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Risk management for coffee price fluctuations

Background

1. Like many other commodity markets, the structure of the world coffee market has undergone radical change with the virtual disappearance of supply and demand intervention mechanisms. On the domestic market, too, marketing regulation and control mechanisms have been scrapped under programmes for the structural adjustment of international financial organizations, exposing small-scale growers in many exporting countries to fluctuations in their product's selling prices. Price fluctuations make the poor in rural areas even poorer as these small-scale growers are unable to plan ahead and decide how to allocate their resources.

2. Producers in developing countries are therefore being increasingly encouraged to use price risk management strategies based on free market mechanisms. Research and projects on these strategies are being carried out by international organizations such as UNCTAD and the World Bank. The International Coffee Organization, which is also following these discussions, has presented this study to keep its Members abreast of developments in this area. The study analyses price risk management tools and their utilization in exporting countries by players in the coffee chain such as growers and their cooperatives.

Action

The Executive Board is requested to take note of this study.

Introduction

1. This document is an update of the previous study on risk management for coffee price fluctuations (document WP-Board No. 856/98). The report draws on two major programmes: the World Bank project to develop new approaches to commodity price risk management in developing countries and research by the UNCTAD expert group on risk management linked to commodities in developing countries[1]. This report will summarize the scope and limitations of the financial management tools for risks associated with coffee prices which players in the chain could make use of, particularly coffee producers in exporting countries. In other words, it is important to know how to make price risk management accessible to small-scale coffee growers.

2. For more than a decade the structure of the majority of the world's commodity markets has been undergoing radical change with the virtual disappearance of supply and demand intervention mechanisms. At the national level, too, marketing systems largely based on the principle of stabilization controlled by public bodies have been scrapped. In most exporting countries, particularly those in Africa, the system consisted in giving each player in the chain a role in improving the product. These public stabilization bodies had three aims: commercial, social and financial. Commercially, they controlled the buying and selling of coffee on the international market. Socially, they guaranteed the purchase of crops in all production areas and the stability of prices fixed at the beginning of the crop year and paid to producers irrespective of the fluctuations of the world market. Financially, they had to manage the reserve funds needed for stabilization, which were in fact used for public sector investment and debt repayment. The stabilization system enabled some States to guarantee capital investment in the chains in question, giving the exporting country the role of a farmer-State. This stabilization mechanism consisted not only of a system for ploughing back funds in profitable periods but also of a support system when world prices were no longer able to ensure guaranteed prices. In this system a recurring drop in the guaranteed purchase price was inconceivable for socio-political reasons. Governments had always maintained that a *good price* was a *stable price*.

3. These mechanisms for stabilizing domestic prices, when viable, provided the sector in question with a safety net against sudden drops in price. They were also criticized, however, for not having helped producers to maximize their crops, and failed to survive the structural adjustment programmes implemented by international financial institutions in many exporting countries. Predictably, prices for producers became even more unstable, reflecting

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[1] *At the eighth session of the United Nations Conference on Trade and Development held in February 1992, governments recognized the importance of studying new solutions to reduce to a minimum risks associated with the instability of commodity markets. Technical assistance to developing countries was deemed necessary for the use of financial tools to manage price risks. The programme "Trainfortrade" was therefore launched to bring this technical assistance to players in developing countries.*

the flow of supplies on the world market. These countries now have to redouble their efforts to adapt to the changing and unstable economic environment. Expertise in new risk management techniques would therefore help to boost sales. Research in this field has gone from strength to strength over the last decade or so. The UNCTAD started several years ago to look at commodity risk management through studies and seminars to teach producing countries to guard against the risk of unstable prices. More recently, the World Bank launched a programme for creating and implementing projects using price risk management tools in commodity-exporting countries. This programme was carried out by the International Task Force studying commodity risk management in developing countries.

I. PRICE RISK MANAGEMENT TOOLS

4. Forward contracts, futures contracts and options contracts are among the main risk management tools for price fluctuations. Options contracts seem to be the experts' first choice for utilization by producers or their cooperatives in developing countries.

A. Forward contracts

5. A coffee forward contract is an agreement to buy or sell a given amount of coffee on a specified date in the future at a predetermined price. Delivery and payment take place on a specified date. The advantage of this contract is that the prices are predetermined and remain fixed for the buyer and seller. The risk associated with this strategy is that one of the parties to the contract makes a loss or loss of profits depending on the product's price trend. If the current price (on the contract's maturing date) is higher than the predetermined price in the contract, the buyer makes a profit on the transaction and the seller makes a loss. Conversely, if the current price is lower than the forward contract price, the seller makes a profit and the buyer makes a loss. If this strategy is used successfully, the exporting country will realize a premium on a futures position and will also be able to forecast its export earnings. The exporting country may also earn interest on the volume sold if the sale proceeds are invested in financial instruments. The disadvantage is that, although producers benefit from a guaranteed minimum price (contract price), they lose any profits linked to any price increase.

6. This selling strategy in various forms is used in many countries, particularly countries whose marketing systems are controlled by State monopoly. With the liberalization of marketing systems, however, this type of contract is now very high-risk in many exporting countries, especially those which no longer have stabilization funds or marketing boards guaranteeing a successful operation.

B. Futures contracts

7. The coffee futures contract is a properly regulated and standardized paper contract for a specific quantity of coffee (for example, 5 tonnes for the Robusta futures contract in London) of a given quality, the date and place of delivery being specified. In contrast to the forward contract, the futures contract need not involve the delivery of the physical product in order to honour the agreement. The futures contract is negotiated daily on the futures markets. The futures market is a financial institution for buying and selling futures contracts over periods ranging from 3 to 18 months. Futures markets offer three types of operations: hedging, speculation and arbitration. Hedging a coffee position consists in safeguarding against the risk of price variations by adopting a futures market position that counterbalances the existing position. Futures hedging does not guarantee total elimination of a price risk although it does lessen it and provides protection against market uncertainty. Speculation consists in accepting the price risk by taking the position on the paper contract that the investor wishes to offload. Arbitration operations consist in taking simultaneous buying and selling positions for different places or dates. The idea behind arbitration operations is to benefit from changes in the relationship governing the prices of these contracts. The costs involved in a futures market operation cover the transaction commission, the deposit, and any margin calls (in the event of an unfavourable change in price).

8. The hedging strategy on futures markets is of little interest for a producer as he has to set his price at the time of hedging and forego any profits if prices should rise. This basically means that he has to speculate on prices going down. If a producer wants to get round this drawback linked to hedging strategies with fixed contracts, he can look at an options strategy.

C. Premium operations or options contracts

9. Hedging strategies based on options appear to meet the needs of producers or producers' cooperatives in exporting countries. The option is a risk management instrument that protects against negative price movements while still offering the possibility of benefiting from a favourable change in price. In other words, an option corresponds to the right, but not the obligation, to buy or sell a given quantity of coffee (physical contract or paper contract) at a specified price, the "strike price", over a specified period or on a specified date. The price paid for buying an option is the premium. The option to buy is termed a call option, and the option to sell is called a put option. It is only the purchaser of the option who is entitled to exercise or refrain from exercising this right, which the seller of the option has to accept. Until expiry of the options contract the buyer of the put option can exercise his right if the market price is lower than the strike price of the options contract. The buyer of the call option exercises his right only if the market price is higher than the strike price. Table 1 below shows the fixed contracts and options on the LIFFE after trading on 21 August 2000.

Table 1 : Coffee futures and options contracts, LIFFE

Futures contract	Price (US$/tonne)	Strike price (US$/tonne)	Call option premium (US$/tonne)		Put option premium (US$/tonne)	
			November	March	November	March
September 2000	779	750	69	122	20	34
November 2000	799	800	42	92	43	54
January 2001	815	850	22	68	73	80
March 2001	838					
May 2001	860					
July 2001	882					

10. A simple example of an options strategy would be the following scenario: in August 2000 a cooperative of coffee producers planning to market its production from January 2001 decides to protect itself against a price drop. When the decision is taken, the forward contract (September 2000) is quoted at US$779 a tonne and the January 2001 futures contract is worth US$815 a tonne on the LIFFE. The strike price of the put option is US$800 a tonne with a premium equivalent to US$40. If in January 2001 the market price actually drops, the cooperative will exercise its options right and sell its product at US$800 a tonne less a US$40 premium, i.e. at US$760. If the market price rises, the cooperative will sell its product at an unlimited profit depending on whether the increase is considerably higher than the amount paid for the premium. If, for example, the market price in January 2001 is US$900 a tonne, the cooperative will receive US$860 on the sale. By buying put contracts, the producer acquires the right to take advantage of a floor price, which is an attractive prospect if the market prices go down, and at the same time can maintain a position that is open to a rise.

11. The disadvantage of this attractive approach is the cost. The premium paid for the put contract can be expensive particularly for fixing a strike price relatively close to the market price (especially if it is higher than the market price). In fact, the higher the strike price, the higher the put option premium. The put or call option premium is dependent on four major factors:

– the price of the product underlying this operation, i.e. the spot price for coffee on the market;
– the option’s strike price;
– the duration of the option; and
– the volatility of the market.

II. SCOPE AND LIMITATIONS OF PRICE RISK MANAGEMENT TOOLS FOR COFFEE CHAIN PLAYERS IN EXPORTING COUNTRIES

12. The financial instruments that have been developed are very useful for players in developing commodity-producing countries. This way of managing risks associated with price variations can offer a number of advantages to players in the coffee chain in exporting countries. The private sector in the coffee economy of developing countries consists mainly of local coffee growers, buyers and exporters. With the liberalization of the coffee chains the private sector has become more prominent in a number of exporting countries traditionally controlled by State monopolies. Competition between players in the chain has increased with the liberalization of the domestic and foreign marketing system. The players need management tools to cope with market pressures. These tools will help local buyers and exporters to protect their profit margins against price fluctuations, thereby enabling them to agree relatively high buying prices with the producers. If the tools are not available, buyers and exporters will be forced to set high margins on prices paid to growers to offset negative fluctuations in international prices. Another consideration is that the use of risk management tools gives exporters a degree of flexibility in their strategy for supplying the world market. Exporters will therefore protect the value of their coffee stocks in order to regulate the market supply, thereby preventing a drop in prices caused by large releases.

13. Given the range of players in a coffee chain in exporting countries, risk management tools could be used at several levels. Producers or their cooperatives will guarantee their prices by going to their local banks or calling on a broker who will sell them options. The local banks or the brokers will act both as advisers and information agents for the cooperatives. Local buyers and exporters can also take part in these transactions, either directly by going to brokers, or indirectly by going to local banks with the necessary competence and expertise. In the case of the public sector, public or semi-public bodies which used to act as marketing boards or *caisses de stabilisation* could consider the role of risk manager. They would in this way analyse and measure market risks and collect useful data for managing those risks and for assisting players in the private sector such as producers or producers' cooperatives. They could then act as transaction facilitators on behalf of producers or their cooperatives.

14. The advantages of risk management tools apply theoretically to all bodies (public and semi-public sector, marketing boards and *caisses de stabilisation*, private companies, growers' cooperatives or farmers, etc). These advantages should not detract from the difficulties faced by players in the agricultural chain in developing countries. These modern tools are not a cure-all as they do not help to stabilize the world coffee market or reverse the downward trend of prices. They do, however, at least help players to cope with a market that is already unstable and thereby adapt to the instability of the market. Coffee producers or their cooperatives, manufacturers and traders in developing countries have little occasion to use these modern risk management and financing tools. Even if they are aware of their

existence and potential advantages, they encounter several difficulties in accessing the markets. A number of steps are necessary before these price risk management programmes in exporting countries can be successful in helping to reduce poverty in rural areas: the consolidation of the institutional framework, the implementation of training, information and awareness programmes and the development of the domestic marketing system.

Consolidation of the institutional framework

15. Very few exporting countries, especially in Africa, have well structured producer cooperatives or sufficient financial capacity to be self-managing. Apart from a few countries with a wealth of experience of cooperative movements in rural areas, most of the existing cooperatives are deficient and in need of support. The risk management programme therefore needs to be backed up by special measures for the cooperatives. Countries with mature producer cooperative movements, particularly in Latin America, could share their experience. There is a lot to be learnt from the experience of Guatemala and Mexico. In respect of financial institutions, virtually none of the local banks in developing countries have any experience of commodity financing and are thus unable to advise their clients on the latest risk management tools and techniques. An exception to this is the experience of a regional bank, the PTA-Bank[2], which, in collaboration with Commodity Risk Management S.A., Cargill and Smith Barney, has launched a price risk management tool called PGC (Price Guarantee Contract) for players in the agricultural and oil chains of East Africa. This experience is worth bearing in mind so that it can be improved on and extended to other exporting countries in order to keep the cost of risk management tools down.

Training, information and awareness programme

16. Many players in the private sector who are now active in commodity chains in exporting countries have very little experience of international trade. Their knowledge and understanding of commodity risk management methods and financing are therefore limited. Training programmes and seminars must be set up to show how these tools are to be used effectively. Potential users of the markets, companies' senior management and government officials often have very little experience of the functionality and use of commodity price risk management tools. It would be desirable for international aid bodies to fund specific training programmes for players in the chain to learn about the techniques of using price risk management tools.

[2] *Cf. PTA-Bank, Eastern and Southern African Trade and Development Bank, Nairobi, Kenya.*

Development of the domestic marketing system

17. A suitable framework in which marketing can be organized efficiently and transparently is needed before the price fluctuation risk management programme can be implemented. In particular a warehousing system managed by the private sector should be set up with a system of warehouse receipts acting as guarantees. Marketing could thus be financed on the basis of a guaranteed warehousing and warehouse receipts system. With this in mind, the International Coffee Organization has created a project entitled "Development of the coffee market and strengthening of trading in Eastern and Southern Africa" which is financed by the Common Fund for Commodities (CFC). This project could help to lay down suitable bases for the development of price risk management techniques in exporting countries.

III. CONCLUSION

18. State-of-the-art portfolio management involves the use of risk management tools to reduce risks and improve export earnings. In many exporting countries much still remains to be done in this respect. The inherent complexities of this area make it all the more difficult to get to grips with these management tools. The success of this programme in rural areas depends on there being a wide range of activities to meet the needs of developing countries in respect of price risk management. The World Bank and UNCTAD play a considerable role in this regard and are already carrying out research on and providing advice in these areas. One of the main recommendations of UNCTAD experts has been that Governments create appropriate conditions for the efficient utilization of modern financial tools by producers or their cooperatives, traders, processing firms, financial institutions and investors in the commodities sector. One of these conditions is to increase the capacity of small-scale producers so that they can build up their bargaining power.

19. Moreover, transactions in these futures markets should also be protected and regulated by the relevant legal, regulatory and institutional provisions to get round any difficulties associated with exchange control regulations. Governments should also try to ensure that pricing policy and marketing policy are compatible with the use of risk management tools.