



Organización Internacional del Café
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**Risk management for
coffee price fluctuations**

Background

1. As part of the coffee development strategy approved by the Council on 27 September 2001 (document EB-3768/01 Rev. 2), the Organization is devoting particular attention to the problem of major price volatility suffered by millions of small coffee producers throughout the world. Given the liberalisation of marketing systems in many coffee-producing developing countries, the challenge consists in ensuring that they become further integrated in a competitive commercial environment in which they can also progress.

2. Moreover, price risk management strategies based on free market mechanisms increasingly are being recommended to producers in developing countries as a means of reducing excessive fluctuations in prices and short-term income.

Action

The Executive Board is requested to note this document

Introduction

1. This document analyses ways of boosting the efficacy and use of schemes which have been set up to manage the risk associated with coffee price fluctuation. They are an appropriate, sustainable set of price risk management tools, which make it possible to reduce the risks caused to coffee producers by price fluctuations on the international market, and ensure higher income for growers. The document also presents updated information on progress in the World Bank's programme on the use of price risk management instruments in commodity-exporting developing countries. The following points are covered:

- I. Price risk management instruments
- II. The World Bank programme
- III. Conditions of use in exporting countries.

I. PRICE RISK MANAGEMENT INSTRUMENTS

2. Price risk management instruments comprise both contracts for physical trade in products, in particular forward and so-called paper contracts or futures contracts and options. These different contracts make it possible, to differing degrees, to guard against the risk of reductions or fluctuations in prices and average income. They also ensure clearer forecasts can be made with a view to future investment decisions.

A. Forward contract

3. This is a verbal or written contract for the purchase or sale of a given quantity of coffee on a set future date and at a predetermined price (or sometimes at a price which is to be determined). Delivery and payment take place on a set date. Forward contracts take several forms, according to the price determination clauses. They consist, in particular, in fixed price contracts, non fixed-price contracts, minimum price contracts, and contracts which refer to the futures contract price (on LIFFE in London or NYBOT in New York). These arrangements are a means of covering coffee sellers against price risk, which is transferred to the purchaser. When operated correctly, this strategy makes it possible to obtain a future bonus and also to benefit from predictable export income.

B. Futures contract

4. Coffee futures contracts are fully regulated, standardised paper contracts for a particular quantity of coffee (for example 5 tonnes in the case of London LIFFE Robusta futures), which specify a given quality, place of delivery and expiry date. Unlike forward contracts, futures contracts do not necessarily give rise to delivery of the physical product to honour the agreement. Futures contracts are negotiated daily on the futures markets. The

futures market is a financial institution where futures contracts with expiry dates of between 3 and 18 months can be bought and sold. The futures markets which organize coffee dealing are:

- New York: the New York Board of Trade (NYBOT)
- London: the London International Financial Futures and Options Exchange (LIFFE)
- Paris: Marché international des Cafés Robusta de Paris/Le Havre – MATIF (the Paris/Le Havre Robusta Coffees Market)
- São Paulo: Bolsa de Mercadorias & Futuros – BM&F (the Brazilian Mercantile & Futures Exchange)
- Tokyo: Tokyo Grain Exchange (TGE)
- Singapore: Singapore Commodity Exchange

5. The New York (NYBOT) and London markets are the main benchmarks for the international coffee trade. The main specifications for coffee contracts in these two futures markets are shown in Tables 1 and 2 below.

Table 1: New York Futures Contract C (Arabica Contract)

Transaction unit	37,500 pounds (approx. 250 bags) per contract	
Quotation price	US cents/lb	
Expiry dates	March, May, July, September, December	
Deliverable origins and differential	<p>Mexico, El Salvador, Guatemala, Costa Rica, Nicaragua, Kenya, Papua New Guinea, Panama, Tanzania, Uganda</p> <p>Colombia</p> <p>Honduras, Venezuela, Peru</p> <p>Burundi, India, Rwanda</p> <p>Dominican Republic, Ecuador</p>	<p>Deliverable at</p> <p>Base or contract price</p> <p>Base plus 200 points</p> <p>Base plus 100 points</p> <p>Base plus 300 points</p> <p>Base plus 400 points</p>

Table 2: London LIFFE Robusta Futures Contract

Transaction unit	5 tonnes per contract	
Quotation price	US dollars/tonne	
Expiry dates	January, March, July, September, November	
Deliverable origins and differential	<p>Angola, Brazil (Conillon), Cameroon, Central African Republic, Ecuador, Ghana, Guinea, India, Indonesia, Côte d'Ivoire, Liberia, Madagascar, Nigeria, Philippines, Democratic Republic of Congo, Sierra Leone, Tanzania, Thailand, Togo, Trinidad and Tobago, Uganda, Vietnam</p> <p>Grade 1: Maximum of 150 defects per 500 grammes</p> <p>Grade 2: Maximum of 151 to 250 defects</p> <p>Grade 3: Maximum of 251 to 350 defects</p> <p>Grade 4: Maximum 351 to 450 defects</p> <p>Screen: coffee of which over 25% exceeds screen 14 and of which less 10% exceeds screen 12</p>	<p>Delivery price according to defects:</p> <p>Base or contract price</p> <p>Base minus US\$15</p> <p>Base minus US\$30</p> <p>Base minus US\$45</p> <p>Base minus US\$60</p>

6. Futures markets offer participants three different types of operations: hedging, speculation and arbitrage. Hedging a coffee position consists in protecting oneself against the risk of price variation by taking a position on the futures market which counter balances the already existing position. Futures hedging does not guarantee total elimination of price risk, but does attenuate it and makes it possible to protect oneself against market uncertainty. Speculation consists in assuming price risk by taking the paper contract position which the investor is interested in selling. Arbitrage operations consist in taking simultaneous purchase and sales positions in different markets and with different expiry dates. Arbitrage operations offer the benefit of allowing one to profit from changes in the relationship between the prices of these contracts. The costs of a futures market operation cover commission on the transactions, the deposit, and possible margin calls (in the case of an unfavourable price change).

7. Hedging on the futures markets is a strategy which offers little in the way of benefits to producers. In fact, it leads them to fix their price when the operation is set up and to renounce all profit if prices rise. For the producers, this means speculating on a reduction in prices. For example, a coffee producers' cooperative can assume a long position (buyer) or a short position (seller). In the latter case, a cooperative which has not yet harvested or collected its coffee fears a future downward movement in the price of its stock or harvest. Its

commercial strategy will consist in securing the best deal for its product. It will sell, therefore, paper contracts. In order to avoid the disadvantage attached to hedging strategies with closed contracts, the options strategy seems more appropriate.

C. Options contract or premium operations

8. Options-based hedging strategies seem to fit the needs of producers or producers' cooperatives in exporting countries. An option is a risk management instrument which provides protection against negative price movements, while at the same time affording the chance to profit from favourable price changes. In other words, an option provides the right, but not the obligation, to buy or sell a given quantity of coffee (physical contract or paper contract) at a set price, known as the strike price, for a certain period or on a precise date. The premium is the price paid to acquire the option. The option to buy is termed the call option, while the option to sell is known as the put option. The buyer of the option alone is able to exercise this right, which the seller of the option is obliged to respect. Until expiry of the option, the buyer of the put option can exercise his right if the market price is lower than the option strike price of the options contract. The buyer of the call option exercises his right if, and only if, the market price exceeds the strike price. Table 3 below shows the fixed contracts and options on the New York market at the close of business on 13 January 2003.

Table 3: Coffee futures contracts and options, New York Board of Trade

Futures contract	Price (US cents/lb)	Strike price (US cents/lb)	Call options premium (US cents/lb)	Put options premium (US cents/lb)
March 2003	64.90	May 2003: 77.5	2.91	12.78
May 2003	67.55	May 2003: 80.0	2.50	14.86
July 2003	70.10			
September 2003	72.30	July 2003: 90	3.35	22.94
December 2003	74.45	July 2003: 95	2.69	27.28
March 2004	76.15			

9. We can illustrate the options strategy using a simple example. Let us suppose that in the month of January 2003, a coffee producers' cooperative wishing to market its production from May 2003 decides to protect itself against a price fall. At the time of the decision the futures contract (March 2003) is quoted at 64.90 US cents/lb and the May 2003 contract at 67.55 US cents/lb on the New York futures market. For the strike price of 77.5 US cents/lb the put option premium is 12.78 US cents/lb. For the strike price of 80 US cents/lb the put option premium is 14.86 US cents/lb. If, in May 2003, at the time of sale of the cooperative's crop, the market price has gone down, the cooperative will exercise its option right and sell its product at 77.5 US cents/lb, or 64.72 US cents/lb after deduction of the 12.78 US cents/lb premium of the put option May 2003. If the market price were to have risen, the cooperative would sell its product at an unlimited profit depending to what extent the rise outweighs the sum paid for the premium. If, for example, the market price in May 2003 is 90 US cents/lb, it

would receive 77.22 US cents/lb for the sale. By buying put contracts a producer acquires the right to benefit from a floor price, which is welcome in the case of a fall in prices, while retaining a position that is open to a rise.

10. It is worth noting, however, that the premium paid for the put contract may be costly, particularly where one wishes to set a strike price which is relatively close to the market price (*a fortiori* if higher than the latter). In fact, the higher the strike price the greater the put option premium. Put or call option premiums are determined by four major factors:

- the price of the product underlying the operation, that is to say the spot price at which coffee is selling on the market;
- the option strike price;
- the duration of the option; and
- market volatility

II. THE WORLD BANK PROGRAMME

11. The International Task Force on Commodity Risk Management in developing countries (ITF), which was set up in January 1999, is a public-private partnership whose mission is to explore new trade approaches to assist developing countries to better manage their vulnerability to price instability in commodities. The World Bank, as programme leader, has created a technical structure, the Commodity Risk Management Group (CRMG), responsible for implementing the International Task Force's recommendations. The group aims to "bridge the gap" between small-scale producers in developing countries and the providers of risk management instruments, with the aim of allowing these small farmers to manage price fluctuation risk. The Group, therefore, has three different objectives:

- to create mechanisms for reducing price uncertainty affecting low income producers and consumers;
- to provide local organizations (known as Local Transmission Mechanisms – LTM) with greater means of accessing commodity risk management markets, and pass on the advantages accrued to poor producers or consumers;
- to thereby increase revenue, in particular that of small and medium farmers.

12. To date the programme has carried out the following activities:

- the first transaction on price insurance contract was concluded in Uganda in June 2002, in Tanzania in September 2002, and in Nicaragua in October 2002;
- identification and feasibility studies have been carried out in Bulgaria (grain), Côte d'Ivoire (cocoa and coffee), India (coffee), and Vietnam (coffee, pepper, rubber). Four new cases are being studied, namely in Cameroon (coffee and

cocoa) and the Dominican Republic (coffee and cocoa). These studies are assessing the feasibility of, and preparing potential beneficiaries for, price insurance transactions.

13. The main objective of technical assistance to date has been to prepare national institutions (LTM) to conduct pilot hedging transactions. Two main components have been developed, namely a risk management strategy which consists both of assistance in making specific transactions, on the one hand, and training, on the other. A further consideration is the need to take account of usual business practice, in order to introduce into it the price risk management strategy.

Lessons learned from the initial programme activities

14.

- the national and international environment has a major impact on execution of this programme;
- the programme has identified local transmission organizations, in particular cooperatives, local banks and traders. However, the two latest transactions in the programme were carried out by producers' cooperatives;
- financial institutions need to become involved in the programme, because it is a means of ensuring credit to their clients is secure.

Financial contributions to the programme

15. To date the programme has received financial assistance of US\$4.57 million from the Government of the Netherlands (US\$776,000), 1.8 million euro from the European Union, and US\$2 million from the Swiss Government. The programme has set up a trust fund for risk management activities which is designed to afford greater flexibility and allow donors to make their contributions working in partnership towards the same goals.

16. The programme is also working with the private sector and non-governmental organizations (NGOs) to draw up a list of price insurance providers. NGOs are also involved in the training programmes, technical assistance, marketing techniques, micro-credit management and organization of cooperatives.

17. The viability of this programme will depend on extension of the initial results of the case studies and their use by other developing country agents. In conclusion, it is important to note that the four case studies are on coffee and clearly demonstrate the project's feasibility. This shows that a potential demand exists for these transactions, as do providers of such services. Nevertheless, there is a great need for technical assistance and for large scale dissemination of the programme. The programme is currently working to achieve commercially viable and sustainable price risk management in East Africa. At financial level,

the Government of the Netherlands is showing continued interest in the programme and may provide new funding. The European Union organized a meeting of potential donors to the programme in December 2002.

III. CONDITIONS FOR USE OF RISK MANAGEMENT INSTRUMENTS BY COFFEE SECTOR PLAYERS IN EXPORTING COUNTRIES

18. Derivatives are very useful for players in commodity-producing developing countries. Management of the risks associated with price variation can provide many advantages to participants in the coffee sector in exporting countries. In the coffee economy of developing countries, the private sector is basically made up of coffee growers, buyers and local exporters. Liberalisation of the coffee chain has meant that the private sector has acquired an important role in many exporting countries which were traditionally controlled by State monopolies. Competition between sector players has grown as a result of liberalisation of the domestic and external marketing system. These players need to use management instruments to cope with many market pressures. Use of such instruments will assist local buyers and exporters to protect profit margins from price fluctuation which, in turn, will allow them to pay producers relatively high prices. Where the possibility to utilise these tools does not exist, buyers and exporters will be obliged to deduct large margins from prices paid to producers to make provision for downturns in international prices. Furthermore, the use of risk management instruments allows exporters to adopt a flexible strategy for supplying the international market. At the same time, it means exporters will protect the value of their coffee stocks to regulate market supply and thereby avoid triggering price falls through large releases to the market.

19. Taking the coffee sector players in exporting countries as a whole, the use of risk management instruments could operate at several levels. Producers or their cooperatives will be able to guarantee their prices by turning to their local banks or an intermediary who will sell them options. The local banks or other intermediaries will simultaneously act as advisers and information agencies for the cooperatives. Local buyers and exporters can also intervene in these transactions, either directly by contacting brokers, or indirectly by turning to their local banks who have the necessary skills and expertise. In terms of the public sector, public or para-public bodies, which acted as marketing boards or *caisses de stabilisation*, could consider acting as risk managers. This would mean they would study and weigh up market risk and collate useful information to take risk management measures to manage risk and at the same time help certain private sector agents, particularly producers or producers' cooperatives. In this way they would be able to act as transaction facilitators for the producers or cooperatives.

20. The advantages offered by risk management instruments apply in theory to all bodies (public sector and para-public sector, marketing boards and *caisses de stabilisation*, private firms, growers' cooperatives or farmers, etc). Such advantages should not hide the constraints

faced by players in the agricultural chain in developing countries. It is worth noting that these modern instruments are no panacea, since they do not help to stabilise the world coffee market or correct the downward price trend. They do, however, help players to cope with an unstable market and, therefore, to adjust to such market instability. Coffee producers or their cooperatives, as well as manufacturers and traders in developing countries turn to these modern risk management and finance instruments relatively rarely. Even if they are aware of their existence and their potential advantages, they face a certain number of obstacles in accessing the markets. In order to successfully run these price risk management programmes in exporting countries to contribute to reducing rural poverty, certain stages seem necessary, in particular a bolstering of the institutional framework, implementation of information, training and awareness-raising programmes, development of a domestic marketing system and improving access to agricultural credit.

Strengthening the institutional framework

21. Very few exporting countries, particularly in Africa, have well structured producers' cooperatives with the financial capacity to be run autonomously. With the exception of a few countries with a wealth of experience in the rural cooperative movement, most cooperatives today are weak and need strengthening. It is, therefore, necessary for the risk management programme to be reinforced with support measures for cooperatives.

Training, information and awareness-raising programme

22. Many private sector players which are currently active in the commodity chain of exporting countries have very little international trading experience. As a result, they have limited knowledge and understanding of commodity risk management methods and financing. For effective use of such instruments a learning process is required, which can take place through training programmes and seminars. Potential market users, company executives and government officials are generally not very familiar with the functions and uses of commodity price risk management instruments. It would be desirable for the international aid organizations to finance specific training projects for players in the chain on techniques for using price risk management tools.

Development of domestic marketing

23. Implementation of the price risk management programme calls for a suitable framework in which marketing is organized efficiently and transparently. In particular, it is a matter of promoting a warehouse system managed by the private sector and setting up a system of warehouse receipts, which can act as collateral. At the same time, marketing financing could be based on the guarantee represented by stocks and a warehouse receipts system. The International Coffee Organization, along these lines, has formulated a project entitled "Development of the coffee market and strengthening of trading in Eastern and

Southern Africa", financed by the Common Fund for Commodities, which could contribute to forging a suitable basis for developing price risk management techniques in exporting countries.

Improving access to agricultural credit

24. Finally, the use of price risk management instruments as a means of supporting the credit system could solve the finance problem faced mainly by farmers in developing countries. In fact, one of the major obstacles for producers and local traders in developing countries is how to finance production and marketing activities. In certain countries, distortions or the inefficacy of the banking sector drive interest rates up so high that local operators are at a disadvantage compared to their counterparts working in more efficient systems. In many countries, coffee production is carried out principally by small-scale farmers of low financial standing. Local banks are not always able to respond to their requests for credit given the high risk of non-repayment in the absence of reliable guarantees.

Conclusion

25. Modern portfolio management implies using risk management instruments in order to limit risk and boost export earnings. In many exporting countries, a great deal remains to be done in this regard. The highly complex nature of this field makes access to these instruments perhaps even more difficult. The success of this programme in rural areas calls for a wide range of activities to respond to the needs of developing countries in the field of price risk management. It is worth noting the role being played by the World Bank through its programme which has made it possible to overcome certain obstacles to the use of these instruments in exporting countries. The World Bank programme has also shown that producers buying price insurance may obtain easier access to credit in better conditions given their reduced risk. The experience obtained from the case studies shows that local financial institutions have a key role to play in developing a price insurance service.

26. Moreover, transactions on these futures markets should also be protected and accompanied by the relevant legal, regulatory and institutional measures if exchange regulation constraints are to be avoided. Governments should also ensure that their pricing and trade policies are compatible with the use of risk management instruments.