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**Managing Commodity Price Instability in Newly Liberalised
Economies**

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Introduction

Many low-income developing countries remain highly dependent on the production and export of primary commodities; and in many other middle-income, rapidly developing countries, the primary commodity sector remains large, though accounting for a much reduced share of GDP than previously. Governments, statutory marketing bodies, and primary producers in these and even more diversified economies are thus vulnerable to the high volatility of primary commodity prices on world markets.

Because of this vulnerability and because few producing countries or cartels have the market power to influence world prices over more than short periods of time, there has been a long history of international involvement in international commodity markets and in individual country commodity policy. There are three stages at which such intervention may take place. Intervention can attempt to: (i) make the price distributions less variable; (ii) make export revenues and producer incomes less variable and/or more predictable, given the price distribution; or (iii) smooth expenditures, given income flows. International commodity agreements (ICAs) have

^{*} As well as the research referenced herein, most of which was carried out at the World Bank, this paper draws upon two survey papers presented by the UNCTAD Secretariat at an Ad Hoc Group of Experts meeting on Risk Management in Commodity Trade, held in Geneva, 26–28 October 1994. The reports are “National Institution Building to Facilitate Access to Risk Management Markets for Small Producers and Traders Particularly from Developing Countries and Countries in Transition: Issues Involved and Possible Ways to Overcome Them” (TD/B/CN. 1/GE. 1/2) and “Counterpart and Sovereign Risk Obstacles to Improved Access to Risk Management Markets: Issues Involved, Problems and Possible Solutions” (TD/B/CN. 1/GE. 1/3).

intervened by attempting to change the price distribution. Compensatory finance facilities, notably the International Monetary Fund's (IMF's) Contingency and Compensatory Finance Facility (CCFF) and the European Union's (EU's) STABEX scheme, attempt to reduce the variability of export revenue distributions. Credit market policies act to smooth expenditures.

There is widespread agreement that ICAs are now part of history. This is partly because it is perceived that they have failed. But there is also a widespread antipathy toward such market intervention. "Failure" in part has been a consequence of inadequate financing (for buffer stock programs, as in the case of the International Cocoa Agreement), and poor management, as in lack of adjustment to changing tastes (the International Coffee Agreement) or lack of response to sharp movements in exchange rates. But there has also been the problem that, given the random nature of commodity prices, stabilisation even within some reasonably wide bands is an inherently impossible task over long periods of time.

In practice, the compensatory CCFF and STABEX facilities have been small aid windows with little stabilising effect on revenues. Moreover, payments are made a considerable period after the price fluctuation which triggers a request for compensation and it is arguable that they have even destabilised revenues.

This relatively recent change in attitude towards such intervention has occurred against a background of primary commodity prices falling to extremely low levels in real terms. By contrast, 1993-94 has seen a commodity boom. No doubt, commodity prices will fall back from recent levels at some indeterminate future date. Commodity price variability remains pervasive.

The issue of commodity price volatility and what to do in response is a concern of particular moment for those developing countries, mostly primary commodity-dependent, embarking on a program of economic liberalisation. Such programs usually involve the scrapping of domestic government interventions which have been put in place to reduce the impact of international commodity price volatility. Failure to take effective action to manage this volatility places economic reform programs under tremendous threat from domestic groups—producers, consumers, labour force groups, groups depending on government welfare expenditures—that can suffer from fluctuations in world commodity prices. It is fair to say that economic reform programs have been undertaken with little or no thought given to what to put in place of the previous price stabilisation mechanisms—usually a government-supported marketing board—eliminated as part of the liberalisation program. In some countries, farmers, traders and exporters have been left completely exposed to the international price risks.

Developing country governments are usually in a weak position to bear these price risks anyway. But that is what has mostly occurred in the past. Use of unhedged domestic price stabilisation schemes or the holding of physical stocks, carried out by government or semi-government bodies on behalf of producers or consumers, means that the government assumes the price risk. Adoption of variable import duty regimes to stabilise prices to producers or consumers—now a fairly common response to international commodity price risk by developing countries in Latin America—also means that the government bears the price risks in the form of variable tariff revenues. For example, if the border price moves above the stabilisation or reference or minimum price, a subsidy has to be paid to maintain the price paid by consumers.

Ideally, developing country governments, and primary producers and intermediaries in those countries, should try to diversify their commodity price (and interest rate and exchange rate risks) outside the country. One means of doing this is by utilising the international financial markets to share the risks with the vast global pool of speculators who are much more willing and able to bear such risks. The United States has been the only country where farmers in several industries are subject to commodity price risks and where this price risk is hedged through commodity futures markets —though the hedging is not usually done by the farmers themselves but by intermediaries such as the large trading houses. Is it feasible for developing countries to use the financial markets to hedge the commodity price risks faced by their governments and their farming or more widely primary producing sectors? This paper reports on a body of work which has been carried out largely in the World Bank and by UNCTAD in examining this question. It discusses the path which newly liberalising countries, including many in Asia and the Pacific, have to follow to use these markets effectively and the obstacles which have been found to be in the way of such developments.

Use of Commodity Futures, Options and Swaps

The commodity futures is the basis of financial risk management in commodities. To lock in a price over a period, usually within a year, futures contracts are sold of a volume sufficient to cover the quantity of the commodity to be hedged. Futures were developed to avoid the creditworthiness problem associated with forward sales. They do this by requiring a margin to be lodged with the Futures Exchange. Moreover, the contract is "marked to market" each trading day to maintain the

appropriate margin. The pre-determined price is assured as any loss/gain in the physical sale at the time of meeting the physical contract is offset by the gain/loss in the price at which the futures contract is closed out.

Several difficulties with developing countries using futures can be noted. The initial margin requirement may be substantial and the requirement can become even more substantial if prices rise and additional security margin is called upon. The working capital to finance such margins is often not available. Next, the concepts of hedging and offsetting gains/losses in the futures contract are often not understood and, as seen in several recent cases, there can be antipathy towards the foregoing of windfall price gains. Thirdly, commodity futures markets, with the exception of petroleum products contracts, are not very liquid beyond 6–12 months. Still, prices can be hedged on a seasonal basis, avoiding considerable uncertainty (see Claessens and Varangis, 1993a and 1993b). Lastly, futures contract are not available for all commodities, or for all grades of commodities.

Use of options on commodity futures contracts offers solutions to two of these difficulties, though at a price. Options have an upfront cost (“premium”) which is not as substantial as an initial futures margin and for an option which is bought to put a floor under the price there is no further cost involved. Options, which effectively set a minimum price, do not forego any price rise and therefore are not open to the “negative publicity” which can affect futures hedging. The most that can be lost is the premium and, over the long run, the cost of the hedging activity is the average premium.

Use of commodity swaps¹ may enable prices to be locked in over much longer periods than 6–12 months. Crude oil and mineral swaps of periods up to 10–15 years are now routine in the developed countries. However, swaps, like forwards, involve considerations of the counterparty's creditworthiness. The longer the period of the contract and the greater the volatility of the underlying price, the greater the credit risk. Since many developing countries lack sufficient credit standing, their access to long-dated risk management instruments is limited. Most over-the-counter intermediaries are reluctant to offer entities in even the most creditworthy developing countries swap contracts which extend beyond one year—largely because of sovereign risk (to be discussed below). In some cases, borrowers are required to offer collateral or other forms of security such as future receivables to be held in offshore "escrow" accounts, such as in a recent instance in Papua New Guinea.

While, in principle, a futures contract may be "rolled over" (i.e., renewed at maturity) so as to duplicate a long-dated hedge such as a swap, in practice the protection offered by a rollover will be considerably less than that of a long-dated instrument because of the "basis risk" arising from changes in the relationship between the spot and futures prices.²

¹ Commodity swaps are basically the same as currency and interest rate swaps, i.e., the exchange of a floating for a fixed price. But a commodity swap is not exactly a series of commodity forward contracts, unlike a currency or an interest rate swap: it does not involve delivery of physicals. However, the economic consequences are approximately equal to those of a series of forward contracts.

² Whether in the absence of basis risk there is exact equivalence between a futures rollover and a long-dated instrument will depend upon the price process applicable: full equivalence would hold if, for example, the price series behaved like a random walk. While commodity prices follow a random walk process most of the time, there are occasional aberrations.

A mismatch between the characteristics of the variable to be hedged and the hedging tool is also the essence of the problem with the lack of futures contracts for commodities or particular grades of commodities. Basis risk can also prevent the use of international futures markets when countries intervene in the setting of domestic prices. Analysis conducted at the World Bank on cotton prices showed that for those cotton producers where there is little government intervention, cash prices move closely together. But for cotton sectors in which the government intervenes heavily (e.g., Egypt, until recently), prices deviate considerably from their closest substitute (Varangis, Thigpen and Akiyama, 1993). Also, in simulations of hedging oil exports and imports, it was found that by using a single futures contract (West Texas Intermediate) about 75–85% of the price risk over periods of less than six months could be eliminated for a variety of crude oils (API from 25° to 40°) (see Claessens and Varangis 1993b).

However, incompleteness of futures markets is a severe problem for developing countries. In part, it is a chicken-and-egg problem: because developing countries have not been able to use futures markets to any great extent, there has been little development of contracts in commodities or grades which they produce. Basis risk and liquidity will remain important issues for all types of commodity risk management instruments: it cannot be expected that the markets for commodity risk management instruments will develop sufficiently for all commodities. On the short end of the hedging spectrum, the introduction of new instruments will be constrained by inadequate liquidity. The possibility of swaps and other instruments for extending the maturity of financial instruments for many commodities of importance to developing

countries, such as coffee, cocoa, and cotton, is inherently more problematic in part because of the seasonality of production and the high cost of storage.

Some in the futures industry have seen the development of the over-the-counter markets (such as swaps, swaptions, caps, collars, floors, etc) as competitive with futures activity. However, I see them as strongly complementary. Without futures markets there can be no OTC market. Banks and other intermediaries that offer OTC instruments hedge portions of the risk they have assumed in the liquid near-by future /options markets. If developing countries become more active in OTC instruments for soft commodities, this would give support to the development of longer-dated futures contracts in soft contracts where there is little liquidity or where contracts do not exist at present.

Undertaking Commodity Price Risk Management in Developing Countries

There are various ways of overcoming the individual farmer's lack of access to financial risk management instruments. As in developed countries such activities can be carried out on their behalf by farmers' cooperatives, private traders/processors/exporters, domestic banks, and government entities. Such organisations will normally be able to establish the financial credentials to at least undertake options transactions. Farmers can be guaranteed minimum prices by buying put options. Use of such risk management would in turn make it possible to collateralise the commodity to obtain a loan to make advance payments to farmers. Opening up futures market hedging to the coffee sector in Costa Rica led to exporters nearly doubling the advance payment offered to coffee growers (see Claessens and

Varangis 1993a).³ In the absence of access to coffee options, traders protected themselves against a price decline between the time of purchase and the time of export by offering the farmer a low advance payment. Hence, the coffee farmer was bearing the major part of the price risk.

Local banks can also become risk management intermediaries. At the same time they can serve their own interests because hedging the farmer's price risk protects any credit they have extended to the farmer. Two African banks, the Nigerian Export Import Bank (NEXIM) and the Eastern and Southern African Trade and Development (PTA) Bank in Nairobi, Kenya, have recently introduced what they call price guarantee contracts (PGCs). A PGC is basically a put option which is purchased by the banks on behalf of exporters (coffee is the only commodity covered at present but it is intended to extend the facility to cocoa and perhaps to cotton).

Where they still exist, government stabilisation funds or marketing boards could be restructured to fill this intermediary role. They could offer minimum guaranteed price levels, hedged through options. Or they could offer price insurance to farmer co-operatives by buying options on behalf of the co-operatives. In liberalising its agricultural policies in 1992, the Mexican government set up an agency (ASERCA) which provides intra-season price protection to cotton farmers on a voluntary basis. Farmers pay a fee to ASERCA for protecting the price of a certain expected production and ASERCA in turn protects itself by buying put options on the New York Cotton Exchange. ASERCA also uses US futures and options for wheat,

³ Use of futures markets was illegal in Costa Rica. As well, currency transactions were highly restricted. Laws applying to both had to be changed to allow futures activity.

maize and soyabeans to hedge the subsidy it may have to pay to end users of these products who are compensated for the difference between the domestic Mexican guaranteed price and the international price.

State entities such as marketing boards or stabilisation funds may be the only ones which can fulfil this intermediary role if the private sector is unable to establish the necessary creditworthiness with the futures exchanges. In the long run, however, it is best to aim to privatise the marketing activity. But in the short run this may not be possible. Still, farmers should be put in a position to show their preparedness to hedge their price risk through price guarantees by paying a premium to the intermediary.

Some countries may wish to retain their government stabilisation funds. In that case, consideration should be given to the use of out-of-the-money options, which are rather cheap, to hedge against sharp downwards price movements. This does not necessarily insure against the fund eventually running out of money, given a long period of low prices, but it can reduce the likelihood considerably (see Larson and Coleman, 1993). Or, to think of it in another way, hedging can reduce the size of the stabilisation fund necessary for a given level of price risk reduction (Claessens and Varangis, 1994). A good strategy for hedging government exposure to price risk in its revenues from petroleum or mineral revenues is to remove as much short-period price risk as possible through options and futures and maintain a (much smaller) stabilisation fund to manage the remaining long-term price risk.

Reducing Government Exposure to Commodity Price Risks

Developing country government revenues are often heavily exposed to commodity price risks. Many governments are highly reliant on export taxes on

commodities—though this dependence has declined with reforms which have included tax-broadening measures. Others are exposed through being heavily dependent on royalties and other revenue-sharing measures from petroleum and mineral exports. Petroleum and food grains imports mean considerable price exposure for others. Rather than attempting to manage these price risks, developing countries have generally added to their exposure by taking on the price risks of their farmers and traders through the setting up of marketing boards or price stabilisation schemes. Their vulnerability to commodity price volatility has made their task of economic development more difficult than it need be and increased the likelihood of the overturning of any economic reforms attempted [see Duncan, 1994 (a) (b)].

The price risk in the commodity-dependent part of a government's revenue stream can be hedged if the producers and/or exporters hedge. If a mining company hedges its exports or if farmers' exports are hedged, then the government's share is hedged. If the private sector is not hedging, or if the government is the producer (as in petroleum or mining), or if the government has assumed the price risk on behalf of producers, then it should consider use of international financial market risk management. Ideally, management of commodity price, interest rate, and currency risks should be considered on an integrated basis. There may be, for example, advantages in a country using the currency composition of new external capital flows as a hedging instrument against unanticipated exchange rate and commodity price movements (see Claessens, 1991). However, these are relatively sophisticated issues which may not be appropriate to address at an early stage in the development of risk management practices.

Obstacles to the Use of Financial Risk Management Instruments

Work in several developing countries has shown that there are numerous obstacles to their using financial risk management instruments. Some of these obstacles are self-imposed and can be rectified relatively easily; others are rather fundamental and not easily overcome.

In many developing countries, and all transition economies, internal marketing, pricing, and export marketing of primary commodities—especially agricultural commodities—were controlled by the government. Prices were either directly regulated, or stabilised through special funds. One of the first problems faced upon liberalisation, and one to which little thought was often given, was that of formation of spot or cash markets. Auction centres, or other centres for setting spot transactions, have to be established as well as standardisation of grades. Once spot markets are established, the next likely and sensible development is the creation of forward markets, which provide some limited hedging capacity. Few developing countries should take the step of setting up futures markets. Pressures for this should be resisted except in special circumstances. Use of existing international futures exchanges should be the first option.

Government policies which restrict or prohibit the use of international financial markets are manifold. Many developing countries have restrictions on international financial flows which severely restrict or prohibit access to financial markets including futures markets⁴. It is very difficult to maintain a margin account on an international

⁴ In Indonesia, for example, trading of foreign futures contracts through domestic brokers is not allowed; commodity sales can only take place against a letter of credit; investment funds, both foreign and domestic, must incorporate in Indonesia and cannot trade futures; and pension funds are not allowed to trade futures (UNCTAD/World Bank 1993).

futures exchange given currency restrictions. Restrictions on currency movement have been seen as a necessary part of economic policies and there has been resistance to freeing up financial markets as a part of the reform process. However, a good argument can be made that unless financial markets are freed along with the freeing of trade the supply response will be inhibited. Firms unable to hedge their commodity price, interest rate, and exchange rate risks will not be very keen to develop export markets.

Government policies may greatly diminish the price risk faced by the private sector and thus reduce the incentive for the sector to manage its risks as, for example, through the operation of price stabilisation schemes, or guaranteed exchange rate coverage. In some circumstances, the tax system may present a deterrent to hedging as net profits may be less exposed to external price risks than gross profits. As a private firm will only be interested in hedging net profits, this will mean that tax revenues (the difference between gross and net profits) will be exposed to the price risk. Government intervention in local markets may not necessarily reduce their uncertainty but can increase the basis risk between local and international prices such that domestic entities are unable to use the financial markets to hedge. This was the case until recently in Argentina, for example, where the high levels of direct and indirect taxation of the grain sector and other government regulation adversely affected private incentives to use international financial markets. The recent liberalisation of the Argentine grain sector, including the abolition of the National Grain Board (which acted as regulator as well as trader) has considerably improved private incentives to use US grain futures markets.

Institutional arrangements and regulations often distort incentives to engage in risk management in complex and non-transparent ways. Typically, the price risks are forced onto the small producers and consumers who are not in the best position to manage them effectively. Examples from case studies can illustrate this point. Until recently, coffee price risk in Costa Rica was borne mostly by the farmers. Because the margins and returns of the coffee processing mills were controlled by the government, to ensure that growers received a "fair" return, much of the price risk was forced onto the growers. This was done by the mills paying a small proportion of the expected price as an advance payment, with the remainder of the price received after sale (see Myers 1993). Doing away with the controls or milling margins gave the mills an incentive to hedge the price risk and to compete for growers by offering higher initial advance payments. In Colombia, one of the major reasons private coffee exporters had no incentive to hedge for periods longer than three months was that export contracts were not "opened" by the institution supervising coffee exports for more than three months ahead. As a consequence, domestic taxes and fees, which were regulated, to be paid for exports three months or more ahead were uncertain and, in effect, represented a larger price risk to the private exporter than the international coffee price risks (see Powell 1993).

Counterparty risks, and particularly sovereign risks, are major obstacles to the use of financial risk management instruments by entities from developing countries. Whenever, a risk management transaction contains a credit component the provider of

the instrument runs a risk of default.⁵ Because short-dated, exchange-traded futures and options are subject to margin requirements, the credit risk is effectively overcome. However, if say a swap provider does not have direct access to the extra earnings resulting from higher prices, there is the risk that the counterparty will not pay. The political or sovereign risk that policies will be changed to interfere with the transaction also has to be considered part of the counterparty's creditworthiness rating. Finding ways to enhance the creditworthiness of developing and transition economies so that they can take advantage of longer-dated OTC instruments is an important challenge.

Many developing countries maintain large stocks of commodities. If collateralised, such stocks can be good collateral for foreign loans at lower rates than they may have to normally pay for trade finance. The main problem is to reduce default risk. Countries can enhance the collateralisation possibilities of stocks by setting up a system whereby stocks can be placed in warehouses under the control of a widely-respected international custodial agency and by making clear to the international community that there are no restrictions on the exportability of the stocks. Legal conditions need to be established so that the ownership title (stock warrants) can be easily transferred to international buyers. There is an important synergy here in providing security to OTC instruments through enhancing collateralisation of commodity stocks as, through risk management, the value of the stocks is enhanced. A pre-export credit can be structured in such a way that it is effectively an advance payment for future exports. The commodity provides the

⁵ OTC transactions are often designed so that up-front cash payments are avoided by requiring the counterparty to give up all or part of the up-side price potential. When prices move upward, they may refuse to give up the potential extra earnings.

collateral and as the exporter has a risk management element in the pre-export financing arrangement, it will be able to borrow more against the same level of exports and/or borrow for a longer time.

Another way for a developing country to gain access to OTC risk management instruments is through allowing funds to be held offshore in an escrow account. This is in the nature of a margin account. In many cases, the funds can come from the proceeds of the sale of the commodity being held. The following provides an example of a country which has its main commodity price exposure in coffee exports and crude oil imports and wishes to lock in the maximum amount of coffee to be paid for a barrel of oil. The country would buy call options on fuel and put options on coffee, and, in order to reduce the costs of the transaction, sell call options on coffee (giving up part of the potential to profit from price increases). To securitise the deal, part of the proceeds of the coffee exports would be paid into an escrow account. Such a deal may only be possible where the coffee exports and oil imports are state-run. If they were independent organisations they would be subject to default risk by the other party. One of the most frequent obstacles to escrow accounts is foreign exchange controls, such as export retention schemes, which require exporters to hand foreign currency proceeds to the central bank.

Negative pledge clauses in loans from the IMF, World Bank and regional multilateral banks have made it difficult for developing countries to pledge future receivables from commodity exports as security. It is ironic that these organisations whose *raison d'être* is basically to improve the creditworthiness or sovereign risk ratings of developing countries have a policy in place which works against their borrowing countries entering into financial risk management arrangements. For their

part, the IMF and the multilateral banks have not been sufficiently cognizant of the financial risk management aspects of the economic reform process and should do more to help in the adoption of such practices. I have suggested elsewhere that the Fund should see its primary function as that of performance guarantee for the less creditworthy developing countries and one component of this should be a sovereign risk insurance facility to underwrite the sovereign risk component of developing countries' participation in commodity price, exchange rate, and interest rate risk management arrangements.⁶ There have been some limited moves in this direction with the International Finance Corporation (IFC) intermediating commodity price risk management arrangements as a component of loans such as to Ghana's Ashanti gold mine and the European Bank for Reconstruction and Development (EBRD) offering intermediation in interest rate and currency swaps for project loans to Eastern European countries.

Finally, it has to be acknowledged that use of financial risk management instruments requires considerable knowledge in what is a specialised field. Training programs which have been organised by the World Bank have involved up to two years of effort in providing education and hands-on experience before a risk management unit could be up and running. Lack of awareness of the role of futures and options and the recently developed OTC instruments is widespread and has certainly inhibited use of such facilities. Ignorance of the difference between speculation and hedging is also an important hurdle. Many expect that risk management will lead to consistently higher profits, lower debt service payments,

⁶ Statement to UNCTAD Ad Hoc Group of Experts on Risk Management in Commodity Trade, Geneva, October 26, 1994.

higher export prices, or lower import prices. However, risk management effects a trade-off between the assurance of predictable costs against uncertain future external price movements which could produce large windfall gains or large losses.

In the setting up of risk management activities it is vitally important to establish an institutional framework which involves adequate recording, reporting, monitoring and evaluating mechanisms to ensure protection against speculative transactions that have recently derailed risk management activities in both developed and developing countries. On a government level, an inter-departmental oversight committee has been found to be most useful in providing such control, as well as serving to dilute any negative publicity from hedging deals which might be seen to have "costs" in terms of foregone higher revenues or lower expenses.

It is often likely to be the case that a country or an entity within the country does not have the human resources available to develop its own risk management. In that case, consideration should be given to using major international finance houses to undertake the transactions. However, it is important that there exists a sufficient degree of understanding within the government or the organisation of the principles of financial risk management so that the activities of the external agent are understood and monitored.

Conclusions

The failure of all but one international commodity agreement, and more generally, the antipathy of developed countries towards international commodity price stabilisation measures have put the ball of management of commodity price risks firmly in the service court of the developing countries themselves. However, the economic

reforms underway in most of the developing countries have often meant the abandoning of domestic price stabilising arrangements through government instrumentalities such as marketing boards. International commodity price risks have therefore been pushed onto commodity producers and consumers. Aside from self-insurance arrangements such as holding reserves and activity diversification, the only means for commodity producers and consumers to insure their international price risk is through the use of international financial markets. However, as well as lack of knowledge of such markets and their use, there are many other obstacles in the way of developing countries taking advantage of them.

Developing countries can do quite a bit to improve accessibility to financial markets—mainly in the way of removing regulatory and institutional barriers to the securitisation of commodity stocks, and the freeing up of international transactions in both commodities and foreign currency. However, there will remain substantial limitations on developing countries being able to use financial markets for commodity price risk management and enhancing their creditworthiness. The financial markets are incomplete in terms of coverage of commodities and grades of commodities and in terms of hedging horizons. Some of these gaps are being filled and there are prospects for further improvements, especially as developing countries develop greater interest in these markets. The other major problem area is country creditworthiness. This is a particular problem for use of long-dated instruments. In some cases, this problem has been overcome by offering tangible security, e.g., offshore escrow accounts. However, sharing clauses and negative pledge clauses in loan agreements, particularly of the multilateral banks, place some restrictions on the use of such facilities.

Commodity producers will normally not be in a position to access international financial markets, even in the best of circumstances. Private sector intermediaries such as farmer associations, exporter groups, and domestic banks can develop to fill this role. However, there is need for substantial education on the role of financial markets at all levels—producers, consumers, intermediaries and governments. The design and implementation of a coherent strategy for the management of commodity price risk needs to involve: (i) analysis of the incidence of exposure to price risks; (ii) an examination of the regulatory and institutional systems in place and identification of changes needed to give appropriate incentives to the management of price risk; (iii) examination of the legal and regulatory systems to identify any barriers to the free movement of commodities and foreign currency and the securitisation of commodity stocks; and (iv) identification of other measures for improving country creditworthiness.

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