuals can reduce the price risks they face in the cash market by offsetting them with opposite transactions in the futures market.⁴

For example, long before harvest time, a wheat farmer can sell all or part of his/her crop for \$3.50/bushel in the form of a futures contract, thus establishing a minimum price that will be received. When the wheat is sold, the farmer receives the physical market's "cash price". If this price is lower than \$3.50, the farmer is compensated by the higher price of the futures contract sold earlier. If the price on the physical market is higher than the futures contract price, the gain on the physical market is offset by the loss involved in buying back the futures contract.⁵ This process is called "hedging," where futures

and options contracts act as temporary substitutes for cash transactions that will occur later. Through hedging, producers may be able to obtain better prices for their products, and processors can eliminate part of the risk involved in storing such commodities.⁶

Futures markets are overseen by commodity exchanges, such as the Chicago Board of Trade (CBOT), and were originally established to create an open, competitive system for pricing grain and a guidance mechanism for marketing and distribution that would ideally reflect the laws of supply and demand.⁷ These markets perform the valuable function of "price discovery" through a system called "open outcry."

Price bids and offers are shouted out at exchanges in the trading "pits," a system that allows price information to be accessible to everyone.

In the US, the only major developed country where farmers have traditionally been exposed to commodity price risks, approximately six out of seven US farmers do not use futures and options to manage

price risks because of their lack of knowledge and mistrust of risk management markets, or because they think that these markets would provide little or no benefit. However, more farmers may begin to seek protection from risk through the market, due to the Uruguay Round-mandated decline of government support for agriculture.⁸

The two main purposes of futures contracts—price discovery and risk sharing—are undermined by large market players who distort prices and interfere with the markets' reflections of supply and demand. This distortion of actual supply and demand levels can be seen in figures from the Futures Industry Association and the US Department of Agriculture's 1988 Crop Production Summary, which show that for each bushel of wheat produced by the farmer in 1988, 14 bushels were traded on commodity exchanges. For corn, the ratio was one to 11 bushels; for oats, one to eight bushels; for cattle, one to eight pounds; and for soybeans, one to 41 bushels traded. According to American Agriculture Movement Director David Senter, a Texas farmer, "CBOT speculators are depressing the price of commodities by selling unlimited numbers of futures contracts, regardless of what we can produce or what's in storage."⁹

Influencing the Market

Two categories of major players, investment funds and international trade houses, have considerable influence in commodity futures markets. Large amounts of investment funds can be transferred easily between financial markets and commodity futures as well as among commodity futures markets.¹⁰ These movements affect commodity price cycles and can cause developments in the physical market to become of secondary importance. Many of Chicago's traditional agricultural traders worry about the "widening parameters of risk exposure in their markets pumped up on money from out-of-

Commodity Futures and Options Markets: A Means Towards Food Security?

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favor financial instrument markets.¹¹

In most cases, the effects of large shifts in investment funds are short-lived, and negative consequences can be avoided if market players are well-informed. Sometimes investment activity does, however, cause markets to lose the ability to establish prices that reflect supply and demand. In 1992, for example, investment funds reinforced a decline in coffee prices from 70 cts/lb in March to 49 cts/lb in early August, and then provoked an increase from 48 cts/lb in late August to 84 cts/lb in late December. It was difficult for producers to hedge their risks because volatility was very high. Those with poor communications, such as developing country producers and exporters, most often do not have the resources to make well-informed decisions and therefore suffer the most from this kind of situation.¹²

Most coffee production in Ethiopia, for example, employs one quarter of the country's population, or more than ten million people, many of them women. In the United Republic of Tanzania, coffee is the main cash crop for about 1.78 million people.¹³ When coffee prices fluctuate small producers are usually the least-equipped to bear the full brunt of world market instability caused by large shifts in investment funds over which they have no control.

International trade houses use futures and options contracts extensively to hedge their price risks and to speculate on price movements. Trade houses have preferential access to information and thus the incentive to speculate. Under US law, commodities speculation based on insider information is not a crime and can lead to large profits as well as large losses for trading companies. For example, in 1972, when the Soviet Union tripled the amount of wheat it was importing, grain companies and their trading houses enjoyed earnings up to six times greater than in previous years because they heard about the large sales long before producers and grain elevator operators. Farmers did not know of the impending sales, and many sold their crops at the end of the harvest season, only to see prices double two months later.¹⁴

Trade houses are also in the best positions to manipulate the market through "squeezes," involving simultaneous transactions on the futures and the physical market. This activity creates a situation of artificial shortage where it is difficult and expensive for suppliers to fulfill their contract obligations. Markets with limited liquidity are particularly vulnerable to manipulation attempts, although "squeezes" have happened on the world's largest markets.¹⁵

Developing Country Problems in Risk Management

Many developing country exporters and traders are small, private firms lacking the resources required to use risk management instruments effectively. Participating in futures markets involves costs such as brokers' fees and margin calls. If, for example, a firm wants to hedge 100,000 MT of sugar exports, an initial deposit of around \$US 2 million is needed. After one has bought or sold a futures contract, margin calls are based on price movements. For every cent the sugar price increases above the price of the futures contract, the firm would have to pay another \$2 million in a margin call, in either cash or securities, to maintain the required minimum deposit level in its account.¹⁶ Few developing country entities are likely to be able to put up such a deposit from their working capital.

The problems associated with deploying working capital are complicated by the inability to obtain credit in time to take advantage of the markets. Few developing countries have adequate banking

and financial services to supply large amounts of credit quickly: For example, companies in the West-African CFA zone, with a currency that is theoretically convertible to the French franc, must wait up to a week for the Central Bank to process a request each time it needs to convert currency.¹⁷ In markets where fortunes are made and lost in an hour, by the time these companies get the credit they need, their hedging opportunity is usually gone.

According to UNCTAD, an "unimpeded flow of communication with markets, and an accommodation with exchange trading hours, specifications, and delivery rules" is also needed in order to use futures and options successfully. It is often difficult to find these kinds of communication and information services in developing countries.¹⁸

In addition, hedging on futures usually can't be done for more than 18 months into the future, or when dealing with commodities with long lags between investment and production, so they are difficult to factor into long-term planning.¹⁹

Conclusion

Developing country entities and smaller-scale producers are at a disadvantage when participating in futures and options markets. Highly capitalized investors can interfere with the ability of futures and options markets to establish prices according to supply and demand and reduce price volatility. Developing countries often lack the communications and financial resources necessary for hedging. They should therefore be wary of programs that promote commodities futures and options markets as a means to food security.

Sources

¹ *A Survey of Commodity Risk Management Instruments*. UNCTAD, TD/COM/15. 15 Mar 1993.

² *The US Contribution to World Food Security*. Discussion draft for the June 3 Forum on the World Food Summit. 17 May 1996, 40.

³ *The CFTC Glossary*. Washington, D.C.: Commodity Futures Trading Commission. 1992, 44.

⁴ Krebs, A.V. *The Corporate Reapers*. Washington, D.C.: Essential Books. 1992, 341. Send inquiries to: <avkrebs@earthlink.net> or to AV Krebs, P.O. Box 2201, Everett, WA 98203-0201.

⁵ UNCTAD, TD/COM/15, 15-16.

⁶ Krebs, *ibid.*, 341.

⁷ *ibid.*, 340.

⁸ *Report of the Ad Hoc Group on Risk Management in Commodity Trade*. UNCTAD, TD/B/CN.1/22, TD/B/CN.1/GE.1/4. 5 December 1994, 3-4.

⁹ Rowe, James L. "Agriculture Options Trading Voted." *The Washington Post*. 30 October 1984, as quoted in Krebs, 341.

¹⁰ Maizels, Alfred. "The Continuing Commodity Crisis of Developing Countries." *World Development*. Vol. 22, No. 11, 1994, 1692.

¹¹ *World Commodity Review*, 27 July 1988, as quoted in *Technical and Regulatory Conditions Influencing Participation in, and Usage of, Commodity Exchanges by Both Buyers and Sellers of Commodities*. UNCTAD/COM/16. 22 April 1993, 21.

¹² *ibid.*, 22.

¹³ *National Institution Building to Facilitate Access to Risk Management Markets for Small Producers and Traders Particularly from Developing Countries and Countries in Transition*. UNCTAD, TD/B/CN.1/GE.1/2. 1 August 1994, 8-9.

¹⁴ Krebs, *ibid.*, 331-2.

¹⁵ UNCTAD, TD/COM/16, *ibid.*, 25.

¹⁶ *Contribution to the Improvement of the Functioning of Commodity Markets*. UNCTAD, TD/B/CN.1/10. 10 August 1993, 30.

¹⁷ UNCTAD, TD/B/CN.1/10, *ibid.*, 30.

¹⁸ *ibid.*, 31.

¹⁹ Maizels, *ibid.*, 1694.

Running Head: MARKET-BASED RISK MANAGEMENT TOOLS AND DEVELOPING
COUNTRIES

Market-Based Risk-Management Tools and Developing Countries: An Examination of the
Literature Evaluating the Obstacles and Issues Developing Country Entities Face When They
Consider Using Market-Based Tools to Manage Their Commodity Price Risks

Elisabeth Cleveland

University of Minnesota

Commodities trade and developing countries

The production and export of renewable commodities, such as primary agricultural products, and non-renewable resources, such as petroleum is an important global industry and makes up about one-fifth of total world trade (ODI, 1995). Industrialized countries import about two-thirds of primary exports and lead production in the world supply of cereals, timber, dairy products, fish, and vegetables (1995). Developing countries dominate exports of tropical beverages, sugar, tobacco, and rubber, while also concentrating on metals and minerals, other non-food crops and timber (1995). These commodities make up over 50% of the exports of at least half of the countries in sub-Saharan Africa and Latin America, which depend on export revenue for the foreign exchange they need to import manufactured goods and service their debt (1995). Some countries, mainly in sub-Saharan Africa, rely on mainly one, two, or three commodities for export revenue (1995).

While many countries depend on commodity export revenues, commodities trade is a risky business. This is illustrated by the fact that export earnings are difficult to predict due to short-term price instability and a long-term decline in the terms of trade. Prices are unstable because stock levels vary, while market speculation and expectations intensify the rise and fall of prices (ODI, 1995). Coffee prices, for example, rose sharply in 1995 because of frost damage in Brazil (the world's largest coffee producer) and low stock levels worldwide (ODI, 1995). Since the beginning of the 1980s, the purchasing power of primary commodities has rapidly declined. Maizels (1994) notes that from 1970-1980, the purchasing power of primary commodities over manufactured imports increased at a comparable rate, but from 1980-91 the amount of primary commodities a country was required to export to purchase the same amount of manufactured goods rapidly increased. To illustrate what these losses have meant for developing countries, Maizels (1994) makes a series of comparisons. The average terms of trade loss for each year of this decade, for example, was equal to almost 25% of the value of all commodity exports in 1980, losses that were "significantly greater" than those that resulted from the Great Depression of the 1930s (p. 1686). Put another way, this terms of trade loss was equal to almost 25% of Africa's

total Gross Domestic Product (GDP) in 1980 (excluding African oil exporters), as well as 12% of Asia's and 14% of Latin America's 1980 GDPs. In comparison, the two oil shocks of the 1970s resulted in annual losses of 2% of GDP for member countries of the Organization for Economic Cooperation and Development (OECD).

These price fluctuations and declines are much greater than exchange or interest rate changes and create a risky world market for primary commodities. As a recent bulletin from the United Nations Conference on Trade and Development points out, uncertainty of the future often reduces investment in improvements and development projects that help a country's economy grow ("UNCTAD's Activities...", 1996). Investors in a new mine, oil well, or plantation, for example, cannot be sure that the expected commodity production will generate enough revenue to make their investment worthwhile. Exporters do not know if they can gain a profit from the commodities they buy, and governments which rely on commodity exports cannot plan their budgets.

Risk management and agricultural commodities

Various players have developed programs on international, national, and company levels to cope with the price risks inherent to primary commodity markets. These schemes include stabilization funds, government price stabilization programs, international price and supply agreements and buffer stocks systems, and market-based instruments such as forward contracts, futures, options, swaps, and commodity-linked bonds and loans. International agreements popular in the 1960s, for example, tried to make prices more stable for cocoa, coffee, rubber, sugar, and tin by regulating sales through export quotas and/or maintaining buffer stocks in order to create a more even level of supply, but these contracts failed because of conflicts of interest and enforcement problems among countries (ODI, 1995). Compensatory finance programs, such as the International Monetary Fund's Compensatory Contingency Financing Facility (CCFF) and the European Union's STABEX fund for the Lome Convention group of developing countries, have also attempted to reduce price instability by releasing funds to exporting countries when commodity prices are in the low part of their cycles instead of trying to stabilize prices directly (ODI, 1995). Currently, due to the failure of international agreements and the trend of global

market liberalization, policymakers are increasingly turning from market intervention and support programs to market-based instruments such as futures, options, and forward contracts to manage risk and establish the international price of commodities (Contribution to the Improvement..., 1993, p. 7). This approach was highlighted at the eighth session of the United Nations Conference on Trade and Development (UNCTAD) in 1992, where it was recommended that, “where appropriate, developing countries should be provided with technical assistance and policy advice on mechanisms, such as the use of financial instruments, to manage price and other commodity-related risks” (“A New Partnership for Development: The Cartagena Commitment,” TB(VIII)/Misc.4, paras. 205 and 206, as cited in Contribution to the Improvement..., 1993, p. 5).

This statement from UNCTAD reflects a current shift in approaches to dealing with commodity price instability, from policies and programs based on price agreements and market intervention to the use of market-based risk-management tools, an approach supported by leading developed countries because it does not interfere with international commodity markets (Maizels, 1994). As experts urge developing country entities to increase their use of market-based tools such as futures and options and, in some cases, develop their own commodity exchanges, it is necessary to question how well developing country entities can use these markets, and how well can these markets serve their needs? Is it feasible to expect developing country entities to use market-based tools to manage their risks, and how much can they rely on these markets to consistently establish prices that reflect the conditions of their underlying physical markets? The following paper explores answers to these questions, maintaining that while market-based tools can play a role in reducing individual price risks, they should be used carefully and should not be considered a cure-all to commodity price instability.

Literature review

The literature concerning the obstacles and possible difficulties developing country entities face by managing their commodity price risks using market-based risk-management tools is sparse. Much of the literature about developing countries and market-based risk-management strategies focuses on how specific tools can be used in specific cases. The second section of a World Bank

book edited by Claessens and Duncan (1993), for instance, features case studies of how various market-based tools could be used to hedge against coffee price risks in Costa Rica or commodity price risks in Papua New Guinea. None of the contributors to this section, however, mention logistical concerns such as the need for accessible credit markets, adequate infrastructure, and knowledgeable people who possess the skills to successfully use market-based tools to manage price risks. Also, these authors do not consider whether or not the exchanges, where the commodities mentioned are traded in the form of paper contracts, adequately reflect the underlying physical conditions of the commodities.

The authors that do discuss the obstacles developing country entities face when trying to use market-based tools to manage their risks only briefly mention these barriers. In his discussion of the commodities price crisis, Maizels (1994) devotes several short paragraphs to this topic, concluding that “the use of financial instruments to reduce market risks of exporting commodities from developing countries must be expected to grow rather slowly over the coming decades” due to problems involving cost, technology and infrastructure, credit, and the maturity length of most financial contracts (p. 1694). Authors of a briefing paper by the Overseas Development Institute (1995) on the commodities pricing crisis have a similar response. In a one-paragraph evaluation, they assert that while market-based strategies can “significantly reduce price volatility,” their use is hindered by a lack of hedging knowledge, the inability to obtain credit, and a lack of private sector support. In addition, the ODI authors note that these tools are limited in their usefulness for medium- and long-term planning because hedging more than 18 months into the future is usually difficult to arrange. These same obstacles are mentioned in other works as well. Gilbert (1985), for instance, concludes that in order for developing countries to make use of futures markets, credit markets must be made more accessible to them (Morgan, Rayner, and Ennew, 1994). Claessens and Duncan (1993) mention the “creditworthiness” of some countries as being a primary problem in financing hedging strategies (p. 19). Masuoka (1993) lists issues of creditworthiness, as well as cost and a lack of financial infrastructure, as major barriers that developing countries face. All of these authors do not, however, devote more than several paragraphs to explaining their brief

assertions. None of these authors, however, discuss issues such as market manipulation, exchange reliability, or the balance of interests represented (or not represented) on various exchanges around the world.

The United Nations Conference on Trade and Development has produced a number of documents detailing the obstacles developing country entities encounter and issues they should consider when trying to use market-based tools to manage their price risks. Eight of these documents were especially useful for this paper:

- A Survey of Commodity Risk Management Instruments (1993 and Rev. 1, 1994) provides straightforward explanations and examples of how developing country entities can use forward contracts, futures, options, swaps, and commodity-price linked bonds and loans. These documents also discuss related concepts such as liquidity, hedging, trading methods, commodity exchanges, and the over-the-counter market.
- Technical and Regulatory Conditions Influencing Participation in, and Usage of, Commodity Exchanges by Both Buyers and Sellers of Commodities (1993) provides a review of commodity markets and exchanges, market participants, the price formation process and complements the information presented in A Survey of Commodity Risk Management Instruments (1993). This document presents examples of problems and issues such as market manipulation, contract specifications, price volatility, hedging of price risks, reliability of commodity exchanges, balance of participation in exchange trading, transparency of price discovery mechanisms, and regulation by exchanges and governments.
- Contribution to the Improvement of the Functioning of Commodity Markets (1993), is a review that synthesizes the information from both A Survey of Commodity Risk Management Instruments (1993) and Technical and Regulatory Conditions... (1993) into a shorter, more concise document. In addition, it contains the main findings from a review by the Group of Experts on the development of new exchanges and the technical and regulatory conditions that need to be in place to encourage commodity buyers and sellers to participate in exchange trading.

- Contribution to the Improvement of the Functioning of Commodity Markets: Analysis of Ways of Improving the Efficiency and Use of Existing Mechanisms for the Management of Risks Arising from Commodity Price Fluctuations (Add. 1, 1993) is a series of proposals from the Group of Experts on Commodity Exchanges, a group composed of governmental and nongovernmental experts who evaluate the technical and regulatory conditions needed to encourage a “maximum level” of participation in commodity exchanges by commodity buyers and sellers (p. 3). The document features a series of policy proposals concerning issues at exchange, national government, and international levels, as well as areas where more research and/or training and education is needed.
- National Institution Building to Facilitate Access to Risk Management Markets for Small Producers and Traders Particularly from Developing Countries and Countries in Transition: Issues Involved and Possible Ways to Overcome Them (1994) discusses how risk management tools can be made more accessible to farmers and small traders in countries which depend on agricultural commodity export earnings for most of their export revenue and which have a “relatively undeveloped” private sector infrastructure (p. 3). The report focuses on coffee producers and traders in Africa, because most governments of countries which produce this commodity have recently eliminated many price support programs which have previously protected small coffee buyers and sellers from the frequent large fluctuations in world market prices. While these changes have reduced the burdens that former inefficient marketing systems placed on farmers, the report asserts that the burden of world market price volatility is now being placed on the shoulders of “those who are least able to manage it, that is, farmers and small traders” (p. 22). To counter this trend, the report proposes elements of an agricultural policy which “empowers” farmers and exporters to manage their own price risks without “building a new, top-heavy government infrastructure” (p. 22).
- Counterpart and Sovereign Risk Obstacles to Improved Access to Risk Management Markets: Issues Involved, Problems and Possible Solutions (1994), a companion paper to National Institution Building... (1994), provides a detailed, in-depth discussion of issues developing

countries encounter when trying to use international risk management markets, and the counterparty and sovereign risk barriers they must overcome or work around to finance risk management strategies. This document presents steps developing country governments and entities could take to overcome their financial restrictions, suggesting that they could improve their risk ratings by building “good working relationships” with foreign companies and increase their possibilities of providing collateral by keeping offshore accounts (p. 25). Governments could play a major role in this process by developing a reliable regulatory system and legal framework and policies concerning export licensing, minimum export prices, taxation, and foreign currency which support hedging activities, making it possible for entities to use physical commodities as collateral for risk management transactions. The international community could support developing country entities by providing research, training, and technical advice, by modifying negative pledge policies, and by creating an international sovereign risk insurance fund to make it easier to finance risk management deals.

- Report of the Ad Hoc Group of Experts on Risk Management in Commodity Trade (1994) features the comments of a Group of Experts, composed of people closely involved in commodity trade and production from at least ten different countries, as well as representatives from international banks and trade organizations. Contributors present recent examples of the approaches individual countries and organizations have taken concerning national institution building and counterparty and sovereign risk issues. The Group of Experts’ discussion is based on issues raised in two reports, National Institution Building... (1994) and Counterparty and Sovereign Risk Obstacles... (1994). On the subject of national institutions, the Group concludes that many countries have gaps in their commodity export marketing systems that the private sector cannot always fill due to a lack of knowledge, skills, and government support. Concerning counterparty and sovereign risk issues, the Group recommends that international organizations and multilateral lending institutions take action to create ways for developing country entities to use their physical commodities as collateral for loans more than they do now, and that training and education about national regulations and policies as well as

commodity finance and risk management markets take place. The Group also urges the “international community” to contribute to producers’ knowledge of market-based risk management systems and to make sure there are intermediaries through which producers can gain access to these tools (p. 9).

Besides these eight UNCTAD documents, Krebs (1992) is the only other voice found which discusses the ability of exchanges to produce prices which reflect the underlying conditions of supply and demand of the commodities being traded. Krebs (1992) also explains how futures markets work. His work is not cited more in this paper only because the UNCTAD documents provide much more detail and examples about the topics discussed here. His work is useful, however, when trying to understand how futures markets work and the flaws of them.

Description of market-based risk-management tools

Futures, options, and forward contracts are the most common free market “tools” used to manage commodity price risks and speculate on commodities markets. Other tools, such as swaps and commodity-linked bonds and loans, also exist, and their use is increasing, but at the present time much of the available literature focuses on futures, options, and forward contracts, and so these are the tools which will be discussed in this paper. According to Technical and Regulatory Conditions... (1993) forward, futures and/or options markets exist for at least 22 of the 29 primary commodities traded internationally. Several of these contracts exist in the fuels sector, which accounts for about 40% of world trade in commodities. These market-based contracts are also available for about 60% of world trade of non-fuel primary commodities, although most of them are currently used only for domestic purposes.

A Survey of Commodity Risk Management Instruments (1993) describes both forward and futures contracts. A forward contract is an agreement to buy or sell a certain amount of a commodity at a pre-determined price at a fixed future date. Delivery of the commodity is expected. If, at maturity (the time for delivery of the commodity) the actual, or “spot” price is higher than the price agreed to in the contract, the buyer makes a profit. If the spot price is lower, the seller makes a profit. Having the pre-determined price eliminates price risks for both buyers and sellers. These

contracts are used worldwide for all commodities. Much of the world's cotton, for example, is traded through three to twelve month forward contracts.

Futures, like forward contracts, are agreements to buy or sell a certain amount of a commodity at a pre-determined price. Unlike forward contracts, the purpose of buying and selling futures is not to actually receive or get rid of the commodity. In fact, it is estimated that less than five percent of the commodities traded with futures contracts are ever actually delivered (Knight, as cited in Krebs, 1992). Instead, futures contracts are bought and sold to protect oneself from or to speculate on future price changes of a particular commodity (Krebs, 1992). A Survey of Commodity Risk Management Instruments (1993) explains that a futures contract is usually offset by an opposite agreement on or before maturity. One contract is bought and another is sold, canceling out the first one. When the producer sells the actual commodity, he/she receives the spot price. If the spot price is lower than the pre-determined price on the futures contract, the producer is compensated by the higher price of the futures contract. This is because the value of the futures contract sold earlier should have declined along with the price decrease on the physical market, so the producer will be able to buy an identical contract at the lower price. In an opposite situation, if the price on the physical market is higher than the futures contract price, the gain on the physical market is offset by the loss involved in buying back the futures contract.

How can futures help producers of primary commodities gain control over the price risks they face? National Institution Building... (1994) provides the following example. A cooperative sells 2 million pounds of arabica coffee to local exporters on behalf of its members during each of the months of October, November, and December, at fixed prices based on the New York Coffee, Sugar, and Cocoa Exchange "C" contract prices, minus 10 cents/pound in traders' margins. To protect its members against "intra-seasonal price declines" and make sure that the price at the beginning of the season is the price farmers will receive as a minimum at the end of the season, the cooperative's management proposes a fixed price of 112 cents/pound for coffee to be delivered in late 1987, which is accepted by the cooperative's members (p. 7). Next, the cooperative locks into a price of 122 cents/pound by selling 345 futures contracts for 17,500 pounds each on the

exchange. To do this, the cooperative is required to deposit US\$ 862,500, or US\$ 2500 per contract, in a United States (US) bank account. Over the next few months, prices decline. When the cooperative starts to sell its coffee in October, futures market prices have risen again to 118 cents/pound. The cooperative receives 108 cents/pound for 2 million pounds of its coffee, making a profit of 4 cents/pound on the 115 futures contracts it closes out at this time, because it is able to buy back the contracts at 118 cents/pound when it had sold them at 122 cents/pound. In November and December, prices increase again up to 125 cents/pound. This time, the cooperative makes a loss of 3 cents/pound on the futures contracts it bought, while it receives 115 cents/pound for its coffee. Most importantly, however, is that this process makes it possible for the cooperative to secure the 112 cents/pound fixed price it promised its members.

The 3 cent loss of the previous example's coffee cooperative is an example of "basis risk," the risk that prices on the physical market and prices on the futures market will develop in the same direction. When they do not, market participants will find that the investment they have made to hedge their crops against downward price movements does not pay off. A Survey of Commodity Risk Management Instruments, Rev. 1 (1994), gives several reasons physical and futures prices may vary. One is that the markets to which the commodities are exported are not the same as those where the futures markets are located. Exchange rates can also cause variations in prices between the cash and futures markets. Price developments on the consumer market can be different from those on the futures exchange. The product in the futures contract may not be the same as the one on which the futures contract is based, and it may have a different price development. Or the relation between futures prices and cash market prices can be temporarily disrupted, for example by attempts to manipulate the market or by a shortage of supply.

Margin calls are another risk of futures markets, related to basis risk, and are illustrated by the example in National Institution Building... (1994). Initial margins must be paid to buy a futures contract, such as the \$862,500 in the coffee cooperative example. Margin calls are payments that must be paid later if the futures contract moves in a way that harms the customer. Consider again the coffee cooperative, which in 1988 decides to lock in a price of 116 cents/pound

on the New York Coffee, Sugar, and Cocoa Exchange. This time, prices increase instead of decrease. In this case, the cooperative must deposit additional security margins of close to 1 million US\$. The higher price the coffee can be sold for on the physical market makes up for the required margin call payments, but this does not take away the fact that the cooperative was required to come up with \$1 million when coffee prices moved upward unexpectedly. In this case, the cooperative would have made more money if it had not hedged using futures.

Options are a third market-based risk management tool. An options contract gives a buyer the right to buy or sell a specified quantity of a commodity at a pre-determined price within a specified period of time (CFTC, 1992). Unlike futures, buyers of options do not have to deal with the uncertainty of margin calls. Options require only one initial financial layout, providing the buyer with the assurance that regardless of how the price of a commodity moves, he/she will still be able to buy or sell that commodity at the price of the option, which is set when it is bought. National Institution Building... (1994) gives the following example to illustrate how a developing country entity could use options. In January, 1989, the same coffee cooperative pays a one-time premium of 6 cents/pound, or a total of US\$ 360,000. Coffee prices drop dramatically from the previous year to an average of 71 cents/pound. In spite of this market instability, the cooperative is able to obtain a price of 134 cents/pound for its coffee, much more than it would have had it chosen to simply sell on the physical market, because it has purchased options. By using options, the cooperative provides a kind of insurance for its crop. Regardless of future price movements, it will still be able to receive a minimum price for its coffee. Also, since options involve making only one payment, the cooperative does not have to worry about coming up with money for margin calls if prices move unexpectedly. It is crucial, however, that the cooperative choose the right option strike price, which is similar to buying "the right insurance at a good price" (p. 8). Making this kind of a decision involves price analysis, which is often done through "trading and analysis software" and a knowledge of market conditions (p. 8).

Problems inherent to commodities markets: Shifts in capital and squeezes

While leading world experts are encouraging developing country entities to increase their use of market-based risk-management tools to hedge against the price fluctuations inherent to most commodity markets, those who currently use them to hedge their risks have found that the activities of large market players such as investment funds and international trading houses have the ability to distort prices through their trading activities, creating more instability and uncertainty for individuals and countries who depend on commodity export revenue. Technical and Regulatory Conditions... (1993), discusses the influence these large players have on commodity exchanges. Investment funds, for example, are able to easily shift between commodity futures and financial markets, as well as among different futures markets. These funds are usually very large compared to other players in agricultural futures markets, and because of their size, they can have a major influence on prices. The volume of these funds has grown enormously over the past decade, and large amounts of them can be transferred in reaction to uncertainty over commodity prices, exchange rates, or inflation rates, causing developments in the underlying physical markets to become of secondary importance. In 1987, for example, prices at Chicago's agricultural futures markets dropped drastically because traders quickly liquidated their positions so that they could cover the losses they were experiencing in the financial markets (Financial Times, 30 October 1987, as cited in Technical and Regulatory Conditions..., 1993). Also in 1987, when Iran invaded Kuwait, London Metals Exchange (LME) prices increased unexpectedly because speculators took their money out of equities and invested in commodities (Metal Bulletin, 6 September 1990, as cited in Technical and Regulatory Conditions..., 1993). These trading activities have upset many people who hedge to protect themselves against price fluctuations, as was reflected in a 1988 World Commodity Review article which stated that "many of Chicago's traditional agricultural traders say that they are worried about the widening parameters of risk exposure in their markets pumped up on money from out-of-favor financial instrument markets" (World Commodity Review, 27 July 1988, as cited in Technical and Regulatory Conditions..., 1993).

In addition to shifts among financial and commodities markets, investment funds are able to influence prices through the size of their speculative positions. Investment funds usually trade in large amounts, and existing position limits are relatively low for them. For example, normal trading units for investment funds are as follows: maize, 100 contracts, compared to ten contracts for commercial hedgers; gold, 300-500 contracts, compared to 10-100 contracts for commercial hedgers; and crude oil, 500-1000 contracts, compared to 100 contracts for commercial hedgers (Futures, November 1991, as cited in Technical and Regulatory Conditions..., 1993). In the US, commodity exchanges have made it easier for investment funds to do business by proposing higher speculative position limits, which set the number of futures and/or options contracts that any entity is allowed to hold for speculative reasons, or by even abolishing position limits. On some exchanges, position limits have been significantly increased over the past decade, such as on the cereals markets, where limits in 1990 were eight times as high as in 1980, while the volume of physical trade was essentially the same. At the Chicago Board of Trade (CBOT), position limits were, for example, 600 maize contracts for the nearest month, and until mid-1992, when limits were removed, 6000 for the COMEX gold contract. Many commercial hedgers argue that these limits should stay the same. US agricultural producer groups and trading firms consistently protest against proposals to raise position limits, arguing that this may result in a small number of entities holding large numbers of contracts, thus posing a threat of manipulation. It could also make it easier for those traders involved in commodity markets solely for technical reasons to take larger positions. Those that manage the exchanges, however, are inclined to try to attract them because exchanges make their profits on a commission basis (the higher the volume of trading, the higher the profits), and the presence of investment funds creates the possibility of higher trading volumes.

Another problem with investment funds is that a large majority (80-85 percent) of them are based on mechanical, trend-following, decision-guiding technical analysis systems. Many fund managers accept the systems' signals without question, ignoring underlying market conditions, because the funds often trade on about twelve different markets at the same time, and following the intricacies of all of them closely is next to impossible. A 1988/89 Commodities Futures Trading

Commission (CFTC) survey found that when managed funds held positions in the same market, on average 83% of funds were on one side and 17% on the other. The survey also found that, when managed funds traded, they tended to trade in the same direction, a conclusion reached by other research as well, showing that a range of systems tend to produce similar results. Managed funds were responsible for about one quarter of speculative activity in terms of position changes. Other speculators accounted for the rest, and it was found that they did not tend to trade in the same direction (CFTC op.cit., January 1991, as cited in Technical and Regulatory Conditions..., 1993). A decline in commodity prices which spurs sales by one investment fund can lead to sales by other funds, producing a "snowball effect" feared by commodity producers and traders (p. 22).

In most cases, the effects of investment funds increase short-term price volatility but do not affect long-term price developments, and negative consequences can be avoided if those using the market are well-informed. Also, the additional volatility that investment funds bring to commodity markets presents additional speculative profit opportunities to both hedgers and floor traders. Occasionally, however, investment fund activity reinforces and prolongs market fluctuations, as it did with coffee prices in 1992. Coffee prices declined from 70 cts/lb in March to 49 cts/lb in early August. This downward fall was reinforced by "investment fund activity," which involved the selling of futures contracts by investment funds, which in turn led to more sales of contracts p. 22). This decline was followed by a sharp increase in prices, from 48 cts/lb in late August to 84 cts/lb in late December, which was also reinforced by investment funds. This example shows the extent to which the market had lost its role as a price reference mechanism.

These kinds of volatile market conditions--a "typical result" of large investment fund activity--make it difficult to fulfill standard hedging or price fixing orders (p. 22). Those with poor communications, as in the case of many developing country producers and exporters, suffer the most from this situation. According to National Institution Building... (1994), most agricultural export crops, such as coffee, are grown on small holdings that employ a large number of people. These small holdings are often major employers of people, particularly women, in rural areas. Coffee production in Ethiopia, for example, employs one quarter of the country's population, more

than ten million people. In the United Republic of Tanzania, coffee is the main cash crop for about 1.78 million people. In Rwanda, around 510,000 smallholders depend on it, and in Burundi it is the livelihood for about 450,000. Thus, when coffee prices fluctuate, they affect the income levels and the welfare of a very large number of people. These are the people who bear the full brunt of the world market's instability, and they are usually the least-equipped to do it.

Technical and Regulatory Conditions... (1993) names international trade houses as the other group of major market players that have the ability to distort prices through trading activities. A number of large, international trade houses dominate commodity trade and are responsible for a large share of commodity futures and options trading. A few have even created their own managed funds. ED&F, for example, is one of the world's three largest traders in sugar, coffee, and cocoa, as well as Europe's largest managed futures firm. Over the past several decades, the role international trade houses play on exchanges has grown because of an expansion in the types of physical trade contracts which make the trade house the intermediary for the risk management activities of its trade partners. Recently some major players in commodities trade have disappeared, which has led to an increase in the concentration of market power among various trade houses.

Because of their size and influence, trade houses are in a position where it is easy for them to manipulate markets. Most manipulation attempts involve trading on both the futures and physical markets at the same time, activities that international trade houses are involved with every day. Manipulation is possible whenever an entity dominates control over demand or supply, and trade houses may attempt it for a number of reasons. A company may, for instance, want to buy a commodity at a low price or sell it at a high one. It may want to strengthen its bargaining position in price negotiations with other companies. Or it may want to force the price of a commodity down so that the share price of a company producing the commodity will decrease, making it less costly to take over.

- A classic way of manipulating markets is through a "squeeze," or "corner" (p. 27). This involves maintaining a "long" position (the right to buy a commodity) on the futures market while

also holding a large part of the stocks available on the physical market of the commodity (p. 27). This forces those who are “short” (the right to sell a commodity) to deliver their commodity to the exchange warehouses, but to do so they must buy it for a high price from those who hold long positions (p. 27). Markets with limited liquidity are particularly vulnerable to manipulation attempts, although the world's largest markets are manipulated as well. In mid-1989, for example, the Italian food company Feruzzi was accused of trying to corner the CBOT soybean market. Feruzzi held a long position for 23 million bushels in a nearby futures contract while it controlled three quarters of the 12 million bushels stored in Chicago at the time. Those holding a short position thus faced the choice of paying either high prices for soybeans or high fines to the CBOT for neglecting to meet delivery obligations. In this case, both the CBOT and the CFTC decided that Feruzzi was trying to corner the market and forced the company to sell off most of its futures contracts. In response, Feruzzi turned around and accused CBOT officials of trying to manipulate soybean prices downward so that their companies would not suffer losses. Other examples of this kind of market squeeze can be found on the LME for all metals. Quite often on this market, the development of futures prices do not reflect the conditions in the underlying physical market, and occasions where LME prices increase at the same time LME stocks are increasing rapidly is “quite common” (p. 28). Still other more ambiguous situations exist which suggest that price manipulation may be taking place. On the corn futures market at the CBOT, for example, between 1982 and 1989, the four largest corn futures buyers held one-third of the contracts the day before delivery procedures started. Referring to situations like these, Technical and Regulatory Conditions... (1993) comments, “Faced with the concentration of market power in the hands of only a few large trade houses, it may be wondered how exchanges and their regulators can help in reducing the likelihood of price distortions” (p. 24).

At times, developing country exporters have tried to cause prices to increase through activity on futures markets. In all cases, prices have increased as a result, although at great expense and not to the desired extent. In 1977, for example, three companies from El Salvador and Brazil (major coffee-exporting countries) acquired three quarters of the open positions of the

December coffee contracts, but the CFTC forced them to close out their positions at a loss. From 1978 to 1980, the Bogota Group, a group of Latin American coffee producers later organized into a corporation called Pancafe, attempted to influence prices through activities on futures markets in New York and London. In this case as well, the CFTC interfered with the activities of the Bogota Group, and the scheme was abandoned in the mid-1980s, even though it was profitable for a short time.

Technical and Regulatory Conditions... (1993) maintains that in the short run, market manipulation is “in general” not harmful to producers because it usually results in price increases (p. 25). With manipulation, however, comes a new source of uncertainty and risk which decreases the confidence and trust potential users have that these kinds of markets--the basis for much of the world’s trade--accurately and objectively reflect supply and demand to determine commodity prices. This distrust was reflected in late 1990 by the Chairman of Zambia’s copper mining company ZCCM, who commented that “such developments imply a degree of market manipulation which is unacceptable to the Zambian mining industry which previously expressed confidence in LME quotations” (Metal Bulletin, 1990, 15 October, as cited in Technical and Regulatory Conditions..., 1993, p. 28).

The ZCCM chairman and other developing country officials are justified in their distrust of the reliability of the price-determining mechanisms of commodity markets, because their countries lose when world commodity markets are manipulated. Technical and Regulatory Conditions... (1993) notes that price manipulation affects the incomes of producers in the base metal sector, for instance, because contracts between producers and consumers in this sector are based on “average prices” (p. 25). When prices are artificially high due to manipulation attempts, consumers protest against having to pay more. This forces producers to make price concessions in order to maintain good relations with their customers. If producers have hedged their sales, granting price concessions means that the loss they made on the futures market is no longer made up for by the higher prices on the physical market, because these prices are artificially inflated. In cases such as these, producers end up paying for the manipulation attempts of companies in countries far away

from their own. To complicate matters, most futures markets are located in a few countries with developed market economies, far away from actual production of these commodities, and most futures contracts, with the exceptions of sugar, palm oil, and rubber, specify delivery in these developed countries. Entities based in these countries have easier access to futures markets and thus can influence prices more easily.

The Balance of Trading Interests

The problems of shifts in funds and market squeezes are linked to another influential element: the balance of trading interests on an exchange. Some commodity exchange participants are involved in futures purely to hedge against the price risks they face for the commodities they buy or sell, although many hedgers also speculate at the same time (A Survey of Commodity Risk Management Instruments, 1993). Those who are not hedging may be speculating on price fluctuations or working for clients who are speculators or hedgers, or they may be “market makers,” simultaneously buying and selling futures and options positions and profiting on the price differences between their transactions (A Survey of Commodity Risk Management Instruments, 1993, p. 11). Technical and Regulatory Conditions... (1993) cautions that in cases where the balance of exchange participants with mainly “non-trade-related interests” outweighs those with “commercial interests,” the expectations of those with no connections to the actual commodity may “unduly influence price determination” (p. 16). This can happen when those with non-trade related interests react to changes in both the financial and commodity markets. Their reactions to developments in financial markets can transmit financial market volatility over to commodity markets, causing the prices generated on an exchange to “reflect supply and demand for financial contracts of various sorts rather than the fundamentals for the underlying commodity” (p. 16).

According to Technical and Regulatory Conditions... (1993), the balance of participation among various groups differs from exchange to exchange. On the LME, for instance, companies which produce, consume, or trade metals account for an estimated 85-90 percent of contract turnover. On US commodity markets, the percentage of trade-related participation is lower; non-

trade-related participants account for 20-40 percent of open positions and up to half of total turnover on the soft commodities markets, with even higher percentages on the precious metals markets. The balance of participation in options contracts is different. Here the participants are primarily producers, consumers, traders and private speculators, and options sellers, often from professional arbitrage companies, banks, and a few large brokerages. But as A Survey of Commodity Risk Management Instruments (1993) maintains, even these estimates are difficult to determine because data on market participation by these groups does not exist in most countries with exchanges. There is no requirement in the UK or France, for instance, to report on different groups' levels of market participation, although some exchanges occasionally report on participation levels based on information given on a voluntary basis by its members. In the US, government regulations distinguish those market participants who have an interest in the physical trade of the commodity concerned from those who do not, although these divisions are blurred because most market participants with commercial interests also speculate on price movements.

Technical and Regulatory Conditions... (1993) names exchange committees as one way commodity buyers and sellers can influence the balance of interests on an exchange. The structure of these committees determines who decides how the exchange operates, and committee members can influence the perceptions of other exchange users about the fairness of exchange rules. According to the report, if no producer representatives serve on these committees, "the exchange may not take producer interests sufficiently into account even though, because of their role in the price discovery process, the prices these exchanges produce through trading have substantial implications for the financial situation of producers" (p. 33). In the US, farmer dissatisfaction, as well as problems such as the Feruzzi soybean case, led to a change in regulation through the Futures Trading Practices Act of 1992, which requires US exchanges to have at least 10 percent of their committee members come from outside the exchange membership. In addition, at least 10 percent of board members must represent farmers, producers, traders, and exporters. Regulators outside the US have not set any specific rules with respect to the composition of the board of directors, although it seems that buyers and sellers of commodities should be adequately

represented on exchanges to make sure that exchange prices reflect the physical conditions of the underlying commodities.

Technical and Regulatory Conditions... (1993) cites contract development as a second way commodity buyers and sellers can have a voice in exchanges. A number of developing country copper companies, for example, are associate members of the LME and have played a large role in making sure that copper contracts are designed to meet their market requirements. These companies are the exception, however; the only other developing country organization that is a member of a commodity exchange is the Mexican Central Bank in COMEX. In the US, the CFTC has a "comment procedure" so that producing and consuming companies can give their opinions, although it does not actively seek comments and assumes that all interests, including developing country exporters and importers, will make sure they are informed of proposals for new contracts or modifications of existing ones (p. 12).

On the subject of the balance of interests on exchanges, Contribution to the Improvement... (1993) urges that "Developing countries wishing to participate in futures exchange trading should therefore become more vocal in this respect, be it through the trade houses with whom they deal or by becoming exchange members themselves" (p. 24). The need for more representation of commodity buyer and seller interests has also been reflected by Cargill, one of the world's most dominant commodity interests, when Peter Kooi, president of the Commodity Marketing Division, stated several years ago:

...it would be helpful...if more people with an understanding of the underlying cash markets were involved in the self-regulatory process. The Chicago Board of Trade needs to consider the views of commercial hedgers, and not just write up their comments as a footnote labeled "minority views" in the official minutes. It needs broader representation in the selection and election of CBOT directors. It needs to involve more trade and producer groups in discussions about cash-market conditions and farm and agricultural trade policies that could affect performance of contracts. (Commodity Futures Trading Commission,

Kalo A. Hineman delivery issues symposium, Washington, September 1991, as cited in Technical and Regulatory Conditions... (1993), p. 12)

While a number of commodities traded on exchanges in developed countries are produced, for the most part, in developing countries, there are no representatives for developing country interests on exchange committees in the US and the UK for soft commodities such as sugar, coffee, and cocoa (Technical and Regulatory Conditions..., 1993). These committees are important ways that buyers and sellers of commodities could be actively involved in developing and modifying contracts, influencing exchange rules, and maintaining the balance of exchange participants between those who have direct ties to the commodities being traded and those who do not.

Evaluation of the feasibility of developing country entities using futures and options to manage commodity price risks

At the present time, factors including costs, access, availability of credit, lack of infrastructure and support, and requirements of international lending institutions such as the World Bank and the International Monetary Fund (IMF) make it difficult for developing country entities to make use of market-based risk-management tools. These difficulties are detailed in Contribution to the Improvement... (1993). If, for example, a developing country entity wishes to use futures and/or options, it must meet certain financial conditions to be able to pay for costs such as brokers' and margin fees and margin calls. Initial margin fees for futures are usually five to ten percent of the value of the underlying commodity, so if an entity wants to hedge 100,000 MT of sugar exports, for example, it needs to have around US\$ 2 million for its first deposit. For every cent that the sugar price increases, it would have to pay another \$2 million in a margin call, in either cash or securities. In the opposite case, for every cent that the sugar price decreases, the entity profits from interest payments. Few developing country entities have enough resources to meet these financial requirements.

Contribution to the Improvement... (1993) explains that even if an entity has the necessary financial resources, it is often difficult to pay the fees because access to foreign currencies and credit is inadequate in many developing countries. Companies in the West-African CFA zone, for

example, have a currency that is theoretically convertible to the French franc, but they must wait up to a week for the Central Bank to process their requests each time they need to convert currency. Similarly, exporters in Thailand need their Central Bank's permission each time they need to pay margin calls. In Costa Rica, the Central Bank allows companies to use foreign hard currency reserves only to cover margin calls for futures contracts for a period of four months, even though many companies prefer to hedge their risks with one-year contracts.

At the same time, country, counterpart, and sovereign risk issues, which have to do with the risk that a government will oppose the payments companies within its borders make to "external counterparts," make it difficult for most developing country entities to gain access to enough credit to arrange large-scale hedging transactions (Contribution to the Improvement..., 1993, p. 32). Developing country entities must often borrow from large trading houses and international banks because their own countries' banking infrastructures are not at a level where they can increase their lending to companies to support hedging activities (National Institution Building..., 1994). Counterpart and Sovereign Risk Obstacles... (1994) examines in detail the problems developing country entities face when trying to finance hedging transactions. Large trading houses and banks regularly evaluate entities and their countries of origin in terms of the political, social, economic, and financial risks, the "momentum" of economic growth, "long-term growth potential," and the "volatility" of GDP and prices to determine the overall risk of doing business with them (p. 10). Countries and companies are assigned risk ratings, which are used to determine their credit line limits. Because of past experience with defaults, which have caused many smaller trading companies to go out of business and larger trading houses and banks to suffer massive losses, banks and trading companies maintain conservative credit limits. Developing countries often run into limited credit ceilings, even when they are dealing with large banks, because quite a few defaults have been due to changes in government policy in developing countries and in countries with economies in transition. A typical sub-Saharan African country, for example, can have a credit ceiling for risk management transactions as low as US\$ 5 to 10 million (Counterpart and Sovereign Risk Obstacles..., 1994), while the ceilings for most

developing countries range from US\$ 20 million to 100 million (Contribution to the Improvement..., 1993). Counterpart and Sovereign Risk Obstacles... (1994) maintains that these restrictions result in a situation where banks and trading houses are often unable to structure risk management deals which are acceptable to the developing country entity and at the same time work within credit ceilings. For most commodities traded on exchanges, a few developing country entities have been using futures and options, mainly through upfront payments, and banks and trading houses have extended credit lines in limited amounts, mainly for large, state-owned companies with good track records. As National Institution Building... (1994) points out, however, problems with access to credit mean that developing country entities must rely primarily on their own working capital if they wish to use futures and options, and this fact makes it difficult for most entities to participate in these markets.

Negative pledge clauses imposed by international financial institutions, namely the World Bank, the IMF, the European Bank for Reconstruction and Development (EBRD), and the Asian Development Bank (ASDB), are another one of the main obstacles for many developing countries seeking credit to participate in risk management markets. An explanation of these problems are included in Counterpart and Sovereign Risk Obstacles... (1994). A negative pledge clause prohibits government agencies or state enterprises from using their main export commodities, including central bank gold reserves, crops and future crops, and mineral and fuel reserves, as collateral for loans or other financial arrangements such as risk management transactions. This clause makes it more difficult for borrowing countries to manage the commodity price risks they face through commodity-indexed finance and risk management tools, which require borrowers to pledge their export commodities. The World Bank, IMF, EBRD, and ASDB impose negative pledge clauses to reduce the possibility that future payments by these countries will be disrupted because commodities have been used as collateral for a loan supplied by a third party. Also, because they include such clauses in their agreements, these lending institutions are able to maintain high credit ratings, which allows them to borrow on the international market at the lowest possible rates. For some time now, these lending institutions have recognized that negative pledge

clauses can cause serious problems for their borrowers when it comes to obtaining credit from private lenders. Because of this fact, the IMF allows the use of escrow accounts by countries in need of foreign currency, while the World Bank and EBRD have put a system of waivers in place so that exceptions can be made in certain circumstances. Current World Bank conditions for waivers are, however, strict. Only countries where the government controls over three quarters of the productive assets can apply, and these governments must also have accepted a structural change program. The waivers can only be used for project finance, and only the commodities produced in the project can be pledged as collateral. Also, the minimum term of finance is five years, and the project must generate additional foreign exchange. These restrictions make all import-related collateralized risk management transactions impossible.

The current state of the export marketing sectors of many developing countries further complicates the difficulties many entities have with participating in futures and options markets. Contribution to the Improvement... (1993) explains that many developing countries, as well as the CIS republics, have recently liberalized their marketing systems and either dissolved or privatized state trading and marketing enterprises. Previously, marketing boards or centralized marketing organizations had direct access to commodity exchanges and international banks, and in many cases had an active risk management strategy, while the new exporting companies tend to be smaller and inexperienced, and in many cases are limited to simply selling their commodities on the spot market. A contributor to the Report of the Ad Hoc Group of Experts on Risk Management and Commodity Trade (1994) from Cameroon, for instance, reported that when his country restructured its marketing sectors and price stabilization policies in the late 1980s, private exporters did not have the skills or the capital required to effectively manage the risks of world market price volatility, and farmers did not know how to bargain effectively with traders. As a result, three quarters of the export sector is now in the hands of foreign companies, a trend the government has been trying to counteract since 1991. This is an experience many developing countries have in common because, according to Contribution to the Improvement... (1993), in order to compete on the world market, developing country traders need to have the advantage of size and a good track

record, qualifications small traders do not usually have. In addition, they do not usually have enough business volume to make using futures markets worth the expenses involved, and brokers seldom handle futures market operations for unknown traders, except on a prepaid basis. Although some governments are trying to help exporters gain access to commodity marketing tools, this situation is not expected to change soon.

Finally, Contribution to the Improvement... (1993) lists communication and technology problems as factors which limit developing countries' use of futures and options markets. Successful participation in these markets involves constantly keeping up-to-date on market movements and information. To do this, participants need to be able to communicate with their contacts in these markets at all times. Also, they must be able to work according to the trading hours of the exchange where their contracts are based and meet the requirements of this exchange concerning contract specifications and delivery rules. These necessities are difficult for producers and exporting and trading companies to find in countries where communication technology is poorly developed or almost nonexistent. In fact, several companies offering over-the-counter risk management products have stopped their activities in Africa because of communication problems.

Because of all of the factors mentioned, the use of exchanges by developing country entities and countries with economies in transition is limited. A very small number of developing country companies and other institutions are members of exchanges in developed countries. A Survey of Commodity Risk Management Instruments (1993) mentions that the Banco Nacional de Mexico is active in silver trade on the COMEX, Chile, Zambia, and Zaire are involved in the LME, and CIFCO, one of China's largest brokerage houses and a state-owned company, has recently become a member of several US exchanges. Some of these companies, such as Brazil's and Mexico's oil companies and Cuba's sugar export organization, have offices in London and/or New York in charge of futures and options transactions and advanced risk management strategies. Most developing country participants, however, are located far away from the main world exchanges and rely on brokers, banks, and other intermediaries to help them navigate commodities markets. Through these intermediaries, Latin American and Caribbean producers hedge about one fourth of

their cocoa, coffee, and sugar exports on New York's Cocoa, Coffee, and Sugar Exchange, while Latin American cereal and soybean exporters also hedge on US exchanges.

In order to increase their use of market-based risk-management tools, several UNCTAD documents assert that developing country entities need both intermediaries and training. National Institution Building... (1994) explains that most farmers around the world, the US included, lack the size and knowledge needed to directly access risk management markets. Encouraging the development of intermediaries, such as "farmers' cooperatives, government entities, domestic banks, and private traders and processors," to help producers use risk management markets is one of the main ways to address obstacles to access (p. 12). Connected with the use of intermediaries, the Group of Experts in Contribution to the Improvement... (1993, Rev. 1) stresses that training and education about commodity markets and ways to access market-based tools needs to take place in developing countries and countries with economies in transition on operational, company management, and government levels. This assistance should be country-specific so it can address individual economic and institutional characteristics, instead of proposing a uniform system that all countries should adopt, and it needs to provide education in the areas of "accounting, company control, and the characteristics of appropriate rules and regulations at the country level conducive to futures trading" (p. 8). National Institution Building... (1994) notes that these actions amount to a major undertaking that would require many developing countries to reform their government policies. The document maintains, however, that without such actions, producers will not have the resources they need to cope with price fluctuations, large foreign trade houses will become more powerful at the expense of "locally-based traders," export revenues will be less predictable and "probably lower," and governments will continue to have to address the social and economic effects of unexpected price shocks (p. 22).

The Development of Exchanges in Developing Countries

Alongside, and at times in combination with, the growing use of existing futures and options contracts, some higher-income developing countries and countries with economies in transition are creating their own exchanges to meet domestic and international demands for market-

based risk-management tools. Over the past few years, exchanges have been created in countries such as Hungary, Poland, Romania, the CIS republics, and China. Contribution to the Improvement... (1993) lists a number of reasons to support and continue this expansion:

- Exchanges would improve price discovery for the local market, improve the internal marketing system, and introduce new risk management facilities.
- They would allow for an easier use of physical stocks for collateralizing loans, opening up new sources of finance for domestic producers and exporters.
- They would help keep trading activity and related service payments within the country.
- They would attract international speculative funds, bringing in additional capital for the economy.
- They would have valuable spillover effects for the domestic capital markets.
- Markets in time zones where no other futures markets covered the same commodities might prove attractive for international trade houses and others active in commodity markets on a 24-hour basis. (p. 28)

The possible harm speculative funds and international trade houses can do was discussed previously. Also, the risk of market squeezes is greater in a 24-hour market with low liquidity (A Survey of Commodity Risk Management Instruments, 1993). There are times, however, when the creation of an exchange may be beneficial. In these cases, in order to create new contracts/markets, or participate in existing ones that support a process of price discovery which accurately reflects the current and expected supply and demand of the underlying physical market, certain conditions must exist for the commodity, the futures and/or options contract, and the exchange where it is traded.

First, commodities suitable for exchange trading must be able to be standardized (Technical and Regulatory Conditions..., 1993). This means that they must have a certain degree of homogeneity, storability, and a sufficient volume of trade (Contribution to the Improvement..., 1993). Commodities such as fish, shellfish, fruit, vegetables, timber, and forest products can be

processed into a wide variety of primary and processed products, and it is difficult to design contracts which can be used with such varied products. In addition, these commodities are usually difficult to store or have a short shelf-life, making it difficult for a futures contract to be traded since by the time the contract matures, the commodity would have already degraded (Contribution to the Improvement..., 1993). For some commodities, these kinds of problems can be solved by trading them in processed or frozen forms, as is done with contracts for fishmeal and frozen orange juice concentrate (Technical and Regulatory Conditions..., 1993).

Second, the physical market of a commodity should be well-developed before futures and options contracts are offered, and these contracts are made available, they should reflect the underlying market conditions (Technical and Regulatory Conditions..., 1993). An important feature of the underlying market is that it needs to have enough short-term volatility, because a futures contract can only function if there is enough short-term volatility in the commodity's physical market prices (Technical and Regulatory Conditions..., 1993). When physical prices are not volatile, the costs of hedging risks with futures and options may outweigh the benefits of risk management (Contribution to the Improvement..., 1993).

A third requirement for futures and options contracts to be successful is that the market for a commodity possess enough liquidity and a sufficiently large number of potential participants is also necessary for futures and options contracts, which means that they must be traded on a market where buyers and sellers can easily find each other (Technical and Regulatory Conditions..., 1993). Because trade-related participants often cannot provide an adequate level of liquidity alone, non-trade-related interests should be considered to increase liquidity (Technical and Regulatory Conditions..., 1993). The presence of non-trade related participants such as speculators and those with foreign capital, however, should not dominate trade-related business. (Contribution to the Improvement..., 1993)

Fourth, according to Contribution to the Improvement... (1993), strong support by the government and the local business community, especially the commodity production, processing, and trading community in terms of using the contract for hedging purposes, is essential.

Government support has to be perceived as stable, and the marketplace needs to be reliable and regulated. The government policy framework concerning currency controls and trade policy needs to be supportive of a commodity exchange so that the private sector can use it. This involves making sure that publicly available information on market activities is accessible to participants, which increases the transparency of the market and restricts the possibility of market distortion and manipulation.

The development of commodity exchanges in both China and India is featured in A Survey of Commodity Risk Management Instruments, Rev. 1 (1994). In the case of China, commodity exchanges have grown and expanded much more quickly than the government anticipated, despite an inadequate infrastructure system and a lack of knowledge of futures trading, because of the enthusiasm and support of Chinese companies. China created its commodity exchanges to meet the needs for marketing and price discovery mechanisms which arose after the government eliminated commodity price controls. In 1988, the Chinese government began to study the possibility of creating forward or futures exchanges and planned to create a system of exchanges that would begin as wholesale markets and gradually change to forward markets, with futures markets being the last stage of development. The Zhengzhou Grain Wholesale market in Henan was the first of these exchanges to start operating in October of 1990. Due to its success, five other provincial grain markets were opened in 1991, trading commodities such as wheat, maize, mung beans, and sesame seeds, and by late 1993, 30 futures exchanges existed, along with 50 wholesale markets. The largest of these was the Shanghai Metals Exchange, which by late 1993 had become the world's third largest futures exchange in terms of contract turnover. In late 1994, the central government stepped in to gain some control over this rapid growth and closed down or reduced to wholesale markets over half of the existing futures exchanges. Only 15 futures exchanges were allowed to remain, and futures trading in a number of "strategic" products--steel, coal, gasoline, diesel, oil, sugar, and cotton--and in financial contracts was banned (p. 8). The central government also continued to develop its market regulation system, which it had begun in 1992 when it set up its Securities Regulatory Commission. At this point, a number of foreign

companies, such as American Express and Merrill Lynch, are interested in participating in China's futures markets, although these markets have not been opened to foreign interests yet. At the same time, the Shanghai exchange trades most of the same commodities as the London Metal Exchange, and their prices tend to move in tandem. Looking toward the future, the CBOT and the Chicago Mercantile Exchange (CME), which provided much of the initial support for the development of China's futures exchanges, hope that these exchanges will eventually be linked up to the world economy through a globalized electronic trading system.

Unlike China, futures markets have a long history in India, and their existence has varied over the years depending on government regulations and commodity pricing systems. The Cotton Exchange was created in 1921 in Bombay and was India's first organized futures exchange. The Seeds Traders Association Ltd., also in Bombay, was created in 1926, followed by a number of other exchanges trading both futures and options on commodities such as raw jute, jute products, pepper, turmeric, potatoes, sugar, foodgrains, and gold. At this time, a complete set of regulations was drafted and a system for licensing brokers and clearing houses was set up. A decade later, in 1939, options were banned, followed by government bans on futures and forward contracts in the 1940s to control inflation. A system of price controls took the place of these market-based price reference mechanisms until 1952, when the government passed the Forward Contracts (Regulation) Act, which still controls forward and futures contract trading. The Act set up a self-regulating system, supervised by the government's Forward Markets Commission, which allowed a number of commodities to be traded on futures markets, but excluded "essential" foods such as sugar and staple grains (p. 9). In the 1960s, the government banned or suspended futures trading in several commodities, including cotton, raw jute, and edible oilseeds and their products. In the 1970s, it banned trading in non-edible oilseeds and in several forward contracts because it maintained that the speculative activity that occurred on these markets drove up the prices of a number of commodities. In addition, it introduced new regulatory measures designed to combat price-distorting speculation, including extra margin fees and a requirement that trading be stopped when prices hit certain ceilings. At the present time, futures trade is allowed for pepper, turmeric,

castorseed, potato, and jaggery. Most of the contracts traded in India are oriented for domestic use, while others such as raw, jute, pepper, and rapeseed (a contract proposed by the Bombay oilseeds exchange), have the potential to become important on regional or international levels. A large and varied number of participants are involved in trading futures contracts of these commodities, including large farmers, domestic traders, exporters, brokers, and speculators, and there is a large turnover of contracts.

Although exchanges such as the ones in China and India are being developed and expanding worldwide, futures and options are not a universally applicable solution to commodity price instability. Most contracts have maturities of less than a year, or two at the most, which is not a suitable length for commodities which, once planted, take a long time to yield a profit (Maizels, 1994). In addition, hedging on futures usually can't be done for more than 18 months into the future, so these contracts are difficult to use when doing medium- and long-term planning (ODI, 1995). According to National Institution Building... (1994), many contracts are used for domestic purposes only, while other contracts may be used for global trade, but often are not for use with all of the grades of a certain commodity or for all of the regions where a commodity may be traded. For example, although there is a cotton futures market in New York, cotton exporters from Francophone West Africa or Uzbekistan cannot realistically use it to manage their risks because the correlations between New York No. 2 cotton prices and the spot prices received for cotton from these countries are low. This means that the spot prices of West African and Uzbekistanian cotton do not move together consistently, so hedging West African risks against New York spot prices for cotton does not help to reduce price risks. In addition, there are problems with liquidity. The New York exchange recently introduced a contract based on northern European cotton prices, which are more closely correlated to West African and Uzbekistanian cotton spot prices, but the liquidity of this contract is still so low that it can't be used for large-scale hedging of a country's cotton exports. Related to this, Contribution to the Improvement... (1993) points out that because developing a futures contract is a costly, time-consuming process, the value and volume of trading of many minor commodities is probably not high enough to make exchange

trading in these commodities common. Because of these kinds of limitations, other mechanisms such as price negotiations in long-term contracts, auctions, intra-firm deals, forward markets, and spot or terminal markets will continue to be important ways for entities to form prices and reduce price risks (Technical and Regulatory Conditions..., 1993).

Conclusion

Experts and policymakers are looking more and more to market-based risk-management strategies as a way for developing country entities to cope with commodity price risks that previously have been managed through international agreements, stabilization schemes, buffer stocks systems, and government programs. While these tools can potentially help developing country entities reduce price risks and make export revenues more predictable, the Group of Experts cautions in Contribution to the Improvement... (1993, Add. 1) that these strategies are not a “universally applicable solution” (p. 3). Their “potential role” is limited by factors involving the commodity characteristics and volume of trade (p. 3), as well as by participation costs, accessibility to exchanges and intermediaries, availability of credit, lack of infrastructure and support, and the requirements of international lending institutions. Maizels (1994) lists these limitations as well when he concludes that the use of market-based risk-management tools by developing country entities will grow slowly over the next few decades. In addition, the Group of Experts reports in Contribution to the Improvement... (1993) that “research shows that the existence of futures contracts can reduce the seasonal volatility of commodity prices while short-term volatility was likely to be increased and long-term price trends by and large unaffected” (p. 16). They assert that commodity futures markets do not function to stabilize or increase domestic or international prices, but instead are a way for individuals to manage their own price risks. At the same time, the Group of Experts maintains that extreme fluctuations in futures prices damages the reputation of futures markets and harms “trade-related users” (p. 16). Developing country entities seeking to hedge their risk should seriously consider these points before they try to manage their price risks using market-based tools.

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