

## International and Development Economics

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# *Managing Commodity Price Fluctuations in Vietnam's Coffee Industry*

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## *Introduction*

The coffee tree was introduced into Vietnam by the French during the 1850s. Production, however, was relatively insignificant until after re-unification in 1975, when the policy of constructing “new economic zones” resulted in migration from the densely populated northern and coastal areas to the central highlands whose soil and climate conditions are suitable for coffee-growing. Even so, production remained fairly stagnant until the start of *doi moi* in 1986 (for analyses on agricultural reforms during *doi moi*, see Che, Kompas and Vouden 2000, Leung and Riedel 2001). Since 1986, the production of coffee, like that of rice, has grown dramatically, making Vietnam the fourth largest exporter of coffee in the world in 1998 (about 6.5% of the world total), after Brazil and Columbia (about 18% and 13% respectively), and almost on a par with Indonesia. As Vietnamese and Indonesian coffee exports are mainly the Robusta varieties which are lower priced than the Arabica varieties, the share of world export by value is about 3.4 to 4% for Vietnam and Indonesia, compared with 21% for Brazil and 17% for Columbia. (See Anh 1999, pp.85-6).<sup>1</sup> Coffee exports currently account for some 12% of Vietnam's total export values, second only to that of rice exports.

Coffee trees are highly vulnerable to frost and shortage of rainfall which significantly increase the incidence of infectious diseases that can wipe out entire plantations. As new trees take about three to five years before they are productive, coffee production is subject to large supply shocks. As a result, world coffee prices are highly volatile, with cycles of boom and bust being sustained over half a decade or longer. Figure 1a shows coffee prices on the New York coffee exchange for the three decades between 1970 and 1999. One measure of price volatility, the coefficient of variation, shows a variability of some 45% in prices from year to year. Even the variability within each year (the intra-year

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<sup>1</sup> A UNDP survey conducted in 1998 shows that the cultivation area of arabica in Vietnam occupied only 5% of the total (Minot 1998). Subsequent attempts to plant a hybrid strain of arabica and wild coffee from Timor were unsuccessful due to a number of reasons including insufficient initial capital investment, inadequate primary processing, and resistance on the part of small subsistence growers (Anh 1999, p.68)

variation) shows an average of 13.5%. Figure 1b shows the Robusta coffee prices quoted on the London market from 1970 to 2000. Again, the co-efficient of variation shows a very high volatility of 46.6%.

In view of the increasing dependence of Vietnam on coffee exports, the large fluctuations in world prices have become a serious concern. In the Central Highlands province of Dak Lak where 60% of Vietnam's coffee is grown, the coffee crop accounts for over 95% of the local incomes. Falling coffee prices in recent months and land rights issues associated with the indigenous peoples of the province have sparked off one of the rare disputes in the countryside since re-unification (see Reuters March 12). As a result, a number of measures have been adopted recently by the government, notably a buffer stock scheme financed through the State Bank for Agriculture and Rural Development. The possibility of a Coffee Board being established in the near future has also been raised. This paper analyzes the potential effectiveness of these measures to stabilize coffee prices in Vietnam, and offers some alternative, more market-based solutions to the problem of managing coffee price fluctuations.

Section 1 of the paper discusses the structure of Vietnam's coffee industry, focusing on the distribution of profits in coffee exports and the share of costs arising from price fluctuations. Section 2 canvasses the experience of many developing and developed countries in the operation of buffer stock schemes, stabilization funds, and international cartels in the management of commodity price fluctuations. Section 3 discusses alternative, market-based schemes adopted by some countries, particularly in relation to coffee, and section 4 draws some conclusions on the prospects for success of the current measures in Vietnam, and offers suggestions for the development of potentially more viable schemes.

### ***1. Structure of the coffee industry***

Up until 1999, coffee exporting activity in Vietnam was confined to state owned enterprises (SOEs). Since then, private sector firms have been permitted to engage in the export of coffee. The structure of the industry as at the end of 1998 was analyzed in some detail by Nguyen Tu Anh (1999), and is summarized in Figure 2. As the figure indicates, the bulk (92%) of Vietnam's coffee production is exported to international markets, and

between 85 to 90% of planted area is cultivated by small farmers, with the remainder (10 to 15%) cultivated by state- owned farms (of both central and provincial governments).

In the case of the small farmers, after harvesting the coffee cherries, a preliminary processing step is usually done on the farms, whereby the green coffee bean is extracted from the shell (hulling). After this, apart from a relatively small quantity that goes into domestic consumption, the bulk of the green coffee beans is delivered by the farmers to “assemblers” (or buyers) who, as at the end of 1998, were licensed by state- owned processors and exporters. The assemblers purchased coffee beans from the small growers through individual contracts. Export prices were communicated daily by the exporters to the assemblers who were then able to pass the price fluctuations onto the small growers. Indeed, given the monopsony position of the assemblers, they were able to keep the farm-gate prices as a relatively low percentage of export prices whilst passing the risks of price fluctuations to the small growers (Anh 1999).<sup>2</sup> As there does not appear to be a time-series on farm-gate prices, it is not possible to determine exactly how much of the export price fluctuations were borne by the growers. However, the monopsonist position of the assemblers, the individual contracts with small growers, together with the fact that assemblers were quoted export prices everyday, would indicate that most, if not all, the fluctuations in export prices would have been passed onto the small growers.

After the assemblers deliver the coffee beans to the processors, a further processing step takes place whereby the green coffee beans are cleaned, sorted and graded, ready for export. Although both private (including some foreign-invested) processors and state owned processors were in the market, the relative size of the private processors was quite small. This is to be expected as the monopsonist assemblers were licensed exclusively by the state-owned processors and exporters, and would be expected to deliver most of their coffee beans to the state enterprises. Furthermore, the production from the state-owned farms bypassed the assemblers and was delivered directly to the state processors. At the same time, the state processors and exporters showed little profit margin (less than 0.9% in 1997, Anh 1999 p.53), while the bulk of the profits from coffee exports was captured by the state-licensed assemblers (profit margins net of transportation costs of over 40% were estimated for 1996, Anh 1999 p.53). Therefore, the apparent “cartel” amongst the

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<sup>2</sup> Farm-gate prices in Vietnam in 1996 were about 65% of export prices.

state exporters, state processors, and the state licensed assemblers resulted in relatively little revenue going to the state or to the small growers, with the latter bearing most, if not all, the risks involved in international fluctuations of coffee prices.

Since 1999, private firms have been permitted to engage in coffee exports. A recent estimate puts the share of export earnings by private firms at about 30 to 40% of total coffee export revenue (Chairman, Vietnam Coffee Association, VICOFA). This is a significant share, and could have undermined, to some extent, the state-owned and state-licensed cartel that was in existence prior to the liberalization of export marketing channels. Indeed, VINACAFE, the largest SOE in the industry, claims that there are currently over 80 organizations (both government and private) involved in the *collection* and export of coffee. This is seen by VINACAFE as being too many for the purposes of “quality control”, and the establishment of a Coffee Board is proposed. Although the structure of the market is currently rather “fluid” (Figure 3 maps the current developments), it does appear that liberalization of export marketing has impacted negatively on the cartel of licensed assemblers/state processors/state exporters, and the Coffee Board proposal is seen to be an attempt to redress the balance. It is, however, unclear as to the impact of the recent liberalization on the small growers. To the extent that there are now some “truly” private assemblers, and that there exists competition between these and the “state-licensed” assemblers, for any given export price for coffee, farm gate prices should be a higher percentage of export prices than the situation without competition. However, unless the assemblers were prepared to make a certain fixed, non-refundable first payment to the small farmers (as in the case of Costa Rica ), the risks of international price fluctuations would still be assumed completely by the growers.

In response to the downturn in world coffee prices in the past 12 months, the Vietnamese government initiated a stockpile of 90,000 tonnes of Robusta coffee beans, in addition to the 60,000 tonnes already in store as at mid-February, 2001. The interest and storage costs of this buffer stock were supported by an Export Supporting Fund financed largely through the Vietnam Bank for Agriculture and Rural Development (Dow Jones Newswires 20/3/01). World coffee prices, however, continued to fall in spite of having reached the targeted stockpile, indicating that Vietnam probably does not have monopoly power in the world market for Robusta coffee. Even if it has, all that such a scheme would do is to keep world prices higher than would otherwise be the case, with Vietnam

bearing all the costs, whilst other Robusta coffee exporting countries share in the benefits of higher world prices. Furthermore, as there is little information on the prices at which the assemblers were purchasing coffee into the stockpile, exactly how the scheme impacted on the small growers is unclear. A more direct and effective method of income support to small growers would have been simply to pay the growers rather than to spend public funds in a coffee stockpile. An estimate by the Ministry of Trade put the losses incurred by state-owned exporters as a result of the stockpile to be US \$15.45 million (Reuters 7/5/01). Subsequently, in July 2001, the stockpiling policy was apparently abandoned, with exporters permitted to sell freely at market prices.

## ***2. Reducing price variability***

There are generally three broad objectives for government interventions in commodity markets:

1. To make the price distribution over time less variable;
2. To make commodity prices and/or revenues more predictable, for any given price distribution;
3. To smooth expenditures, given fluctuations in revenue associated with price variability.

The third objective is usually achieved through the credit markets and savings decisions, and will not be dealt with in this paper. The first two objectives are discussed in this section and the next respectively.

Commodity price stabilization may be carried out domestically via a stabilization fund, sometimes accompanied by a marketing board and/or state trading enterprises. Except in the rare circumstances where the country has monopoly power in the world market, it makes no sense at all for an individual country to run a buffer stock scheme. Even where the country may have such monopoly power as Australia in the wool market (see Box 1 in appendix A), the benefits accrue to the producers in the rest of the world who receive higher prices at no extra cost to themselves. Internationally, price stabilization has been attempted via international commodity agreements administered through export quotas, buffer funds and buffer stocks.

A domestic stabilization fund compensates producers when prices fall below a pre-determined floor or price band, and accumulates reserves when prices increase above the fixed price or band. It is clear that the system is workable only if there is no persistent tendency for prices to move in only one direction; that is, prices must be able to revert to their mean.

It has been found empirically (Deaton 1992) that commodity prices do indeed mean-revert, but only very slowly. Furthermore, commodity price cycles tend to be asymmetric (Gilbert 1999). This is so because of the interaction between the price-stock cycle and the investment cycle. When there is a supply or a demand shock to commodities, prices tend to peak sharply in a tight (limited stocks) market. However, if the market is slack, then de-cumulation of stocks would tend to make the upward swing in prices more gradual. On the other hand, accumulation of stocks tends to result in long, flat bottoms. Therefore, depending on market conditions, commodity price cycles tend to have flat bottoms with occasional peaks. At the same time, commodities such as ores and tree crops tend to have long gestation periods. The interaction of the investment cycle and the price-stock cycle in commodities can result in occasional periods in which prices fall to distressingly low levels for long periods.

In view of this, buffer stocks and stabilization funds need to be very large, which is very costly, or the stabilization price band needs to be very wide. Otherwise, they risk running out of funds very quickly. When these schemes are administered in conjunction with a marketing board or state trading enterprises, these institutions risk bankruptcy themselves, as in the case of the Australian Wool Board which tried to raise prices by running a buffer stock scheme (see Box 1, appendix A). The main problem is that, under these domestic schemes, the risks of international price fluctuations are transferred from the producers to the government which often finds it economically (and eventually politically) too costly to finance the schemes. Moreover, when a buffer fund builds up due to a period of prices above the stabilization price or upper band, there is a tendency for the government to use the funds for other purposes, or else to raise the minimum price.

Nor is the problem solved by international cartels imposing export quotas or buffer stocks on participating countries, usually with a view to *raising and* stabilizing commodity prices. The era of the so-called “New International Economic Order” (as evidenced by the

UNCTAD Resolution 93(IV) and the Brandt Report) called for the “stabilization of commodity prices at remunerative levels”. However, the asymmetric nature of commodity price cycles means that schemes set out to stabilize prices about a supposedly-known trend face intractable problems when the long term relative prices change. This is evidenced by the failure of several international agreements including the international sugar agreement (started in 1954/collapsed in 1963), the international tin agreement (started in 1954/collapsed in 1983 and 1985), the coffee agreement (commenced in 1962/ suspended in 1989), the cocoa agreement (commenced in 1972/ suspended in 1988), amongst others. Efforts to raise commodity prices (such as in the spectacular case of OPEC oil and tin) result in inducing consumers to substitute away from the product. Furthermore, discipline within the cartel is always a problem, and once prices rise in the short term, some producers are encouraged to breakaway and sell above their quotas of exports. Vietnam itself benefited from not participating in the international coffee agreement during the late 1980s.

Apart from price stabilization, domestic marketing boards can perform some useful functions. They can take advantage of economies of scale for storage, handling, and marketing of primary commodities. While they do not have enough market power to influence international prices, they may be in a better position than individual producers to seek foreign buyers and negotiate contracts, and many are given the monopoly for exports (as in the case of the Australian Wheat Board). They can perform quality control and disseminate information on market conditions, technical innovations, and inputs. Against these benefits is the cost of operating the board which is not profit-driven and arguably lacks innovative skills. The costs of failure are borne by the producers and society more generally. Furthermore, technological change has diminished the advantage of the boards in collecting information and in marketing activities. Moreover, the monopoly export position given to some of these boards can result in practices that impact adversely on small growers (as illustrated in section 1 above in the case of the state monopoly of coffee exports prior to 1999). Finally, many of the functions of a marketing board can be (and are being) performed by producer co-operatives, such as the co-operative of coffee growers, FEDECOOP, in Costa Rica. FEDECOOP also performs very important price hedging functions (see discussion in section 3 below).

As a result of the repeated failures of domestic and international attempts at stabilizing commodity prices, efforts are now being made towards setting up schemes that aim at reducing the uncertainty (but not necessarily the variability) associated with commodity price fluctuations.

### ***3. Reducing the uncertainty associated with price fluctuations***

The main lesson of the failed experiments with commodity price stabilization schemes is that any attempt to support prices above the equilibrium market price is doomed. Even price stabilization, as opposed to price support, against a strong and prolonged downturn, can fail because the scheme becomes too costly. Although some large producers and consumers are willing to enter into long- term contracts with fixed prices (generally to ensure continuous supply from a given source), these are not common and remain risky for the participants.

It is now recognized that producers can be protected from relatively short -term price fluctuations, generally no more than one crop year. The available financial instruments, mainly futures and options, are only liquid for the nearby settlement dates (see appendix C for the mechanics of rolling over futures contracts). Commodity swaps, which are similar to long- term contracts, are either unavailable or expensive, except where they involve large producing and consuming entities. This section discusses briefly the mechanics of using futures and options contracts to reduce uncertainty for commodity producers, exporters and governments, and the people who will benefit from this reduction of uncertainty.

#### *a) The mechanics and availability of futures trading in coffee*

The mechanism of futures trading can be illustrated using the example of a relatively large coffee exporter. Once the exporter has bought the coffee from farmers at, say, a price of “s”, he is open to the risk of losses if international spot prices fall to below “s” by the time he finds a foreign buyer. Of course, if spot prices rise above “s”, the exporter stands to gain. However, the risk of sudden changes in the value of the stocks remains.

To reduce this risk, when the exporter buys the stock of coffee at price “s”, he can simultaneously sell a futures contract (transacted with a bank or possibly directly at one of the futures exchanges such as the New York Coffee, Sugar and Cocoa Exchange) to be bought back when the coffee is physically sold to a foreign buyer. If the spot price has fallen, say to “s1”, then the loss on his physical contract is offset by the gain on his futures contract, since he is able to buy back the futures contract at “s1” which is lower than the initial sale price at “s”. Of course, if spot prices rise to above “s”, say to “s2”, then his gain on his physical contract would be offset by the loss on the futures contract, as he has to buy the futures back at price, “s2”, which is higher than the initial sale price of “s”. Furthermore, the analysis would not be complete until transactions costs in the form of commissions on the futures transaction, storage charges, and interest costs are taken into account. This example, however, illustrates how the risks associated with fluctuations in the spot price of coffee, over a short period of time, can be managed by the use of coffee futures.

The main exchange for coffee is the Coffee, Sugar, and Cocoa Exchange (CSCE) in New York, which is part of the New York Board of Trade. Contracts are based on a given quality of washed Arabica coffee produced in Central and South America, Africa, the Middle East and Asia (Coffee “C”). Physical delivery is accepted from an approved list of countries, with each country receiving a premium or a discount for the quality of its coffee. For example, Columbia receives a premium of 200 points, while coffee from Burundi, India and Rwanda is sold at a discount of 300 points. The minimum size of the contract, 35,000 pounds, and transaction costs puts this technique outside the reach of small producers and requires the intermediation of a cooperative or a marketing board.

The other main exchange is the London International Financial Futures and Options Exchange (LIFFE). It trades Robusta coffee futures in US dollars and five ton units. The coffee is available for physical delivery from a list of 24 countries that include Vietnam. Coffee futures are also traded in Sao Paulo, Singapore, and Manila.

*(b) The mechanics and availability of options trading in coffee*

Whilst futures trading eliminates any potential gains or losses to the coffee exporter resulting from spot price fluctuations, the use of options can put a minimum price floor under negative movements in spot prices whilst allowing the exporter to take advantage of gains resulting from price rises. This is achieved by the exporter buying a “put option” at the time when he contracts to buy the coffee stock from the farmers. This type of financial contract gives the exporter the right but not the obligation to buy back the futures contract at a given price (the “strike price”) by a given future time (the expiration date). Unlike in the previous example, the exporter does not have to buy back the futures contract if the spot price is above the strike price, thereby giving him protection against price falls, but allows him the benefit of price rises. The disadvantage with options is that the premium required is often large. Premia are calculated as a function of the short term interest rates, the time to expiration, the volatility of the spot price, the differential between the strike and the underlying spot price, and the probability distribution of the expected spot price. As spot price volatility directly affects the size of the premium, options become more expensive precisely when price volatility is high and protection is needed the most. Options on coffee futures are available on the London, New York and Sao Paulo exchanges.

Banks and dealers have spawned a plethora of derivative instruments (known generically as “synthetics”) which are essentially combinations of various types of options (for a detailed analysis, see Akiyama and Christian 2001, pp265-9). Their summary of the benefits, costs, and risks of the various instruments is re-produced in appendix B.

*(c ) The relationship between spot and futures prices in coffee*

Futures prices are linked to spot prices: they are usually above spot prices, with the difference related to stocking costs and interest rates (the “carrying costs”). Expected crop size and quantities in storage are the other main factors influencing futures prices.

Normally, the futures price would be equal to current spot price plus the carrying costs. If it were less, all available supplies would be sold; and if it were more, the commodity would be entirely stored (Sharpe, 1990). However, some traders will store the commodity even if the difference between futures and spot prices is lower than the carrying costs

because they are speculating on the fact that the spot price will rise by more than that difference.

In some instances, notably in 1997 for coffee, the current spot price may be above the futures price. This denotes a shortage situation that is expected to abate with the arrival of a future crop. In theory, such a situation is not possible as arbitrageurs would borrow the commodity, sell it in the spot market, and buy a futures contract to return the commodity to the lender on the settlement date. In practice, there may not be any supplies available for this type of arbitrage if stocks are too low or traders are holding on to their stocks with the hope the price will go up further.

Futures prices are normally less volatile than spot prices. The reason for this is that current situations of shortage or oversupply are usually expected to be corrected in the future as crop size adjusts (see Figure 4).

In addition, as futures and options are expressed in US dollars, producers may need to hedge against the exchange risk. Derivative instruments for hedging (forward contracts, futures, and options) may not be available in the producing countries. If those countries are pegging their currency to the US dollar, or if an appreciation of the domestic currency against the dollar is highly unlikely, hedging may be dispensed with, but there is always an element of risk involved in such a strategy.

Finally, there is the issue of quality premium or discount. The quality of domestic coffee may improve or deteriorate, and growers will not supply the same quality and consequently cannot be guaranteed the same price.

While futures exchanges can be used to hedge prices over a crop year and thus to guarantee a minimum price to growers before the harvest, it is also possible to hedge over a period longer than that for which futures contracts are traded by rolling over the contracts (See appendix C). This is not a perfect hedge, however, as the price change in the futures contracts may not offset exactly the change in the spot price (due to “basis” risk), but large price movements, such as one due to a catastrophe wiping out a major producer’s crop, would be reflected in all contract prices, as well as in spot prices.

*b) Who benefits from the use of derivatives trading?*

One obvious beneficiary would be the **exporting and stockholding enterprises**. Given the relatively short-term nature of the hedging instruments, they would seem to be ideally suited to the market risks faced by such companies. Furthermore, the ability to hedge against market risks could increase the willingness of financial institutions to extend lines of credit to such enterprises, since the hedged value of the stock would then be more attractive as collaterals compared with unhedged stock.

As for **small growers**, to the extent that they are able to diversify their crops, they have a natural hedge against commodity price fluctuations. However, with many small farmers in developing countries (including small coffee growers in Vietnam), diversification is difficult. Therefore, the benefits of commodity price hedging are apparent, although the ability of small growers, on their own, to take advantage of the opportunities is highly questionable. As a rule, they have inadequate lines of credit, insufficient know-how, and poor legal/commercial infrastructure to engage in hedging activities. On the other hand, there are well-known examples of institutional development (such as FEDECOOP, the apex organization of coffee cooperatives in Costa Rica) where problems relating to access are overcome. FEDECOOP itself uses derivative markets and is able to offer minimum price guarantees to their members in return for a fixed fee. Also in Costa Rica, millers make a first payment to growers on delivery of the coffee beans. The down payments are non-refundable, and represent about half of the spot price. This constitutes a type of minimum price guarantee for the farmers. However, a few millers are able to use derivative trading to cover themselves against coffee price fluctuations, and are able to offer three-quarters of the spot price as down payments, with the costs of derivative trading deducted from the final payment to growers. In spite of the additional costs, these millers attract more of the business, and take on the role of an intermediary in pooling the price risks from many small growers and hedge the exposure in the derivative markets (see Varangis and Larson 1996, Claessens and Varangis 1993).

In a simulation study of the Costa Rican coffee industry from 1983 to 1998, it was found that, under a program of participatory options hedge, the average revenue received by the coffee grower was less than the prevailing market prices in 38 out of 110 months in the program period, but above the market in 72 months. Furthermore, in some months,

producer revenue would have been significantly higher than market prices (Akiyama and Christian 2001). The benefit to small growers is apparent. Furthermore, such a program is also shown to be sustainable. The simulation study shows that in months in which the difference between the revenues from the program and spot selling was positive, the cumulative amount of revenue received in excess of market prices was \$3,810 for the whole program period. On the other hand, the cumulative loss in months in which the difference was negative was only \$545. This is in sharp contrast to price stabilization schemes where experience has shown that the probability of running out of funds is almost 100%.

The political necessity for **governments** to be involved often in financially unsustainable farm income/price support schemes means that governments can also be a potential beneficiary of derivatives trading in commodities. Not only can the derivatives market be less expensive to manage and operate than traditional price support programs, it is also seen to be more friendly towards free trade. The US Department of Agriculture and the Agri-Food Canada have both been conducting pilot projects that use commodity derivative based instruments to give producers of feedgrain and wheat (in the case of the US) and live cattle (in the case of Canada) an alternative to traditional farm income support programs. The Mexican government, on the other hand, has been using derivatives to manage the risk exposure associated with its price protection program to cotton growers (Varangis and Larson 1996).<sup>3</sup> Through a government organization, ASERCA, cotton growers are offered the chance to participate in a program that guarantees them a minimum price in exchange for a fixed fee. In fact, ASERCA uses the fee as a premium to purchase a put option on the exchange for delivery at harvest time. If the spot price at harvest time falls, ASERCA exercises the option and makes a profit with which it pays the farmers the difference between the spot and the guaranteed price. If the spot price rises, ASERCA does not make any payments to the farmers.

Although governments or their agencies can benefit from using the derivatives market, the aim is to encourage the private sector to take over this role in due course, at least as far as providing a guaranteed minimum income for growers is concerned. However, governments may want to use the derivatives market to hedge against risks to its revenues

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<sup>3</sup> ASERCA has now been extended to cover growers of cotton, soybean, corn wheat and sorghum.

and/or foreign exchange earnings if they are dependent on export taxes levied on a limited number of commodities. Whilst the desirability of export taxes is a separate issue, given that some governments choose to use them, derivatives trading can in such cases, become an important adjunct to budget planning.

#### ***4. Implications for Vietnam***

##### *a) Recent policy on the stockpiling of coffee beans*

From the discussion on buffer stocks in section 2 above, it is clear that the decision taken in February 2001 to stockpile coffee beans was costly, had no impact in terms of raising international prices, and benefited coffee growers only in as much as the prices paid to buy coffee into the stockpile were above the prices they would otherwise have received. In essence, therefore, it is an inefficient method of transferring taxpayers funds to growers, or to the rest of the world to the extent that Vietnam is able to influence world prices. Furthermore, financing the stockpile by the state-owned Bank for Agriculture and Rural Development increased the likelihood of more non-performing loans, thereby complicating the task of re-structuring the state-owned banks. The decision in July to effectively abandon the stockpiling policy was therefore justified. Vietnam should not have undertaken such an experiment in the first place.

##### *b) Proposal for a Coffee Board*

The argument for the establishment of a coffee marketing board to improve the quality of Vietnam's coffee beans is unconvincing on the face of it, without a clear delineation of the functions of the board. The relatively low quality of Vietnam's coffee beans is attributable to a number of factors including the practice of strip harvesting which mixes the ripe and unripe cherries, inadequate primary processing, and the use of chemical fertilizers which gives high productivity but tends to lower the quality of the cherries (Dang Kim Son, Ministry of Agriculture and Rural Development, Hanoi). Furthermore, Vietnam's coffee beans fetch lower than world market prices because of poor sorting techniques and a lack of adherence to international standards of grading coffee. As a result, it has been the practice to market Vietnam's coffee based on individual contracts (which tend to result in lower prices for the producers) rather than selling the coffee based

on international prices quoted for specific grades (Anh 1999). The state monopoly over coffee exports prior to 1999 was also responsible for lowering Vietnam's reputation in the international marketplace as the SOEs in charge of coffee exports had, from time to time, neglected to fulfil their side of the contract. Therefore, without further clarification on the functioning of this board, it is difficult to see how another government- owned exporter/marketing board is able to improve quality and fetch higher prices for Vietnam's coffee beans.

As discussed in section 2 above, many of the information collection and marketing functions of a coffee board can now be substituted by technology accessible to exporters in the private sector. This is much more cost effective than operating a formal coffee board. If agricultural extension services were needed, perhaps the formation of a growers' co-operative along the lines of FEDECOOP in Costa Rica might be more appropriate. As discussed above, FEDECOOP also provides the very important service of pooling the price risks of small coffee growers and accessing the market for derivatives trading in order to transfer those risks to international players better able to bear them. A government -sponsored organization such as the ASERCA for Mexican cotton growers can also provide a minimum price guarantee in return for a fixed fee, and then hedge its own exposure in derivative markets. In addition, ASERCA provides services for agricultural commercialization.

### *c) Coffee price hedging for Vietnam?*

Given both the theoretical and empirical arguments against price stabilization schemes, particularly commodity buffer stocks, it is wise for Vietnam to cease experimenting with them. Instead, schemes that can guarantee growers a minimum price at a fixed fee, and then have the exposure hedged in derivative markets should be considered. It is obvious that small coffee growers lack the credit and the know how to access this market.

Therefore, an organization along the lines of ASERCA in Mexico could be instituted.

Given the current lack of private brokers, a government -sponsored organization might be more appropriate to Vietnam's current stage of development. Alternatively, a growers' co-operative such as the FEDECOOP in Costa Rica could also be set up. Again, given the relatively low levels of private sector development at the moment, perhaps a producers co-operative with some form of government sponsorship might be appropriate. In time,

however, as the domestic banking sector develops, private banks and exporters would be the natural candidates to carry out such financial intermediation services.

A key requirement is that such an organization be staffed with professionals skilled in managing derivatives trading on the one hand, and extension services workers who have the confidence of the small growers on the other. A Coffee Board could conceivably take on these tasks, but such a board would be performing roles very different to those in traditional state -owned marketing boards.

For such an organization to have the confidence of the growers, it would seem that the cartel of state exporters/processors/licensed assemblers needs to be eliminated. Current market developments are not completely clear, but the growth of private exporters (to the extent of absorbing 30 to 40%) of total coffee exports, must be having a strong negative impact on the cartel. Abolition of licensing requirements for assemblers (in line generally with the implementation of the Enterprises Law) would also go a long way towards eliminating the cartel.

In order to access international financial markets for hedging, the organization would need to be exempted from certain elements of exchange control regulations. Furthermore, as the US dollar peg cannot be relied upon to hold, particularly as coffee export prices tumble and remain low very extended periods of time, any US dollar exposures would also need to be hedged in the international financial markets.

An important obstacle to accessing the international financial markets is sovereign risk of governments and their agencies in developing countries. In this regard, the World Bank could perhaps establish a facility whereby it guarantees performance on any payment or loan provisions in a hedging instrument. Enabling small coffee farmers to access hedging facilities (albeit indirectly through a government organization) could arguably be part of a poverty reduction program of the Bank.

Before embarking on coffee price hedging, there will need to be an intensive educational program for policy makers on the benefits of such a course of action, as well as a thorough training exercise in derivatives trading. Neither of these can be effectively done via the class room only. Open and free policy dialogue with countries that already have those schemes in place would be important, as is on-the-ground training for traders in

commodity derivatives. Again, the assistance of the World Bank and other international financial institutions would be highly desirable. Not only could this involvement by the World Bank be seen as part of the poverty reduction program but, to the extent that government policy on a coffee buffer stock and hence financing from the Bank for Agriculture and Rural Development be wound back, this initiative would also enhance the current World Bank program on state commercial bank re-structuring.

### ***Conclusions***

It is clear from the above discussions that domestic buffer stocks cannot raise world prices in a particular commodity except in the very rare cases where a country has monopoly power in the world market. Even then, domestic buffer stock schemes allow other producers to “free ride” on the higher prices. It was wise therefore that Vietnam abandoned its experimentation with buffer stocks. If income support is needed for the small growers during this period of low world prices, then more direct methods of relief should be considered.

Furthermore, in line with the operation of the Enterprises Law, the exclusive licensing of coffee assemblers by the SOEs should be abolished (if this has not yet happened). Unless there are sound reasons for licensing assemblers (for instance, on the grounds of special qualifications and/or experience), then the field ought to be left open to free entry. Competition amongst assemblers could, over time, be expected to result in a higher share of the export prices paid to the small growers. In addition, the risks of price fluctuations could also be expected to pass from the small growers to the processors and exporters who are better able to hedge these risks in the international financial market.

Finally, a training program in commodity risk management should be developed with the Task Force specializing in this area in the World Bank. At the same time, a government-sponsored growers’ co-operative, association, or board should be set up, ready to employ the trained staff in coffee price hedging in the international market. The performance of such an organization should be monitored regularly, and there should be a clear timeframe for passing the ownership of such an organization from the public to private hands.

Figure 1a: Coffee prices (New York market)

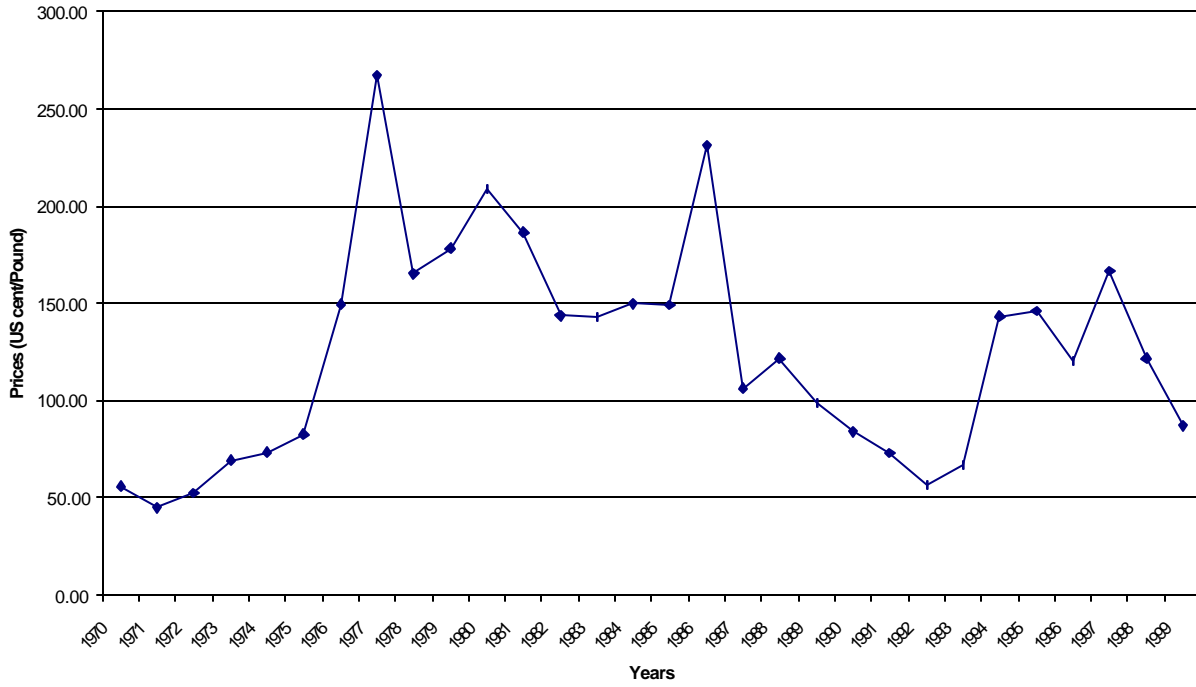


Figure 1b: Robusta coffee prices (London market)

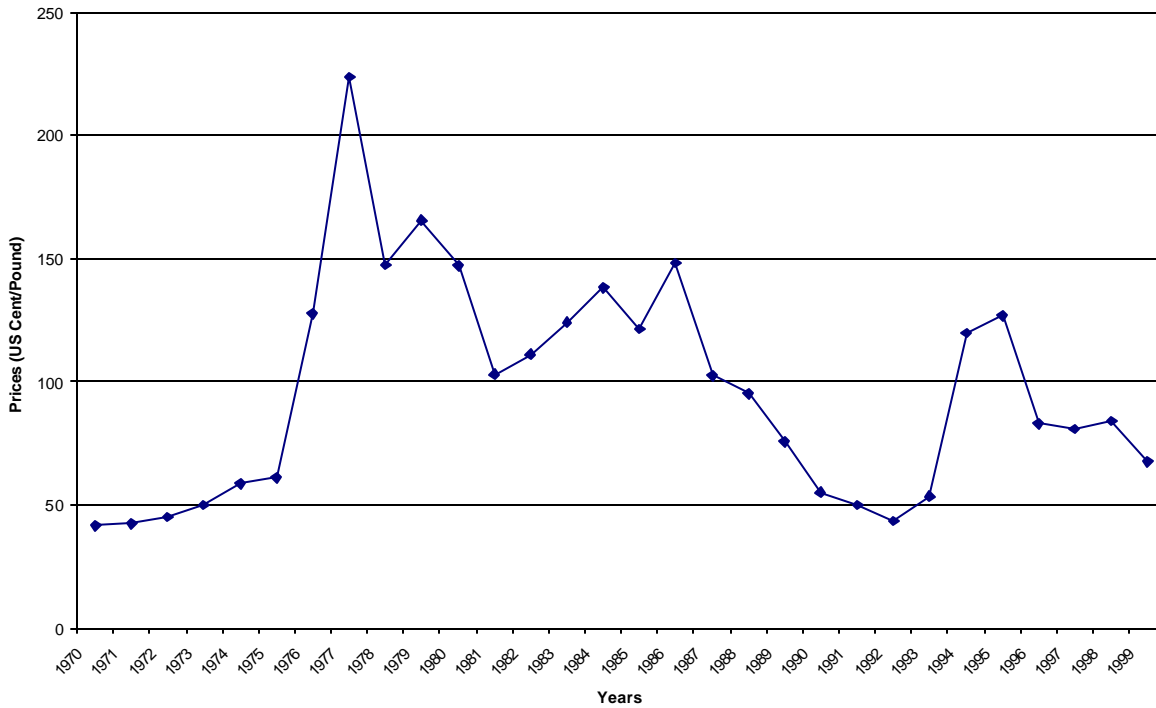


Figure 2: Coffee Marketing system in Vietnam as at end - 1998

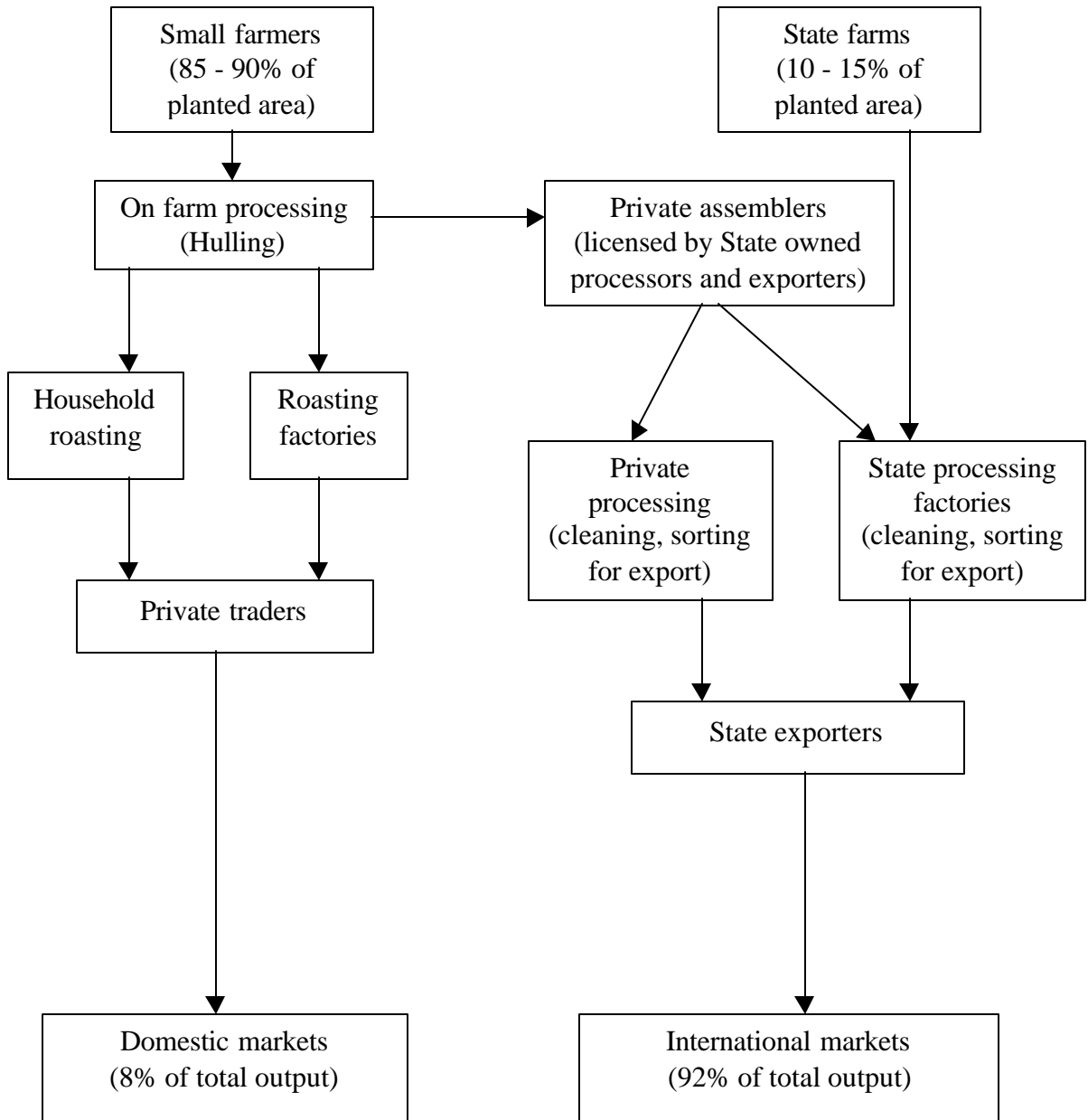


Figure 3: Coffee marketing system in Vietnam since 1999

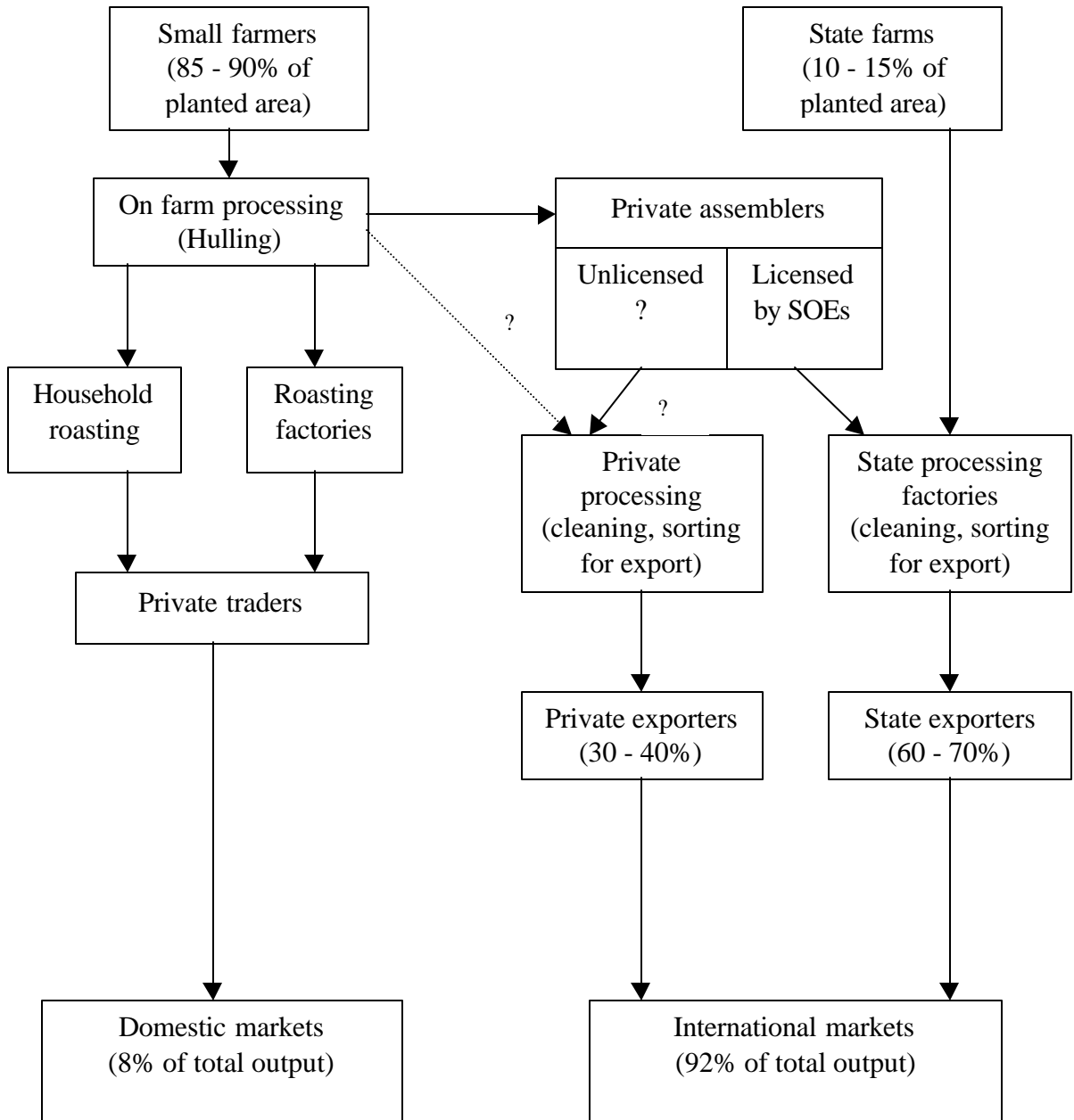
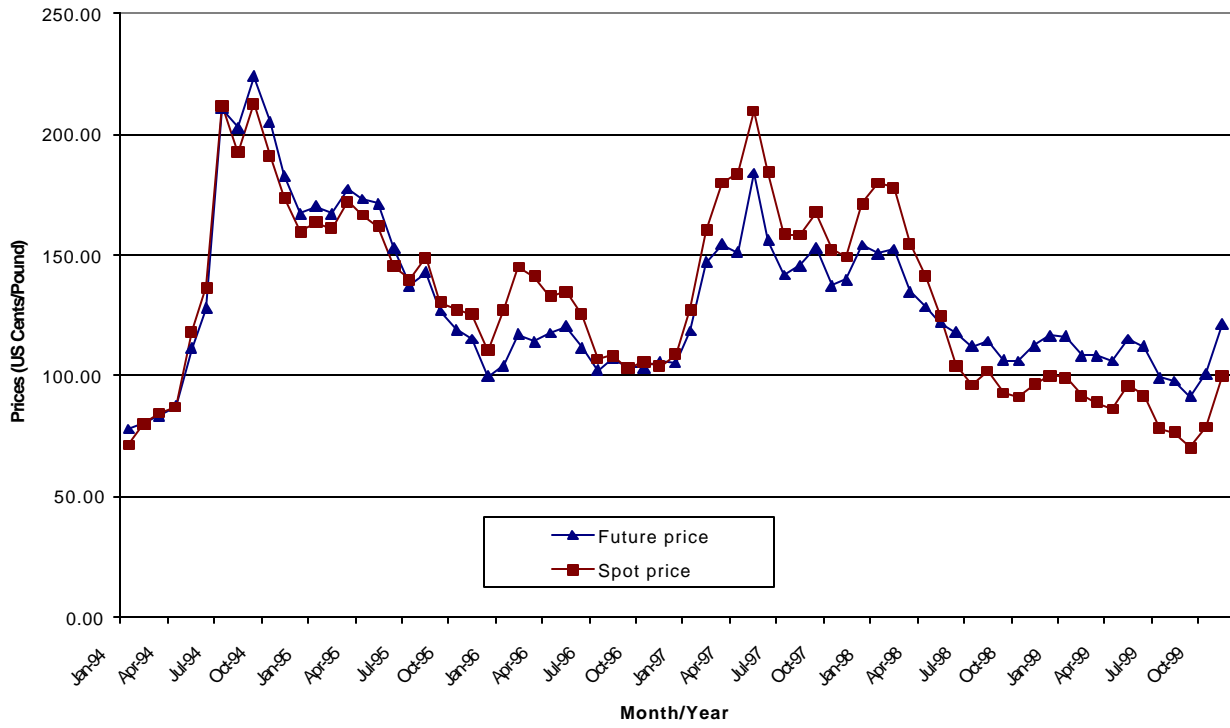


Figure 4: Future and spot prices for Coffee (New York market)



***Box 1. The Australian Wool Board/Corporation***

Between 1974 and 1991, the Australian Wool Board, and its successor, the Australian Wool Corporation (AWC) operated a “Reserve Price Scheme” (RPS), equivalent to a buffer stock with a guaranteed minimum price for Australian wool producers. The scheme was financed by a tax on growers, but the AWC was allowed to borrow to finance stockpiling. A similar scheme had operated during the second World War: by mid-1945, large stocks of wool, equivalent to two years of consumption, had been accumulated, but strong demand in the immediate post-war period facilitated the disposal of stocks and substantial profits were distributed to growers (Boyd, 1982).

For the first 12 years, the RPS was not challenged, thanks to stable demand for wool and reduced production associated with good prices for cereals (Watson, 1990). However, a 70% increase in the reserve price over 2 years led to a rapid accumulation of stocks. The scheme was disbanded in 1991, leaving a large stockpile to be disposed of and around A\$ 2.5 billion of accumulated debt.

The wool industry no longer operates a marketing board. The 1999 report of the Wool Task Force conveyed by the Commonwealth Minister for Agriculture, Fisheries and Forestry (The Wool Taskforce, 1999) stated:

“In case there is any doubt on the matter, the Task Force wishes to be absolutely clear: under no circumstances should any form of RPS for wool ever be reintroduced in Australia. There should be no institution in place which has the capacity to make such a catastrophic mistake affecting every wool business in the country.”

The Task Force even recommended that the successor of the Australian Wool Corporation, the Australian Wool Exchange Limited (AWEX), whose mission is “to provide and facilitate efficient, innovative and informed trading systems in an environment that fosters competition and self-regulation”(AWEX, 2001), be disbanded. This has not happened: AWEX continues to play a role in the trading of wool, and the development and implementation of standards for quality and for accreditation of wool classers.

## Appendix B

Instruments	Characteristics	Transaction Costs	Risks
Spot Sales or Purchases	Completely unhedged	Fees and imbedded in quoted price	Totally exposed to market prices
Forwards	Locks in specific purchase or sale price	Fees and imbedded in quoted price	Lose all exposure to beneficial price developments. Can have large credit exposure if market prices move in favour of the user
Future	Locks in specific purchase or sale price	Brokers commissions and margin requirements	Lose all exposure to beneficial price developments. Can have large credit exposure if market prices move in favour of user
Options	Protect against negative price developments; retain exposure to beneficial price development	Pay premiums which can be expensive	Lose premium
Collars	Protect against negative price developments; gain minimum exposure to beneficial price developments	No fees or commissions. Fees are imbedded in quoted price	Lose most exposure to beneficial price developments. Large credit exposure can develop if market moves in user's favour, due to potential costs of delivering against the position
Synthetic Puts	Protect against negative price developments	Pay premiums, which can be expensive	Lose small portion of beneficial price developments
Participatory Options Programs	Protect against negative price developments and retains exposure to beneficial price development	No fees or commissions	Lose small portion of beneficial price developments
Swaps	Like forwards, locks in specific purchase or sale price	No fees or commissions. Fees are imbedded in quoted prices	Lose all exposure to beneficial price developments. Can have large credit exposure if market prices move in favour of the user

## Appendix C

Table 1 shows how such a strategy (called a “stack”) would have worked between 1998 and 2001 for coffee traded on the CSCE. It assumes that on each settlement date the fourth furthest contract (for settlement 12 months hence) is sold and then bought back on the next settlement date, (at the price of what is now the third furthest contract), when the new fourth furthest contract is sold. These 2 contracts were chosen because their liquidity is greater than for the fifth furthest contract and they provide an initial longer hedge than the nearby contract.

**Table 1**  
**A Coffee “Stack” 1998-2001**

Dates	Nearby contract	2 <sup>nd</sup> furthest contract	3 <sup>rd</sup> furthest contract	4 <sup>th</sup> furthest contract	5 <sup>th</sup> furthest contract
15/6/98	120	120	120	120	120
15/9/98	111	105	103	104	104
15/12/98	120	121	121	121	121
15/3/99	103	103	105	106	108
15/6/99	104	106	107	109	111
15/9/99	81	85	87	89	91
15/12/99	126	128	131	133	135
15/3/00	103	103	106	109	112
15/6/00	88	91	96	100	103
15/9/00	76	81	86	89	91
15/12/00	63	67	70	73	76
15/3/01	59	61	64	67	70

Source: CSCE, New York

On June 15, 1998, one sells the fourth furthest contract for \$120. On September 15, the contract is bought back at \$103), the price of the third furthest contract, for a gain of \$17 per contract, and the new fourth furthest contract is sold at \$104, etc... Adding up the profits and losses on each futures transaction results in a net profit that offsets the large decline in coffee prices over the period. Transaction costs, however, would reduce the net profit, especially for relatively small quantities. This type of hedging is only feasible for large producers or exporters, or groupings of smaller ones.

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