

Chapter 11

Global Food Commodity Price Volatility and Developing Country Import Risks

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Abstract The world food price spike of 2007–2008 raised to the fore the issues of how countries can manage their basic staple food imports in times of crises. There are many risks to food imports, ranging from price risks to risks of non-performance and hence threats to domestic food supplies. The chapter first provides a review of the risks and food import access problems faced by various low and middle income net food staple importing countries and reviews pertinent policies to deal with them. A short review of some institutional issues in food importing is given to introduce more detailed discussion of food import risk management. Then a proposal for a food import financing facility designed to alleviate the financing constraint of many developing food-importing countries is presented.

11.1 Introduction

The sudden and unpredictable increases in many internationally traded food commodity prices in late 2007 and early 2008 caught all market participants, as well as governments by surprise and led to many short-term policy reactions that may have exacerbated the negative impacts of the price rises. On the basis that such interventions were in many cases deemed inappropriate, many governments, think tanks and individual analysts have called for improved international mechanisms to prevent and/or manage sudden food price rises. Similar calls for improved disciplines of markets were made during almost all previous market price bursts, but were largely abandoned after the spikes passed, largely because they were deemed difficult to implement. However, the fact that the later downturn in prices coincided with a global financial crisis, which in itself has contributed to increasing levels of poverty and food insecurity, appears to have galvanised attention on the issues facing global agricultural markets. The purpose of this chapter is to discuss issues relevant to assessing price volatility and managing food staple import risks, especially by developing food commodity importing countries.

The financial crisis that started to unravel in 2008 coincided with sharp commodity price declines, and food commodities followed this general trend. The

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price volatility has, therefore, been considerable. For instance, in February 2008, international wheat, maize and rice price indices stood higher than the same prices in November 2007, only 3 months earlier, by 48.8, 28.3 and 23.5% percent, respectively. In November 2008, the same indices stood at -31.9, -3.2 and 52.3% higher respectively, compared to November 2007. In other words within 1 year these food commodity prices had increased very sharply and subsequently declined (except rice) equally sharply. Clearly such volatility in world prices creates much uncertainty for all market participants, and makes both short- and longer-term planning very difficult. Analyses of food commodity market volatility indicate that, albeit not unusual from a historical perspective, this volatility is likely to continue and possibly increase in the future due to new factors, external to the food economy (Sarris, 2009, 2010). Food market instability can also lead to various undesirable short- and long-term impacts, especially for vulnerable households, as several studies have documented (e.g. Ivanic and Martin, 2008, and several other studies in the same special issue of the journal *Agricultural Economics*).

Staple food commodity price volatility, and in particular sudden and unpredictable price spikes, creates considerable food security concerns, especially among those, individuals or countries, who are staple food dependent and net buyers. These concerns range from possible inability to afford increased costs of basic food consumption requirements, to concerns about adequate supplies, irrespective of price. Such concerns can lead to reactions that may worsen subsequent instability. For instance, excessive concerns about adequate supplies of staple food in exporting countries' domestic markets may induce concerned governments to take measures to curtail or ban exports, thus inducing further shortages in world markets and higher international prices. The latter in turn may induce permanent shifts in production and/or consumption of the staple in net importing countries, with the result that subsequent global supplies may increase and import demands may decline permanently altering the fundamentals of a market.

The recent food market spike occurred in the midst of another important longer-term development. Over the last two decades, there has been the shift of developing countries from the position of net agricultural exporters – up to the early 1990s – to that of net agricultural importers (Bruinsma, 2003). Projections to 2030 indicate a deepening of this trend (ibid.), which is due to the projected decline in the exports of traditional agricultural products, such as tropical beverages and bananas, combined with a projected large and growing deficit of basic foods, such as cereals, meat, dairy products, and oil crops. According to the latest FAO figures (FAO, 2010), in 2009/2010 global imports of all cereals were 261.8 million tons, 201.7 million tons of which were imports of developing countries. Within developing countries, those classified as Least-Developed Countries (LDCs) have witnessed a fast worsening of their agricultural trade balance in the last 15 years. Since 1990, the food import bills of LDCs have not only increased in size, but also in importance, as they constituted more than 50% of the total merchandise exports in all years. In contrast, the food import bills of other developing countries (ODCs) have been stable or declined as shares of their merchandise exports (FAO, 2004).

Table 11.1 Developments in African agricultural import dependence 1970–2004

	1969–1971	1979–1981	1989–1991	2002–2004
<i>Share of agricultural imports in total imports of goods and services</i>				
North Africa	20.4	4.8	3.5	3.4
Sub-Saharan Africa: LDC	38.4	22.2	19.6	15.1
Sub-Saharan Africa: Other	33.5	20.9	21.4	15.9
Africa	33.3	18.5	17.3	13.2
<i>Share of agricultural imports in total merchandise imports</i>				
North Africa	23.9	24.2	23.0	17.5
Sub-Saharan Africa: LDC	21.5	22.2	25.9	27.3
Sub-Saharan Africa: Other	17.4	14.8	14.2	18.1
Africa	20.6	20.3	22.4	23.7
<i>Share of food imports in total exports of goods and services</i>				
North Africa	14.4	18.3	13.2	9.9
Sub-Saharan Africa: LDC	37.6	28.2	30.2	34.9
Sub-Saharan Africa: Other	14.1	8.7	6.8	11.1
Africa	24.1	18.8	17.9	20.9

Source: Author's calculations from FAO data

This trend has been particularly pronounced for Africa. Table 11.1 indicates that during the period 1970–2004, the share of agricultural imports in total imports of goods and services has declined, but the share of imports in total merchandise imports has increased, with the exception of North Africa. More significantly, the share of agricultural imports in total exports of goods and services, an index that can indicate the ability of the country to finance food imports, while declining from 1970 to 1980 and 1990, has increased considerably from 1990 to 2002–2004. This suggests that agricultural (mostly food commodity) imports have necessitated a growing share of the export revenues of African countries.

Among Asian developing countries, by contrast, over the same time period the share of agricultural imports in total imports of goods and services has declined from 33.0 to 7.8%, and the share of total food imports in total exports of goods and services has declined from 15.5 to 7.1%. Hence, Asian developing countries' food imports have not increased beyond their capacity to import them. In Latin America and the Caribbean (LAC), agricultural imports are on average less than 20% of total merchandise imports. The above suggests that the issue of growing food imports with inability to pay is mostly an African LDC country problem.

The medium-term food outlook indicates that based on current estimates developing countries will increase their net food imports by 2018 in all products except vegetable oils (OECD-FAO, 2010). Similarly, LDCs are projected to become an increasing food deficit region in all products and increasingly so. Clearly this suggests that as LDCs become more dependent on international markets, they will become more exposed to international market instability.

The conclusion of this descriptive exposition is that many developing countries and especially LDCs in Africa have become more food import dependent, without

becoming more productive in their own agricultural food producing sectors, or without expanding other export sectors to be able to counteract that import dependency. This implies that they may have become more exposed to international market instability and hence more vulnerable.

An analysis by Ng and Aksoy (2008) supports the above observations. It reveals that of 184 countries analysed with data for 2004/2005, 123 were net food importers, of which 20 were developed countries, 62 middle income countries and 41 low income countries. From 2000 to 2004/2005, more low income countries have become net food importers. They revealed that the 20 middle income oil exporting countries are the largest food importers, and that their net food imports have increased significantly. This is the group that is most concerned about reliability of supplies rather than cost of imports. They also revealed that several small island states (which are generally middle income countries) and low income countries (LICs mostly in Africa) are most vulnerable to food price spikes. Analysis of recent data indicates that among the non-grain exporting oil exporters the average share of cereal imports to total domestic supply is 56%. Among small island developing states (SIDS) the same average is 68%.

In light of the above developments, it seems that the problem of managing the risks of food imports has increased in importance, and is already a major issue for several LDCs and low income food deficit countries (LIFDCs).¹ The major problem of LIFDCs is not only price or quantity variations per se, but rather major unforeseen and undesirable departures from expectations, that can come about because of unanticipated food import needs due to unforeseen adverse domestic production developments, as well as adverse global price moves. In other words, unpredictability is the major issue. This is also the gist of the argument of Dehn (2000), who argued that the negative impacts on growth of commodity dependent economies come from unanticipated or unpredictable shocks, rather than from ex post commodity instability per se.

Apart from the problem of unpredictability of food import bills for LIFDCs, another problem that surfaced during the recent food price spike was the one of reliability of import supplies. Several net food importing developing countries (NFIDCs) that could afford the cost of higher food import bills, such as some of the middle income oil exporting countries and small island states mentioned above, faced problems of not only unreliable import supplies but also the likelihood of unavailability of sufficient food import quantities to cover their domestic food consumption needs. This raises a different problem for these countries, namely the one of assurance of import supplies. Several of these countries, e.g. those surrounding

¹LIFDCs are a FAO classification. The latest list of May 2009 includes 77 countries. The list of LDCs is one used by the United Nations (UN) and as of May 2009 includes 50 countries. All but 4 LDCs are also included in the LIFDC list. The list of NFIDCs is a World Trade Organization (WTO) group, which as of May 2009 includes all 50 LDCs and another 25 higher income developing countries, for a total of 75 countries. Of the 25 extra countries in this list only 8 are in the FAO list of LIFDCs, the others being higher income countries. The Low Income Countries (LICs) is a World Bank classification of 53 countries that overlaps significantly with the UN list of LDCs.

the Arab Peninsula and the Persian Gulf, have unfavourable domestic production conditions and rely on imports for a substantial share of their domestic consumption. Unavailability of supplies creates large food security concerns for these countries.

The issue of food import risk for LIFDCs has been discussed extensively for some time, especially after the commodity crisis of the early 1970s. Several proposals for international food insurance schemes were put forward in that period (for an early review see Konandreas et al., 1978). The issue of financing of food imports by LIFDCs featured prominently in the discussions leading to the World Trade Organization (WTO) Uruguay Round Agreement on Agriculture (URAA), and gave rise to the *Decision on measures concerning the possible negative effects of the reform programme on least-developed and net food-importing developing countries*, also known as the “Marrakesh Decision” (article 16.1 of the URAA). However, no progress relating to this decision has been made since then.

The rest of the chapter proceeds as follows. In the next section, some conceptual issues pertaining to price volatility is discussed. Subsequently a review is presented of the risks and food import access problems faced by various countries including LIFDCs and NFIDCs, and issues pertinent to policies to deal with them. Subsequently a short review of some institutional issues in food importing is presented. Then a proposal is discussed for a Food Import Financing Facility designed to alleviate the trade finance constraint that seems to affect LIFDCs. The final section concludes.

11.2 Some Conceptual Issues Relevant to Price Volatility

Market volatility normally refers to variations of market prices from period to period. As such it is an ex-post concept, in the sense that everyone can observe the market variations. However, what matters for both market participants as well as policy makers are not the market price variations *per se*, but their unpredictability, and the risks they create. Clements and Hendry (1998) define unpredictability of a variable x with respect an information set S , as the inability of the information set to make a difference in any estimate of the variable. More formally, this implies that the conditional probability distribution of the variable, given the information set, is exactly the same as the unconditional probability distribution of the variable. In other words knowledge of the information in S , does not improve prediction, and does not reduce any aspect of uncertainty about the variable x . This notion of unpredictability does not imply that various market agents do not have or do not use information about the future variable. It just implies that despite all the previous knowledge and information about the variable and the process governing it, there are some elements of the process determining x that cannot possibly be known ex ante.

Uncertainty of the variable x , when looked at from some period before its realisation, is basically a summary measure of the unpredictable elements in the process determining x , that are likely to occur between the time of the prediction and the time of realisation of the variable x . For instance, if a producer is contemplating

producing a crop, he/she may know the basic process (the model) that determines the yield and the price of the commodity, but he also knows that there are elements of this process, such as rainfall and future price, that cannot possibly be predicted say 1 year ahead. These unpredictable elements are what create the uncertainty about the outcome of his action to produce the crop. Uncertainty then depends on how far into the future one is interested in the variable of interest.

Risk, in turn is generated by uncertainty. In other words, risk is generated by actions whose outcomes are subject to uncertainty. In the case of the producer, he knows that production of a crop is uncertain. As long as he does not produce the crop he is not at risk. If, however, he decides to produce it, he places himself at risk, as the outcome of the crop affects his income and welfare. Thus it is unpredictability that defines uncertainty, and it is the actions that have uncertain outcomes that create the attendant risks. In the face of uncertain outcomes and prices, agricultural producers, for instance, tend to reduce the risks facing them, by diversification, namely by producing a less uncertain mixture of products.

The detrimental effects of uncertainty or unpredictability on both private agents, as well as governments are not hard to understand, and have been the object of both discussion as well as research for a long time. For instance, Keynes (1942) argued that commodity price fluctuations led to unnecessary waste of resources, and, by creating fluctuations in export earnings, had a detrimental effect on investment in new productive capacity and tended to perpetuate a cycle of dependence on commodities, what we may call in modern growth terminology a “commodity development trap”.

While Keynes viewed the issues largely from a macro perspective, in recent years his argument has been refined and applied to the microeconomics of households facing risks, but the concepts can easily be adapted to the problems of commodity dependent developing countries. All the recent literature is based on the idea that poor households are liquidity constrained, in the sense that they cannot easily borrow to smooth out any major income shocks (for the definitive paper on consumption and saving behaviour under liquidity constraints, see Deaton, 1991). This is the major and realistic departure from earlier work on commodity stabilisation, which assumed that commodity markets could be costlessly stabilised, and/or that agents (governments or households) could borrow to smooth shocks.

The basic insight of all the recent literature is that the presence of uncertainty, when there is inability to borrow to smooth negative income shocks, leads agents to accumulate liquid precautionary reserves, much like earlier analysts such as the economists cited above suggested that governments should do to deal with the undesirable commodity shocks. The difference from earlier research is first that on average the level of buffer stocks that must be carried is positive, even if the probability distribution of future outcomes is known with certainty. The second difference is that in poor country environments, these reserves must be liquid enough, in order to be readily accessible in times of need. This positive and liquid level of reserves implies that the resources devoted to buffer stocks or what has been termed “consumption smoothing” cannot be used for productive but illiquid investments, and it is this that leads to the negative impact on overall growth.

The above discussion implies that mere variability of outcomes does not constitute uncertainty, and may not be detrimental. This issue of uncertainty versus mere ex-post variability is important in the discussion of this chapter, as compensatory schemes like STABEX, as well as the IMF's Commodity Compensatory Financing Facility (CCFF) have adopted a notion of uncertainty that is related to the mere ex-post variability or fluctuations of outcomes such as export earnings or import costs, rather than to their predictability. More recently, there have been efforts to construct indices that correspond more closely to the theoretical notion of uncertainty, namely the notion of unpredictability. Dehn (2000), in the most detailed study to date, constructs an index of price instability that distinguishes between negative and positive shocks, and finds, as expected theoretically, that negative commodity price shocks have a significant negative effect on overall economic growth. This is the first study to establish a strong negative empirical link between negative unanticipated shocks and overall economic growth.

That unpredictability rather than instability is the main problem in agricultural production is one of the oldest, but apparently forgotten or not appreciated, issues in agricultural economics. In fact one of the earliest classic works in agricultural economics considered exactly the issue of agricultural price unpredictability and the benefits of establishing forward prices for producers (Johnson, 1947). By establishing forward prices for agricultural producers, one basically eliminates one of the most troublesome and potentially damaging sources of income unpredictability, and makes producers able to plan better their activities.

Establishing predictability in agriculture has been one of the earliest institutional developments of the modern era in developed countries. In fact the modern US agricultural marketing system realised very early the benefits of a market based system of forward prices, and through the simple system of warehouse receipts, emerged one of the most sophisticated and useful marketing institutions in modern agriculture, namely the institution of futures markets. It is not perhaps coincidental that futures markets developed independently in several countries and long time ago. In more recent years, the development and globalisation of financial markets has led to the proliferation of many other risk management commodity related instruments, notably options, and weather-related insurance contracts. While in some developed countries the marketing system response to unpredictability has been the establishment of sophisticated forward markets, in most other countries, both developed and developing, the response of producers, and through their pressure of governments, has been the institution of fixed or minimum price marketing arrangements.

In principle, such minimum fixed price schemes, can be viable, and logically justified, if there is a good mechanism of predicting future prices. The major problem, however, of most such schemes is not that they are in principle wrong, but that they have most often been transformed to price support or taxation instruments that have veered off their purpose of providing forward signals and minimum prices based on proper predictions. Examples abound in both the developed countries (e.g. the consequences of the expensive and inefficient EU-based agricultural price supports are well-documented), as well as developing ones (e.g. the large implicit taxation involved in much of African export agriculture). The consequence for developing

countries is that now, under pressure from donors, the older and inefficient marketing systems that provided some price predictability have been abolished, without any new system in their place.

It, therefore, appears that a major issue in post-adjustment agriculture in most developing countries is how to establish some forward pricing or insurance system for agricultural producers and governments without distorting the markets. Once such forward mechanisms can be established, then one can talk about systems of insurance or systems of compensation.

11.3 Risks Faced by Food Importers

Policies for the effective management of price booms differ depending on whether the shock affecting the country is transitory or permanent. Factors to consider are the following: (i) Does the price shock have its origins in factors external to the country, such as world markets, or in domestic production supply imbalances in the markets concerned? (ii) How transitory are the factors that have led to the price shock? (iii) What is the level of uncertainty concerning the factors that may influence the future course of prices? The answers to these questions are not easy, and there may be legitimate differences of opinion among analysts concerning such assessments.

The second issue concerns the possible impacts of the price shock on the country's economy and its citizens. The impact of increasing prices on the wider economy is determined by a number of structural characteristics. Typically, low income food importing countries that are dependent on foreign aid and are characterised by high levels of foreign debt are the most vulnerable to positive food price shocks. Food price increases will directly affect consumption, increasing the incidence of poverty, as well as government expenditure and borrowing, thus worsening debt sustainability. The deterioration of the terms of trade may result in destabilising the economy and hinder economic growth. In the long run, given that countries implement appropriate policies to stimulate agricultural production, supply response to high prices may partly offset this negative impact.

The potential adverse effects of high commodity prices are not restricted to low income food importing countries. Economic insight suggests that exporting countries may experience long-run negative consequences at the macroeconomic level. For these countries, the most frequently cited negative consequence is that of exchange rate appreciation causing a contraction in the non-commodity sector of a commodity exporting economy. Unless the institutional environment in a country assists investment opportunities, high prices may have no permanent impact on the sector.

At the micro level, inhabitants of a country will be affected differently by high food prices. While generally urban households that are net staple food buyers will lose, as they have to pay more to keep adequate diets, many rural households, especially those that are substantial producers of staple foods will benefit. Households react differently to price booms depending on whether they are urban, or rural,

as well as on their initial endowment and production structure, their consumption patterns, the constraints they face in terms of investment and the policies that are in force. While poor urban households constitute the most vulnerable population group, poor households in the rural areas may also be negatively affected depending on how they adjust to increasing prices, in terms of changes in production, consumption and savings. On the one hand, if household consumption and activities are not conditioned by credit constraints, income windfalls can be invested, resulting in consumption and welfare increases.

If households face credit and liquidity constraints, as most poor rural households in developing countries do, price boom windfalls can be consumed right away. Thus, price increases may benefit a number of net producing households, leave other households unaffected in the long run or significantly worsen the welfare of some net consuming and inadequate food producing households. Moreover, price booms are often associated with increased price and general market volatility that may affect income and investment decisions. Finally, the extent of infrastructure development, the availability of credit markets and extension services and the policy environment are crucial factors in the management of price booms by households. For example, well functioning credit markets will allow producers to invest amounts higher than their household savings permit, whilst targeted extension services can assist households in making appropriate investment choices.

Any adopted policy measure should not try to protect or benefit one vulnerable group by damaging the benefits to another poor constituency. In this context, it is important to ascertain the extent to which price signals are transmitted to the domestic markets, the identification of vulnerable population groups that can be targeted for support, as well as the agricultural sector's ability to respond to increasing prices. The macroeconomic environment is also important in formulating policy options. Important indicators consist of the composition of the current account of the balance of payments, the terms of trade, the movements of exchange rates, the country's foreign borrowing requirements and the fundamental characteristics of the domestic labour market.

The third issue that is imperative before a country adopts specific policy measures is to ascertain and be clear about the objective of the policy. Too often policy measures are adopted with a very narrow objective, and may end up affecting negatively other areas of equally important domestic concern. Also if the objective is known and generally agreed upon, then any policy measure can be judged against others that may offer similar benefits, but with smaller side effects or negative secondary consequences. Finally, if there are more than one policy objectives, it may well be that a combination of measures is necessary to simultaneously achieve all of them.

The reactions to the recent price boom suggest that policy reactions to the food price surge have been prompt, with governments in many developing countries initiating a number of short-run measures, such as reductions in import tariffs and export restrictions, in order to harness the increase in food prices and to protect consumers and vulnerable population groups. Other countries have resorted to food inventory management in order to stabilise domestic prices. A range of interventions have also

been implemented to mitigate the adverse impacts on vulnerable households, such as targeted subsidised food sales (Rapsomanikis, 2009).

Demeke et al. (2009, "Country responses to the food security crisis: nature and preliminary implications of the policies pursued", Unpublished paper, FAO Initiative on Soaring Food Prices) made a review of policies adopted in response to the recent food price spike and they indicate that the responses of developing countries to the food security crisis appear to have been in contrast to the policy orientation most of them had pursued over the last decades as a result of the implementation of the Washington consensus supported by the Bretton Woods Institutions. This period had been characterised by an increased reliance on the market – both domestic and international – on the ground that this reliance would increase efficiency of resources allocation, and by taking world prices as a reference for measuring economic efficiency. The availability of cheap food on the international market was one of the factors that contributed to reduced investment and support to agriculture by developing countries (and their development partners), which is generally put forward as one of the reasons for the recent crisis. This increased reliance on markets was also concomitant to a progressive withdrawal of the state from the food and agriculture sector, on the ground that the private sector was more efficient from an economic point of view.

The crisis has shown some drawbacks of this approach. Countries depending on the world market have seen their food import bills surge, while their purchasing capacity decreased, particularly in the case of those countries that also had to face higher energy import prices. This situation was further aggravated when some important export countries, under intense domestic political pressure, applied export taxes or bans in order to protect their consumers and isolate their prices from world prices.

As a result, several countries changed their approach through measures ranging from policies to isolate domestic prices from world prices; moving from food security based strategies to food self-sufficiency based strategies; by trying to acquire land abroad for securing food and fodder procurement; by trying to engage in regional trade agreements; or by interfering with the private markets through price controls, anti-hoarding laws, government intervention in output and input markets etc.

Before one discusses any mechanism to manage food import risks it is important to ascertain the types of risks that are relevant to food importers. Food imports take place under a variety of institutional arrangements in developing countries. A study by FAO (FAO, 2003) contains an extensive discussion of the current state of food import trade by developing countries. It notes that while in some LIFDCs state institutions still play a very important role in the exports and imports of some basic foods, food imports have been mostly privatised in recent years, although with some exceptions, and in some countries, state agencies operate alongside with private importers.

A public sector food importer, namely a manager of a food importing or a relevant food regulatory agency each year faces the problem of determining the requirements that the country will have to satisfy the various domestic policy

objectives. Such objectives may include domestic price stability, satisfaction of minimum amount of supplies, demands to keep prices at high levels to satisfy farmers or low to satisfy consumers and many others relevant to various aspects of domestic welfare. For instance, if the government of the country needs to keep domestic consumer prices of a staple food commodity stable at some level p_c then an estimate of domestic requirements in a year t could be given by a simple formula such as

$$R_t = D(p_{ct}) - Q_t \quad (11.1)$$

where R denotes the yearly requirements, $D(\cdot)$ the total domestic demand of the commodity (which will, of course, depend on other variables than just price), and Q denotes the domestic production. Private stockholding behaviour would be part of the demand estimates in Eq. (11.1).

The problem of the manager of the food agency is fourfold. First there needs to be a good estimate of the requirements. This is not easy for several reasons. First estimates of domestic production are not always easy, and more so the earlier one needs to know them. While richer countries have developed over time sophisticated systems of production monitoring, this is not the case for developing countries, especially those that are large and obtain supplies from a large geographical area. Another problem in assessing requirements concerns the estimates of domestic demand, which are also subject to considerable uncertainties. These uncertainties involve the other variables that enter the demand of the staple, such as disposable incomes, the prices of substitute staples, the behaviour of private stocks and many other variables. Clearly these errors are larger the longer in advance one tries to make an estimate of domestic requirements, and the less publicly available information exists about the variables that determine demand.

The second problem of the public sector food agency manager, once the domestic requirements have been estimated, is to decide how to fulfil them, namely through imports, or by reductions in publicly held stocks, if stockholding is part of the agency's activities. A related problem is the risk of non-fulfilment of the estimated requirements which may cost domestic social problems and food insecurity. The third problem of such an agent is how to minimise the overall cost of fulfilling these requirements, given uncertainties in international prices and international freight rates, and to manage the risks of unanticipated cost overruns. For instance, if the agency imports more than is needed, as estimated by ex-post assessment of the domestic market situation, then the excess imports will have to be stored or re-exported and these entail costs. Finally, but not least, and related to the overall cost of fulfilling the requirements, the agent must finance the transaction, either through own resources, or through a variety of financing mechanisms.

In many countries, the State has withdrawn from domestic food markets, and it is private agents who make decisions on imports. The problem, however, of private agents, is not much different or easier than that of public agents. A private importer must assess with a significant time lag, the domestic production situation, as well as the potential demand just like a public agent, and must plan to order import supplies so as to make a profit by selling in the domestic market. Clearly the private

importer faces risks similar to those of the public agent, as far as unpredictability of domestic production, international prices, and domestic demand are concerned, and in addition faces an added risk, namely that of unpredictable government policies that may change the conditions faced when the product must be sold domestically. During the recent food price crisis, surveys by FAO documented the adoption of many short-term policies in response to high global staple food prices, which must have created considerable added risks for private sector agents. Furthermore, the private agent maybe more credit and finance constrained than the public agent. In fact the study by FAO (2003) indicated that the most important problem of private traders in LIFDCs is the availability of import trade finance.

The outcome risks (welfare or financial losses for instance) faced by the various food import agents depend considerably on the extent to which their operations and actions depend on uncertain and unpredictable events. Apart from the domestic uncertainties, like production and demand unpredictability, the main external uncertainty facing food importers is international price variability and hence unpredictability. International prices for importable staple commodities are quite variable, as they respond to fast shifting global market fundamentals and information. In the context of the events of the last 2 years, it is interesting to examine the evolution of world market price volatility. Figure 11.1 plots the indices of annualised historic volatilities (estimated by normalised period to period changes of market prices) of nominal international prices of the basic food commodities (wheat, maize and rice) over the previous five decades. The figure also exhibits the nominal international prices on the basis of which the indices of volatility are determined. The reason for the juxtaposition of the two types of information is to examine visually the relationship between the level of commodity prices and the market volatility. It has

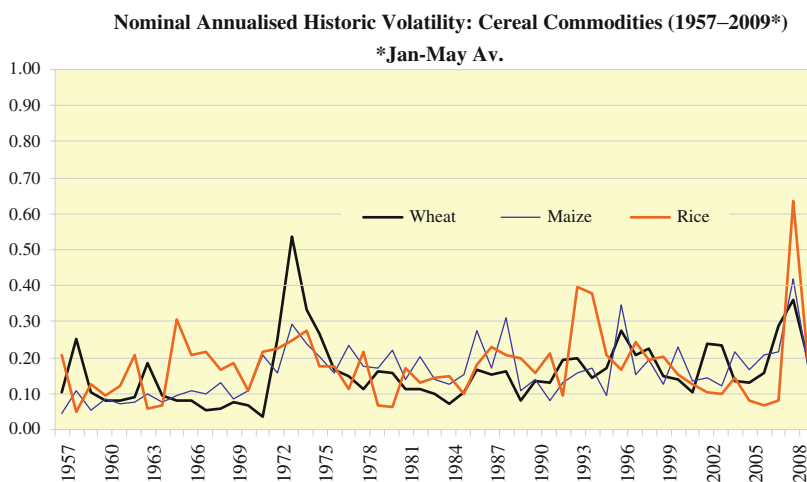


Fig. 11.1 Historic volatility of international prices for the major cereal commodities 1957–2009.
Source: FAO Trade and Markets Division

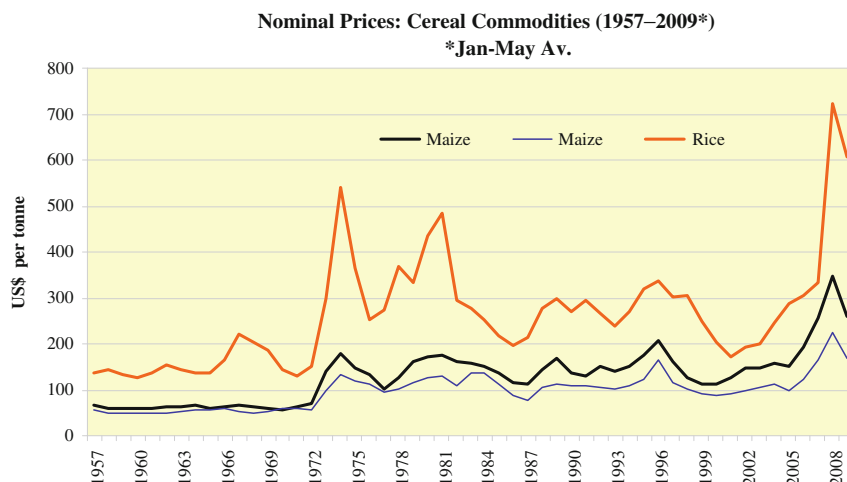


Fig. 11.2 Historic nominal international prices for the major cereal commodities 1957–2009. *Source:* FAO Trade and Markets Division

been known for a long time since Samuelson's classic article (Samuelson, 1957) that in periods of price spikes, overall supplies are tight, and market volatility should be higher, hence the expectation is that during periods of price spikes the index of market volatility should exhibit a rise as well.

A most notable characteristic of the plots in Fig. 11.2 is that historic volatility (as an index of market instability) of most food commodities, while quite variable, appears not to have grown secularly in the past five decades. However, this is not the case for rice. During the most recent boom of 2007–2008, the volatilities of all three commodities appear to have increased markedly. These observations, while only visual, and need to be corroborated with appropriate econometric analysis, suggest that volatility tends indeed to increase during price spikes, just as theory predicts. This suggests that unpredictability increases during periods of prices spikes, and this makes problems of managing import risks more difficult. If the data is plotted in real terms the conclusions are the same, suggesting that volatility issues are not affected by whether one uses nominal or real prices.

The above discussion pertains to risks faced by food importers, whether public or private, in determining their appropriate trade strategies, whether these involve imports only or imports and stock management. However, once the level of imports needed is determined, there are two additional risks faced by import agents, apart from the price risk. The first is the financing risk, namely the possibility that import finance may not be obtainable from domestic or international sources. This is the risk identified as most crucial by the FAO (2003) study for agents in LIFDCs. The second risk is counterparty performance risk, namely the risk that a counterparty in an import purchase contract will default and fail to deliver. This latter risk is one that came to the fore during the recent price spike, and can be due to both commercial

and non-commercial factors. Commercial factors may include the inability for the supplier to secure the staple grain at the amount and prices contracted because of sudden adverse movements in prices. Non-commercial factors include things such as export bans, natural disasters or civil strife, in the sourcing country that may render it impossible to export an agreed upon amount of the staple.

11.4 Some Institutional Issues of Importing Staple Foods and Risks Involved

International staple food commodity trade, even though it involves relatively low or no levels of transformation of the raw material, is a complicated business. The stages involved start with the collection of the staple from producers, warehousing and transporting to port, sea transport, port unloading and warehousing at destination, transporting and/or processing in the destination country, warehousing there and finally selling to the final buyer. The full cycle takes normally 3–6 months, and many times longer, hence it involves considerable risks over the period from which the two parties to a transaction (seller and buyer) enter into some kind of contractual agreement for a transaction and the final settlement of goods delivery and payment.

For an importer (public or private) who estimates that he will need to have a specific quantity of imports available at a given future time t (for ease of exposition t is measured in months), and given that the time lag between contracting a transaction and delivery is some months, the process starts several months ahead, with a decision to contract for local delivery some months in the future. A first decision that must be made by the importer is the number of months to contract ahead of the actual delivery of the anticipated quantities at t . In most countries, international grain importing is done through the use of spot tenders for a set of specified contract requirements (quantity, quality, etc.). These involve a short period (1–2 weeks) before the tender's closing date, and this is done so as to minimise the risk of the counterparty to the transaction to renege on an agreed contract awarded.

For an importer who has decided on a given level of imports, there are three major risks. The first is the risk of unanticipated movements in prices. The second is the counterparty risk of non-delivery of the agreed supplies. A major factor in contract defaults is adverse price movements that have not been hedged adequately by supplier, so price risk is a major factor in counterparty delivery risk. The third is the risk of adverse financial developments that are not adequately foreseen, such as credit related constraints or sudden changes in the country's or the financing bank's conditions.

The advantage of the spot tender is that the risk of anything going wrong, whether its price change or any other event that may impinge on the contract, is small, given the short amount of time between the award of the tender and actual delivery. However, in periods of market upheaval as in the last 2 years, the risk of counterparty default increases considerably for spot tenders. This is because any trader who wins

the tender, unless already assured of supplies, either through own supplies already in warehouse or through already committed purchases, may choose to renege on a contract, in the face of adverse price movements, if he has not covered adequately the price risk of the transaction. An alternative is to plan several months in advance, with a forward contract. While such a contract will diminish the counterparty risk of not finding enough supplies, it will increase the price risk, which if not covered adequately, may be detrimental to the importer. Another alternative to a spot or forward contract is a longer-term contract for regular deliveries. Such a contract allows considerable room for forward planning on both the importer and the supplier sides, but it can only be done when there is a clear knowledge of regular and recurrent needs for a particular product.

Another way for the importer to lessen the counterparty risk is to arrange for a third party to take part of the risk. This can usually be a bank which could provide an Over the Counter (OTC) delivery contract. While banks are not usually physical traders, they may be able to ensure better the performance of such contracts by contracting with suppliers in exporting countries and basically lessening the risks to the buyer.

The financing of imports and managing the risk of the financing provided is a very complicated business and involves a variety of agents. An excellent discussion of the various institutional arrangements can be found in FAO (2003). One may start by reviewing the principal payment methods for international trade, which range from open account-clean draft payment terms, namely payment upon shipment or arrival, to a variety of deferred payment terms, such as open account-extended payment, consignment, irrevocable letter of credit, cash in advance and many others. All of these payment terms involve a variety of financing arrangements, such as seller's credit (deferred payment from buyer) which give rise to trade bills and traders' acceptances, issuance of letters of credit by local importer country banks, bank loans to importers and others. Depending on the terms of financing, the cost and risks of these financing arrangements differ.

The major conclusion of the survey on financing of food imports done by FAO (2003) was that the major problem for developing country food imports is the existence of significant financial constraints in developing countries that may prevent the local agents, public or private to import the full amounts that they deem appropriate for their operations.

11.5 Policies to Manage Food Import Risks

There are four ways to manage the food import risks. The first involves *avoiding or reducing* the risk altogether. This can only be done if there is no need for imports. For a public agency this can be done only if a policy of food self-sufficiency or near food self-sufficiency for the relevant staple is pursued by the government, perhaps combined with a policy of domestic stock management to control domestic consumer prices. Lower import dependence leads to less vulnerability in terms of

import price spikes, but a rearrangement of domestic production structure, which may not be efficient. Hence, there exists a trade-off between avoiding the excessive reliance on variable and risky imports in order to assure more reliable staple food supplies, and avoiding skewing the domestic production pattern towards commodities, which may not ensure adequate profitability to producers or comparative advantage to the country. For an early illustration of this idea applied to a developing food importing country (Egypt) country see Sarris (1985). For a private agent, avoiding import risk can be done if the agent decides not to import at all.

The second way to manage the food import risk is to attempt to *change the fundamentals of supply and demand* by manipulating directly the markets that create those risks. For instance, if prices are unstable, then one way to deal with this problem is to try to stabilise prices. This attitude to dealing with risks was in fashion in earlier periods, when it was thought that direct commodity control was the proper way to deal with commodity market risk. Domestic control of agricultural markets was the dominant paradigm for a long time in many countries, and is still practiced widely in several countries (including many developed ones). The experience of international commodity control was disappointing (Gilbert, 1996) and is justifiably not currently regarded as an option. Domestic price control of commodities through either trade policy or direct market intervention has also proven to be very expensive, either financially or from a growth perspective. The reason is that it invariably distorts long-term market signals, and hence affects the allocation of resources, with likely adverse consequences for growth. It also turns out to be very costly as Deaton (1999) has very convincingly shown, and as developed country governments in the EU and the US have found out.

The third way to manage food import price risks is to *transfer some of the risk to a third party for a fee*. This is the standard approach to insurance, where a well-defined event and related risk is identified first, and then insurance is purchased against the eventuality of the risk materialising. Insurance depends considerably on the ability to identify the risks to which the agent is exposed (which involves not only the specific events, but also the probability distribution of their occurrence) and which are important for the agent, and the availability of insurers who are willing to provide the insurance for a reasonable and affordable premium. Usually insurance can be provided for events for which a probability distribution can be ascertained, and is readily observable, and for risks that can be pooled across a wide range of insured agents. Insurance can be much more easily provided (privately or publicly) for risks that are idiosyncratic and hence can be pooled together by an insurer, such as individual health risks, than for events that are “covariate”, namely, affect a wide range of agents simultaneously.

Food imports are affected by both idiosyncratic risks (namely, those that are particular to a country at any one time, such as production shortfalls), as well as covariate, such as global price shocks that affect all importers simultaneously. Global covariate risks create systemic risk problems, and hence may need global solutions. Recently Sarris, Conforti and Prakash (2011) have shown that developing food importers could have reduced considerably the unpredictability of their food commodity imports in the past, and could have had a lower import cost over the past

20 years, including the period of the recent crisis, if they had relied on continuous hedging through organised futures and option markets.

The fourth way to manage food import risks is to *do none of the above* and just cope with whatever the situation in every period maybe. In other words “bend with the wind”. Such a strategy requires the ability to adjust one’s situation to cope with the unexpected event. For instance, if an agent has enough financial resources, and high prices just involve higher cost of imports, then the agent may just pay the higher prices. If the agent faces unavailability of enough import supplies then this will imply reduced domestic consumption with whatever consequences this may have. Clearly this may not be an acceptable option in many country situations.

The major competition in managing food import risks has been between approaches two and three above. For a long time governments considered that the best way to reduce commodity price instability was to intervene in the markets and try to stabilise them. Instability was considered a problem that had to be dealt with by eliminating it or reducing it. While some countries have been successful at doing this (the EU through the Common Agricultural Policy, many Asian countries through parastatals etc.) many others, especially those in Africa, in the course of controlling markets, had rather adverse impact on market functioning. Recently there are many more risk management tool and institutions available, and this is the technological development that must be considered when discussing policy options.

The above discussion assumed that there are no external insurance systems or safety nets or risk diversification instruments available to the entities (individuals of countries) that are exposed to commodity risks. This, however, is not the case for entities in developed countries. Farmers and agricultural product consumers (such as all agents in the marketing chain) in developed countries have a variety of market-based instruments with the help of which they can manage the risks they face. For instance elevators that buy grains from farmers in the US hedge their purchases from farmers in the futures or options markets. Similarly, international buyers of coffee and cocoa manage their exposure to commodity risks in the international future and option markets. Producers and consumers in these countries have developed sophisticated market-based risk management strategies to deal with commodity risks, and the development of a variety of financial instruments in the last two decades (futures, options, swaps etc.) has enlarged the possibilities for risk management by these agents. The consequence is that producers and consumers of commodities in developed countries can trade for a price the risks they face in organised markets as well as in less-organised OTC markets (for a review of such risk management possibilities and practices see Harwood et al., 1999; Sarris, 1997 and Varangis et al., 2002).

While the modern markets for risk management instruments are open to all, entities within developing countries have not been very active in using them. The reasons involve a variety of institutional imperfections and financial constraints (for a review see Debatisse et al., 1993). This implies that aid in the form of additional national or domestic targeted safety nets is likely to be not only useful, but also conducive to growth and poverty alleviation. This is the main justification for provision of safety nets at the micro or macro level.

11.6 A Proposal to Create a Dedicated Food Import Financing Facility

As identified in previous studies by FAO (2003), a major problem facing LDCs and NFIDCs is financing for both private and parastatal entities of food imports, especially during periods of excess commercial imports.² The financing constraint arises from the imposition, by both international private financial institutions and domestic banks that finance international food trade transactions, of credit (or exposure) limits for specific countries or clients within countries. These limits can easily be reached during periods of needs for excess imports, thus constraining the capacity to procure finance for food imports and as a result, food import capacity. It is this constraint that the facility proposed here is designed to overcome.

The purpose of the food import financing facility (FIFF) is to provide financing to importing agents/traders of LDCs and NFIDCs to meet the cost of excess food import bills. The FIFF is not intended to replace existing financing means and structures; rather it is meant to complement established financing sources of food imports when needed. This will help “to maintain usual levels of quantities of imports in the face of price shocks, or to make it possible to import necessary extra quantities in excess of usual commercial import requirements”, as anticipated under the Marrakesh Decision. The financing will be provided to food importing agents. It will follow the already established financing systems through central and commercial banks, which usually finance commercial food imports using such instruments as letters of credit (LCs). The FIFF will provide guarantees to these financial institutions so that they can increase their exposure to the importing country. It will do so by inducing the exporters’ banks to accept the LCs of importing countries in hard currency amounts larger than their credit ceilings for these countries.

The FIFF is envisioned not to actively provide finance to a given country’s agents continuously, but only to guarantee increases in credit limits and only if specific conditions arise. Such trigger conditions involve predicted food import financing needs in excess of some margin above trend levels of food import bills. The predictions will be based on the price and volume components of imports, whereby prices are world market prices for key food commodities imported by LDCs and NFDICs. The volume component involves indicators relating to reductions in domestic production due to a variety of objectively determined indicators (primarily weather), or reductions in food aid which may force the country to import more at commercial terms. A key decision in the setup of the facility is whether only external (mainly price) shocks are to be financed, or also some types of internal shocks (e.g. those due to natural disasters or adverse weather). The FIFF outlined below can function under either or both of these conditions.

²This section draws on an unpublished note (FAO and UNCTAD, 2005) co-authored by the author of this chapter.

Based on appropriate trigger conditions (to be elaborated below) and appropriate amounts (specific to each country), the FIFF will make available financial resources to the concerned banks (of the importing or exporting country), in the form of guarantees and not actual funds, albeit the latter could also be envisioned. The banks in turn will make the excess finance available to domestic food exporting or importing agents, over and above their normal financing needs or ceilings. A key aspect of the FIFF is that it will not finance the whole food import bill of a country, but only the excess part (to be discussed below). In this way “co-responsibility” will be established, only real and likely unforeseen needs will be financed and the cost of excess financing will be kept at a low level.

The basic feature of the proposed FIFF is to provide the required finance at a very short notice, and exactly when needed, once the rules of operation are agreed upon in advance. Thus, the delays common to past ex-post insurance or compensation schemes that rely on ex-post evaluation of “damages” can be avoided. The proposed FIFF will operate in real time.

The FIFF could function in different ways. The most efficient way for the FIFF to operate is like a “guarantee” fund, which will enable commercial banks to extend new credit lines to food importers when required. Alternatively, the FIFF can act as a financing intermediary, borrowing in the international bank and capital markets for on-lending to food importers. In both cases, its financial strength would be based on guarantees provided to the FIFF by a number of countries or international financial institutions. The fund will charge a small premium to cover its operational and risk costs, and will also hedge its loans in the organised and OTC derivatives markets so as to minimise the risk of losses. The main advantage of the FIFF lies in its minimal costs. Through risk pooling for a large number of countries and food products, and owing to its risk management activities, the operational costs and the amount of the revolving fund needed for the FIFF will be relatively small.

The basic structure of the facility would consist of the following:

1. A core team of experts (seconded from various international institutions, or employed directly) will be dedicated to the FIFF and assume the task of estimating food import trends and current requirements, as well as determining the trigger conditions and the amounts of excess food import financing limits for each affected country.
2. The FIFF will benefit from guarantees by a number of countries, which will allow it to borrow for long term in international markets to make up its operating fund, or to provide loan guarantees to commercial banks.
3. When specific trigger conditions arise, the FIFF will interpose between importers and sellers (without interfering in normal commercial relationships). Through its actions, it will make available financing to banks financing food exports, or the central and/or commercial banks of importing countries, (according to pre-set procedures and criteria), who will then make additional loans available to exporters or domestic importers. These loans or guarantees will be reimbursed to the FIFF within 6 months (or a longer period agreed upon) by the relevant banks.

The real functioning of the facility will be more complex, since it has to reduce FIFF costs, as well as the financing risks and the necessary interest rate charges. However, these are implementation details that will be worked out once the principles are agreed upon.

Trigger conditions involve the prediction of food import bills that are above a certain agreed margin over trend food import bills. The predicted food import bills will include as mentioned earlier *price* and *volume* components. Prices are world market prices (in agreed visible commercial international markets with appropriate volume to be considered representative of world market conditions) for key food commodities imported by LDCs and NFDICs. Predicted prices consist of futures prices (when these exist) or forecasted prices (with models developed and maintained by the FIFF, and agreed upon by the FIFF membership). As it is impossible to specify whether world price increases, especially over a short period, are due to trade-related factors or other economic or natural factors, and since there is a need to be objective, no attempt will be made to specify the types of underlying causes of price shocks that will trigger FIFF financing, or make FIFF financing conditional on any of these price augmenting factors.

Import volume indicators can relate to one or more of the following: Reductions in food aid which may force the country to import more at commercial terms; Reductions in access to food on various preferential terms; Reductions in domestic production due to variety of unforeseen, mainly natural causes and which cannot be compensated by food aid.

The triggers will involve predicted food import bill requirements in excess (by given margins) of trends that are assessed on the basis of past volumes, and agreed methods. The import bill predictions cannot be fully comprehensive, as, of necessity, they can include only the major food imports for which there are reliable international price indices.

The facility will make financing at normal commercial terms. The basic tenor could be 6 months (more than enough to export and sell the food imported under the facility onwards to the public), and interest rates will not be less than those paid by central or commercial banks in each borrowing country for international borrowing under normal conditions. This has two important implications: interest rates will differ from country to country; the facility will have a built-in capacity to resist unnecessary disbursement, as credit terms will only be attractive in times of crisis when borrowers are unable to find "normal" credit conditions. Interest rate subsidies or a longer repayment period are inefficient, and are thus not envisioned. It should be kept in mind that the purpose of the FIFF is not to subsidise excess food imports, but to enable the realisation of additional food imports needed by the country, something that may require finance beyond the various credit ceilings available by international private financial institutions for LDC and NFIDC banks and clients.

The FIFF is designed to alleviate international credit constraints for food imports. The constraints involve country-specific credit ceilings by commercial banks in developed and other countries, involving loans to a given country for any purpose. There are various ways for the FIFF to overcome this constraint. One would be for

the FIFF to refinance credit lines provided by these commercial banks.³ Another mechanism is to involve the FIFF in ex-ante tripartite agreements between perhaps an international financial institution representing both donors and recipient countries, the FIFF and the relevant commercial banks, who would agree to increase their country exposure in the “trigger cases” specified by the FIFF and for amounts also specified by the FIFF. In this way, FIFF could serve as a guarantor or reinsurer of “excess financing exposure”. These agreements will have to be ex-ante, so that when the time comes for the extension of credit above any given credit limits, commercial banks can immediately obtain the FIFF guarantee. The FIFF could hedge both foreign exchange risk, as well as the sovereign risk through existing and emerging commercial markets for such risk (there are such instruments currently been traded and many regional multilateral banks are interested in developing them further).

The principal risk for the FIFF is that it will not be reimbursed by its borrowers or that the guarantees that it provides will be called to finance non-repayments. This risk will be managed actively. As the facility would not set out to disturb the normal functioning of international food trade, there is a “non-zero” risk that the local or central banks cannot be reimbursed by their local food importing clients. This would primarily be the concern of the domestic and central banks of each country, and not the FIFF. Nevertheless, lack of reimbursement by the ultimate beneficiaries of the finance may lead commercial banks to default on their obligations (or delay repayment) to the FIFF.

The facility will follow the normal patterns of food trade. In most LDCs and NFDICs, food imports are in private hands, and many of the ultimate beneficiaries of the financing will be small private companies. Perfect control of risks will be impossible, but there are several ways to reduce risks, including counter guarantees from local banks, and the use of collateral management companies to keep physical control over the foodstuffs until they are sold onwards by the importer. As mentioned above, the risk management activities of the FIFF will be instrumental to minimise losses. The cost of these risk management activities of the FIFF can be built into the interest rate differentials between the sources of FIFF funds, and its loans.

The FIFF would benefit from guarantees from a number of countries. Ideally, this would include a number of OECD countries, which would enable the FIFF to borrow at AAA terms. But any group of countries could provide guarantees; the risk rating of the FIFF is then likely to be that of the best-rated among these countries or possibly a bit better than this.

As noted before, there are different ways, of varying financial complexity, for the FIFF to ensure that food importers obtain extra finance when conditions require it. In one model, on the back of its guarantees from member countries, the FIFF

³This is a mechanism used for example in the United States to enable domestic banks to provide more rural loans and mortgage loans to smaller clients, with public institutions such as FannieMae providing a refinancing facility to these banks.

can borrow easily from the international bank and capital markets. Two types of borrowing activities can then be envisioned. The first, to be conducted at the start of the FIFF, will involve borrowing long term to set up a small revolving fund that will provide the initial capital of FIFF. In addition to this revolving fund, the FIFF may need additional funds in a given “bad” year. In such a year, the FIFF would borrow additional funds from international capital markets under the guarantees of the contributing countries. If the proper mechanisms have been set up beforehand, the delay between trigger conditions being breached, and money being available to extend finance to central or commercial banks could be less than 2 weeks. This will ensure that normal commercial imports of foodstuffs can continue uninterrupted even in times of large external shocks.

Assuming that the FIFF’s operational costs are covered by WTO member contributions,⁴ there will be a fairly large gap between the financing costs that the FIFF faces, and the normal credit terms that food importers or their banks in LDCs and NFDICs are used to. The FIFF should be able to borrow at investment grade rates, and on lend at rates a few percent above this. The difference can be used for a number of purposes, such as: buying sovereign risk insurance and currency convertibility insurance to insure against default risk; buy “call options”, much as discussed in the previous section; build a lower-cost tranche (or a tranche with stronger protection against the risk of world market price spikes), allowing countries with well-targeted food distribution programmes to continue providing food at reasonable terms to certain groups. In the latter two cases, these add-ons have their own large benefits (in particular compared to many of the non-market-based alternatives), and donor agencies may wish to make extra grant funds available for such purposes. LDCs and NFDICs may also wish to take out “insurance” against the risk of world market price increases at their own cost, and the FIFF could advise such governments on this, given its own expertise and involvement in such risk management operations.

Operational costs of the FIFF will be low. The FIFF will have two core functions, and one secondary function. The first core function is to gather and analyse data on food prices, food quantities, needs and food aid flows, in order to assess the triggers for the extension of additional credit, as well as the amounts of additional financing needed, building on work and technical capacity done in existing organisations (FAO, WFP, IFPRI, World Bank etc), and hence would require minimum resources in terms of full-time technical staff members.

The second core function is to ensure food trade finance when trigger conditions are reached for one or more countries. This requires some financial management expertise. If it is deemed that this is beyond the capacity of the FIFF, then this could be outsourced to one or more international banks or insurance companies, which would act as an agent for the FIFF and be paid on a real cost basis.

⁴Alternatively, if the guarantees that it receives are good enough, the FIFF could be allowed to become self-financing in a manner similar to the World Bank, that is to say, it would be able to borrow cheaply against the guarantees even when LDCs and NFDICs do not require the support, and place the funds in higher-earning assets.

To put some numbers behind the concept, some calculations have been made of the yearly average financing needs of a FIFF of the type proposed here, that would have been required during the period 1969–2007 if a FIFF had been operational, as well as calculations of the maximum financing needed in an exceptional year. The methodology involves first computing indicative food import bills (FIB) closely related with actual food import bills. Secondly, appropriate import bill trends (FIBT) are computed. Thirdly, the FIFF is assumed to finance the “excess food import bill” which is defined to be a fraction β of the amount above a certain fraction α above the trend FIB.⁵

In practice, the FIFF is postulated to finance the following amount:

$$\Delta\text{FIB} = \beta \times \{\text{FIB} - (1 + \alpha)\text{FIBT}\} \quad (\text{when the bracket is positive}) \quad (11.2)$$

The idea behind the formula in Eq. (11.2) is that since the commercial imports that would have taken place without the financing constraints are not known, a method is needed to estimate them. The estimate made here assumes that these unknown excess commercial imports would have been proportional by a fraction β of the amount of actual imports that were observed to be a certain fraction α above the trend FIB, under the logic that credit constraints bind whenever there is an excess demand for food commodity imports.

Table 11.2 presents some calculations for different assumptions of the parameter α that defines what can be counted as “excess food imports”, and for $\beta = 0.5$. The computations suggest that average yearly FIFF guarantee financing for LDCs would have been in the vicinity of US\$ 200–430 million, while the financing needs in an exceptional year may have reached as much as US\$ 2,400 million. To put these

Table 11.2 Estimates of the total annual excess food import financing needs during 1969–2007 of LDCs and LIFDCs for different values of the parameter α (all values in million US\$)

LDC						
α	0.05	0.10	0.15	0.20	0.25	0.30
Mean	428	374	325	279	238	204
Min	18	11	6	4	3	0
Max	2,428	2,160	1,896	1,633	1,388	1,164
LIFDC						
α	0.05	0.10	0.15	0.20	0.25	0.30
Mean	1,937	1,688	1,467	1,274	1,107	962
Min	58	48	40	34	28	5
Max	10,150	9,000	7,900	6,800	5,750	4,735

Source: Author’s computations

⁵The full details of the methodology as well as more empirical results can be found in Sarris (2009b).

figures in perspective, the average yearly LDC commercial food import bill for all foods between 2000 and 2007 was US\$ 10.7 billion. Hence, the FIFF average annual financing needs would constitute about 2–4% of yearly LDC combined commercial food imports. In a year of exceptional needs, the value of FIFF guarantee financing needed could rise to as much as 23% of the total LDC food import bill. If all LIFDCs were to be covered by the FIFF, then the guarantee financing needed would be in the range of US\$ 960–1937 million, and this constitutes around 1.8–3.7% of the average LIFDC food import bill for the period 2000–2007. In an exceptional year the maximum financing needed could rise to as much as US\$ 10 billion, which would be about 19% of the total LIFDC average food import bill of the same period.

11.7 Summary and Conclusions

The chapter has presented various dimensions of the problem of staple food commodity market volatility and import management, and has discussed some ways to manage food imports.

The first conclusion is that the issue of market price volatility is quite separate from the issue of market predictability. While the proper way to view undesirable risks on agricultural agents as well as trading countries is through the prism of market unpredictability, much discussion as well as action in the past has revolved and tried to deal with the issue of ex-post volatility. As such any policy based on ex-post observations of market volatility is bound not to be able to affect actions of agents before any actual price spikes occur.

The second conclusion is that the problem of food commodity imports has many facets and cannot be examined only from the perspective of market volatility. It was pointed out that financing constraints as well as non-performance risks are major issues that affect many food commodity-importing countries.

It was pointed out that there are basically three ways to deal with market volatility, apart from doing nothing. Changing the exposure to the food risk is a long-run proposition, and is not a short-run response. In the short-run there is a competition between policies that purport to change the fundamentals of the market through commodity market interventions, and policies that try to manage the risks both ex-ante and ex-post. While many countries have pursued market management approaches, these are for the most part expensive and inefficient. Given the modern availability of many risk management instruments, it appears that a better way to manage food commodity market unpredictability and relevant risks is through active management of these risks by using whatever market and non-market based instruments are available.

The final part of the chapter discussed the idea of a Food Import Financing Facility (FIFF) to alleviate the trade financing constraint facing many low income food deficit countries. The idea proposed is based on a system of financial guarantees for financial institutions which could use these to increase their exposure limits to developing food importing countries, especially in times of elevated food import

needs. It was seen that the amounts involved are not excessive given the current financing requirements for LIFDC food imports.

A lesson from the brief review here is that any mechanism to manage food imports or to deal with market volatility should not distort the physical markets. As the idea of market management in any form creates all sorts of problems and entails many political and managerial difficulties, it is perhaps such properties of market non-distortion that should be considered as the major desirable attributes or requirements of any mechanism or institution to better manage food import risks or to manage market volatility.

Acknowledgement Paper presented at the workshop on “Methods to Analyze Price Volatility” organised by the Institute for Prospective Technological Studies, of the EU Joint Research Centre, in Seville and held in Seville Spain on 28–29 January 2010.

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