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**INNOVATIVE VEHICLES FOR MOBILIZING DOMESTIC FUNDS  
FOR AGRICULTURAL DEVELOPMENT**

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## **Local market opportunities with respect to warehouse receipt finance – tapping into the local capital market**

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### **The relevance and usefulness of structured commodity finance is growing**

Agricultural production, processing and trade are generally relatively low-margin operations, and at the same time, perceived by financiers as very risky. Physical collateral such as land or real estate is often of little use in mitigating financiers' risks – such collateral tends to be very difficult to enforce. Not surprisingly, finance for agriculture can be difficult to find, and if found, is expensive.

Structured finance makes it possible to go directly to the roots of the problem by isolating the various risks involved in the provision of a financing, and systematically mitigating these risks. The changes as proposed under the Basel II agreement will make this more and more relevant in the years to come. With Basel II (planned for 2005), solvency requirements for “risky” exposures will increase dramatically. Most credits to emerging countries fall in this category, unless when structuring techniques are used to mitigate the risks. As far as conventional bank loans are concerned, after Basel II, there will be less lending to non-investment grade countries, and what arrives will be more costly and more pro-cyclical.

There are many possible applications of structured finance for developing countries, from project- to pre-export finance, from financing oil imports to using migrant remittances to obtain low-cost funds for agricultural lending. If banks are at all interested in exploring the possibilities of structured finance for agricultural commodities, they tend to focus on the financing of export crops, where they can capture offshore revenues to ensure loan reimbursement. Some are willing to consider financing imports, tying this in with an export chain (e.g., finance for the import of cotton yarn, reimbursable through the export of textiles), or using physical possession coupled to confiscation insurance (in other words, they give up control over the commodities only once they are paid for, eventually in up-country warehouses). While there are certainly many possibilities in these areas, it leaves one area largely overlooked: the possibility to mobilize domestic funds for agricultural development.

### **What is the scope for linking domestic capital markets and the agricultural sector?**

It is difficult, though not impossible, to use hard currency loans to finance activities that are purely domestically oriented, and will generate only local currency. The financiers will prefer reimbursement in hard currency, and even if the borrower will generate local currency and this local currency can be captured in a local escrow account, it is not certain that the local currency can be exchanged into hard currency; and if so, whether sufficient hard currency will be generated (exchange rate risk); and even if sufficient hard currency is generated, whether it will be possible to repatriate these from the country.

As noted, solutions to these problems have been found. For example, power and road projects have been structured using foreign finance, and local receivables. The risks mentioned above are then normally mitigated by, *inter alia*, expressly linking electricity or road tariffs to a hard currency equivalent; getting a government guarantee that it will not force a reduction of the tariffs; getting a guarantee from an international agency to cover the risk that the government will not honour its guarantee; and local escrow arrangements to ensure sufficient earnings are captured. These are very complex arrangements, and given the size and characteristics of most agricultural ventures, the possible use of such arrangements for agricultural finance is bound to be extremely limited. Alternatively, some large insurers (both public entities such as OPIC, the US's export insurance

agency, and large private-sector insurers) have provided “currency inconvertibility cover”, which provides coverage for the risk that the local borrower has indeed collected sufficient local currency, but is unable to exchange it/transfer it to reimburse its debt obligations. This coverage is not yet available for all countries, but could, in principle, be of use for some of the larger agricultural financings.

However, there is a simpler solution: raise local currency to finance activities that will generate local currency. Again, there is some experience in Southeast Asia, e.g, the domestic securitization of auto loans in Indonesia, but the agricultural sector has so far been overlooked.

In most developing countries, banks are not very interested in exposing their own capital to agricultural credit risks. But one does not necessarily need bank finance (although banks can, and should, play an investment banking role, putting deals together): instead, one can tap into the often abundant funds available in local capital markets. This would hit two birds with one stone: firstly, one would provide a product to capital market investors (institutional investors and even private individuals) which is a valuable addition to the existing range of money market instruments (with a good risk/return ratio, and providing an interesting portfolio diversification); and secondly, it makes it possible to inject relatively cheap capital into agriculture. And those arranging the transactions could benefit from arrangement and other fees.

Debt markets in most developing countries are highly inefficient – much more so than equity markets. The wide margin between deposit rates and treasury bill rates that one can see in many countries is a clear example of this – only highly inefficient, distorted markets can explain how it is possible that most banks take customers’ money and then turn around to lend it to the government at a mark-up that can exceed 10%. Efficient markets would enable customers to place their money directly in treasury bills, thus disintermediating banks. Similarly, the financial engineering tools now available make it possible to bypass banks in providing finance to agriculture. This can be structured in quite a few ways, which will be discussed in more detail in the following section.

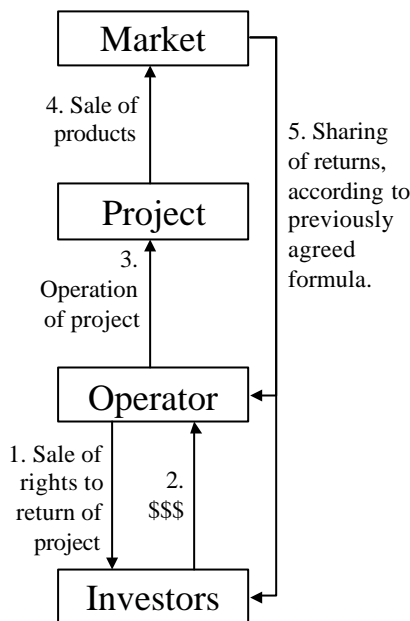
### **Tapping into domestic capital markets for agricultural sector development: examples and possibilities**

The techniques that would allow farmers to disintermediate banks in procuring funds directly from investors are very new, and their practical application has been enabled to a large extent by improvements in communications and information infrastructure. Thus, as far as agriculture is concerned, most examples are rather recent (although during the US civil war, the government of the Confederation – the South – issued bonds backed by cotton exports, such issues then remained rare until, probably, the mid-1980s, when in Brazil, the high-inflation environment of that period gave rise to the emergence of commodity stock-backed commercial paper). This section discusses some of the experiences and possibilities.

#### Direct sale of rights to future commodity production to investors

Under this fairly simple arrangement, used for example for financing shrimp and fish ponds in Indonesia, or for financing timber and olive tree plantations in Australia, individual investors take both quantity and quality risk. The timber industry alone has attracted 10-12 billion US\$ in institutional investment, in the OECD and Latin America. The chart below describes the typical structure.

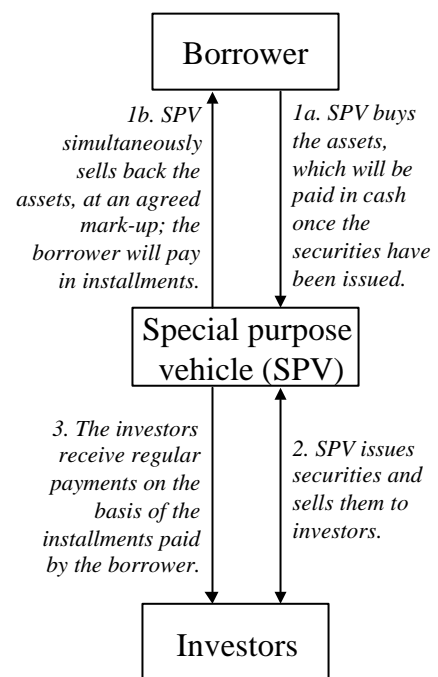
Under these schemes, an operator procures funds to invest in an operation from investors, by selling them formalized rights to future production. E.g., in the case of a fish ponds, these are the rights to a certain share of the fish in one pond; or in the case of a timber plot, a share of the proceeds from the sale of timber produced on that plot (and the proceeds of the sale of carbon offset rights). The investment can be for a short period (e.g., 3 months, for fish ponds), or for 20 years or longer (common in timber investments, where the investor also has to wait several years before receiving any



“dividends”. The operator (which may be a large company managing hundreds of fish and shrimp ponds) is paid out of the proceeds of the sale of the “securities” plus, generally, a share in the profit; but generally, he does not take a significant risk. The structure may be further strengthened by medium-term marketing arrangements with large off-takers, such as supermarket chains. In countries such as Indonesia, these “securities” are marketed informally, but nevertheless are actively taken up not only by individual investors, but also by corporate treasuries, who see this as a high-return alternative to short-term money market placements (in order to reduce their exposure to individual ponds, where 100% of the fish or shrimps may succumb to diseases, these generally invest in several ponds spread out over several lakes and other locations). In other countries, the sector is more highly visible; e.g., in Australia, timber companies such as Australian Plantation Timber, Great Southern Plantations, Timbercorp and Yates Limited, and olive-tree growers such as Olea Australis, sell “managed investment

schemes” which are very similar to those described for Indonesia above, in general focussing on individual investors; in the USA, companies such as the Hancock Agricultural Investment Group do the same for a variety of crops, but tend to focus on institutional investors.

Note that this scheme resembles some of the securitizations possible under Islamic financing, and it could be given this form in for example Malaysia, or perhaps Indonesia. The scheme to the right describes one possibility, for a murabaha-based securitization. If a company is simultaneously seller and (with a mark-up) buyer of goods or assets, this evidently amounts to a credit for the goods or assets concerned (this is called “al-bai bithaman ajil” financing). The resulting payment obligations (formalized as “syahadah al-dayn”, or certificates of debt) can be traded on the secondary market, and they can also be used as the underlying for securitisations. It should be noted that neither of the two are considered legitimate by some Islamic scholars, notably in Arab countries, but that they have been accepted in Southeast Asia. Securities can be issued on the back of (revolving) trade paper, but also, on project-related payments. The bond holders’ purchase price for the securities go to the borrower (after deducting transaction costs and, normally, withholding a part as a liquidity facility). The borrower then pays in installments, which are designed to fit with the payment obligations on the securities.



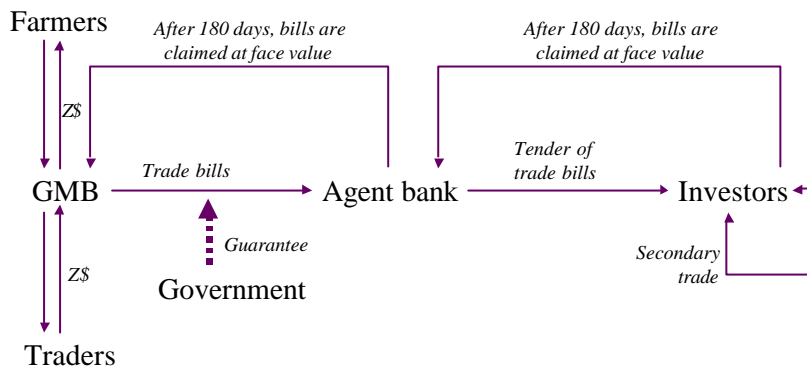
#### Selling agricultural trade paper to domestic investors

The system described above is mostly one-way: operators sell notes of one form or another to investors, but these generally do not trade the paper, largely because the market is not very transparent. However, it could be interesting for operators to create a transparent market, by issuing uniform trade paper. In many countries, there is a severe scarcity of attractive 3-12

months investment vehicles, so the issuance of such paper can be expected to attract considerable interest from corporate treasurers and individual investors alike. Such paper can be placed privately, or could be traded on stock or commodity exchanges.

A good example is Zimbabwe. Until political problems caused the collapse of its agricultural sector, Zimbabwe was a large cereals producer (primarily growing maize), able to export in many years. Although grain trade continues being in the hands of a government entity (the Grain Marketing Board, GMB), trade has been financed, since the 1980s, by the private sector. The mechanism used is the issuance of trade bills: several times a year, the GMB

issues trade bills, which are tendered to the highest bidders (in the 1980s, the trade bills, with a bank aval, were also discounted in the international market for Bankers' Acceptances, but the declining international reputation of Zimbabwe has put a stop to this). The mechanism is described in the chart to the left.



The bills are issued by the GMB 3-4 times a year, in tranches of 4 to 5 billion Z\$ (70-90 million US\$, at the official exchange rate of late 2001, and 13-16 million US\$ at the parallel market rate). The government provides a guarantee (which has never been called upon). Agent banks are selected each year, in principle through a tendering process – banks generally form syndicates to bid on the tender. The winning agent banks are then responsible for placing the trade bills with investors, including other banks, pension funds and other institutional investors, and individual investors (the bills are tendered with a face value of 1 million Z\$, less than 2,000 US\$ at the official rate). The bills are placed with the best bidders in the tender – there are no private placements – and are then actively traded on the secondary market. Demand for the trade bills is normally very strong.

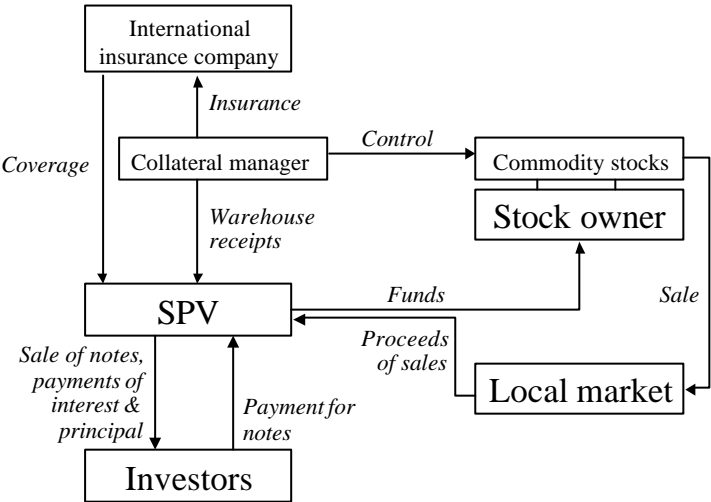
The GMB uses the proceeds from the bills to buy grain from farmers. The 180-day maturity of the bills is meant to coincide with the average time it takes GMB to sell these cereals and obtain the proceeds from these sales, on the domestic or export market. The effective interest rate on the issues is close to treasury bill rates, and far below banks' prime rates. The bills are not collateralized – in the late 1980s, warehouse receipts and inspection services were used to ensure the proper use of the funds, but after several years, financiers had built up sufficient trust in the system to do without. It remains to be seen what will be the effects of the GMB's problems in 2001. At the bills' maturity, those holding them claim the face value with the agent bank, which in turn claims the bills with the GMB.

#### Using warehouse receipts as underlying for security issues

Trade paper, as described above, is not secured on the underlying commodities. Adding such security should add to the attractiveness of the issue. This has been done, for example, in Venezuela, where a private company (Induservices) developed a system under which it provided capital enhancement to warehouse receipt paper on seasonal maize stocks. This paper was put into a Special Purpose Vehicle, which was backed by financial guarantees of

Induservices, and issued securities. This has made it possible to attract hundreds of millions of US\$ to the financing of maize stocks.

There are very good possibilities for such issues in the Southeast Asian region. Investors may not be very keen to finance, at low rates, most of the domestic companies active in the production, processing and trade of commodities, but the credit upgrading provided by the use of warehouse receipts may make a difference. There are very large stock in the region that could act as underlying for such issues. E.g., fertilizer stocks, now mostly in the hands of (and financed, at a high cost, by) fertilizer companies and cooperatives. Collateral managers could take control over these fertilizer stocks, and they (or a bank with which they work) could issue paper backed by the physical inventory of these stocks. This would take the burden of stock financing of the back of cooperatives and fertilizer companies – the fertilizer market alone has a potential volume of several billion US\$ in primary issues, and there are also possibilities for several other commodities such as rice, sugar and cotton.



A typical structure is described to the left. A collateral manager is selected by a bank or other financial services company with the capacity to structure and place asset-backed securities. This collateral manager (which, for this specific purpose, is most likely to be a joint-venture between a local (field) warehousing company and a reputable international collateral manager) to take control over commodity stocks owned by one or more companies (e.g., fertilizer companies or cooperatives). The collateral manager issues warehouse receipts on the basis of these commodities, and actively

monitors the level and qualities of the stocks during the life of the securitization (which would typically be less than a year for this type of issue, but the issue could easily be made revolving). The SPV sells notes to the investors, and the proceeds of this sale, minus margins and provisions, is transferred to the stock owner (which is thus relieved of most, but not all, of the financing burden of carrying the stock). The stock owner acts as agent of the SPV in selling the commodity stocks on the local market, and the proceeds from such sales are to be paid directly to the SPV. The SPV takes some credit risk in this respect, but this credit risk is very limited, and closely monitored (the collateral manager reports on the stocks leaving the warehouses). The SPV has recourse to the stocks in order to meet its obligations to noteholders (trigger levels which enable the SPV to obtain direct access to the stocks will have been pre-determined). If the stocks are no longer there, the SPV has recourse to the collateral manager, which should guarantee its performance through its own balance sheet, and through policies with a reputable international insurance company. For domestic securitization, such insurance will cover disaster risks as well as operational risks (e.g., the risks of the collateral manager’s staff assisting in the theft of the commodities). For an international securitization, insurance would also cover various types of political risk, but it is impossible for a company to take out insurance against political risks related to the actions of its own government.

A structure such as this requires a reasonable legal and regulatory framework, and there are many potential obstacles to its implementation. E.g., an unclear situation with respect to the respective rights of the collateral manager and the stock owner over the commodities (particularly when in a warehouse that may well be owned by the stock owner) may make it impossible for an SPV to sell of the stocks in case of non-performance of the stock owner. Or direct (e.g., export bans) or indirect interventions (e.g., sudden drops in import taxes) of the government in commodity prices may reduce the value of the stocks below the sums due to the investors. But these obstacles are all amenable to

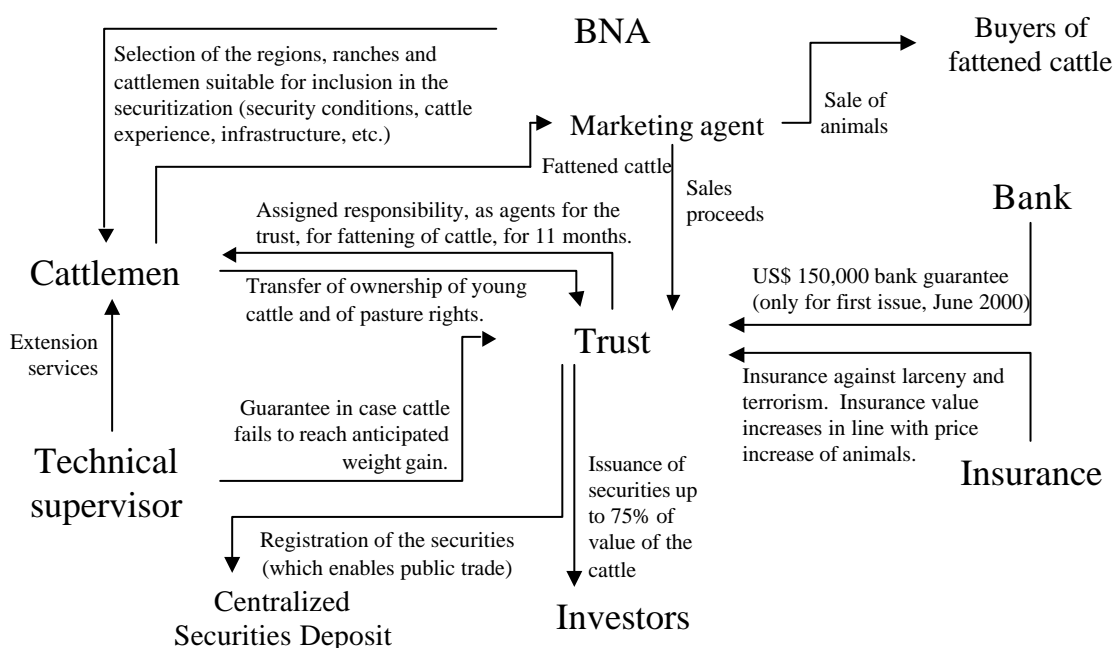
corrective government actions, and governments should carefully consider how they can create a proper environment for this type of agricultural securitizations.

Creating an active market place for collateralised agricultural paper

The type of structures described above can be further developed. In a transaction inspired by earlier crop securitizations (summarized in the chart below), Colombia’s National Agricultural and Livestock Exchange (BNA) structured an innovative livestock securitization programme in 2000. The programme has made it possible for cattlemen to obtain tens of millions of US\$ in financing for the feeding of their cattle – at rates that were determined through the competition among institutional investors on the country’s stock and commodity exchanges. The first securities issue was in June 2000. BNA has grown out of governmental efforts to provide an auction system for locally-traded commodities in several of the country’s major cities, and although BNA now very much operates like a private company, the government is still the major shareholder.

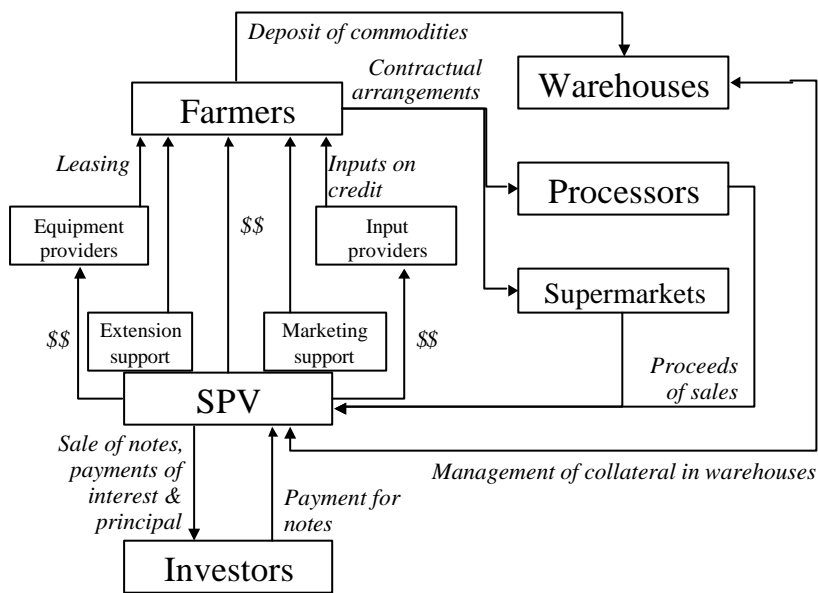
Under the programme, funds for the feeding of beef cattle were raised from local institutional investors, through livestock-backed securities offered and traded on the BNA and the country’s securities exchanges. The structure, arranged under the overall supervision of BNA (as agent of the cattlemen) is described below. As can be seen, the transaction was highly structured, to reduce risks for the investors to the minimum. Cattlemen in selected regions and who meet certain selection criteria sign contracts with a Trust, under which they transfer the ownership rights to their cattle; the Trust then sells securities on the basis of these contracts, and pays the farmers the funds received. To ensure that farmers properly feed their cattle, an independent company provides extension and quality control services – and is liable to the Trust if its services are ineffective. The marketing of the cattle is controlled by an independent marketing agent, who is obliged to transfer the funds received to the Trust, which will assign them in priority to the “repurchase” of their cattle by the cattlemen (in effect, most cattle sales are through the BNA auction system). Insurance covers the risk of criminal or terrorist acts. Repo’s were at the basis of the financing – cattlemen sold their cattle to the Trust, and then acted as agents for the trust in fattening the cattle, before buying their animals back after a period of, at most, 11 months. The value of the collateral much exceeded the value of the securities issued. As a result, the securities received a high local rating. Several series of securities were successfully issued under the programme, with strong interest from both cattlemen and investors – BNA expects to issue securities worth some 45 million US\$ each 45 days. The benefits of the programme for the cattlemen were clear: more financing at better terms. For institutional investors, the programme provided a new investment tool giving an attractive rate at a low risk.

*Livestock financing in Colombia*



Using local structured finance transactions as underlying for security issues

The Colombian issues described above enable investors to buy issues backed by future earning flows of specific commodities. But ultimately, investors do not really care where their money comes from. It may therefore make sense to sell notes backed by a diversified portfolio of agricultural commodity exposures. A financial entity (not necessarily a bank) can put a diversified portfolio of commodity-sector related exposures into a Special Purpose Vehicle, which then issues longer-term securities backed by this ever-renewing portfolio. But as the sector is rather risky, the portfolio effect alone is unlikely to convince investors to buy the notes at reasonable rates. Instead, the SPV – which in this case may well be called an agricultural investment company – needs to mitigate the risks of individual transactions through the use of structured financing techniques. International entities such as the International Finance Corporation could be interested in backing such a venture, which would make it possible to tap not only into local, but also into international capital markets.



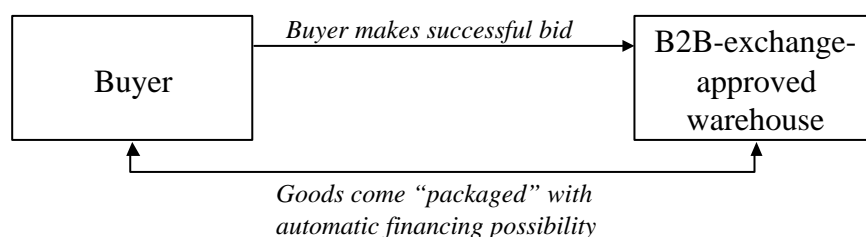
One form that such an operation may take is described to the left. The SPV basically operates a comprehensive agricultural system. On the “input” side, it provides only a small part of its credit directly to farmers. The majority is paid directly to input providers (who can then deliver inputs on credit) and equipment providers (who then enter into leasing arrangements with individual farmers. Reimbursement is ensured through the control over the major (and in particular, “value-added”) outlets for the

farmers’ products. In general, the SPV will try to ensure that the quality of a farmer’s production, and the reliability of his supply, is sufficiently large for him to enter into longer-term contracts (eventually of the contract-farming type) with processors and supermarkets (which generally pay a premium over prices available on the open market). It will also enter into arrangements with the major warehouses through which the farmers’ products flow. To further reduce the risk of default by farmers, the SPV takes an active role in improving farm management, and supports the farmers’ marketing efforts.

Using electronic trading not just as a marketing, but also as a financing tool

The financing systems described above depend to a large extent on the existence of a fairly well-developed institutional framework. Simpler systems are, however, being made possible through the fast development of technology. One interesting application is the use of electronic trading systems as a financing tool. The system below has been implemented in an Asian exchange:

***Example: selling goods “with financing attached”***



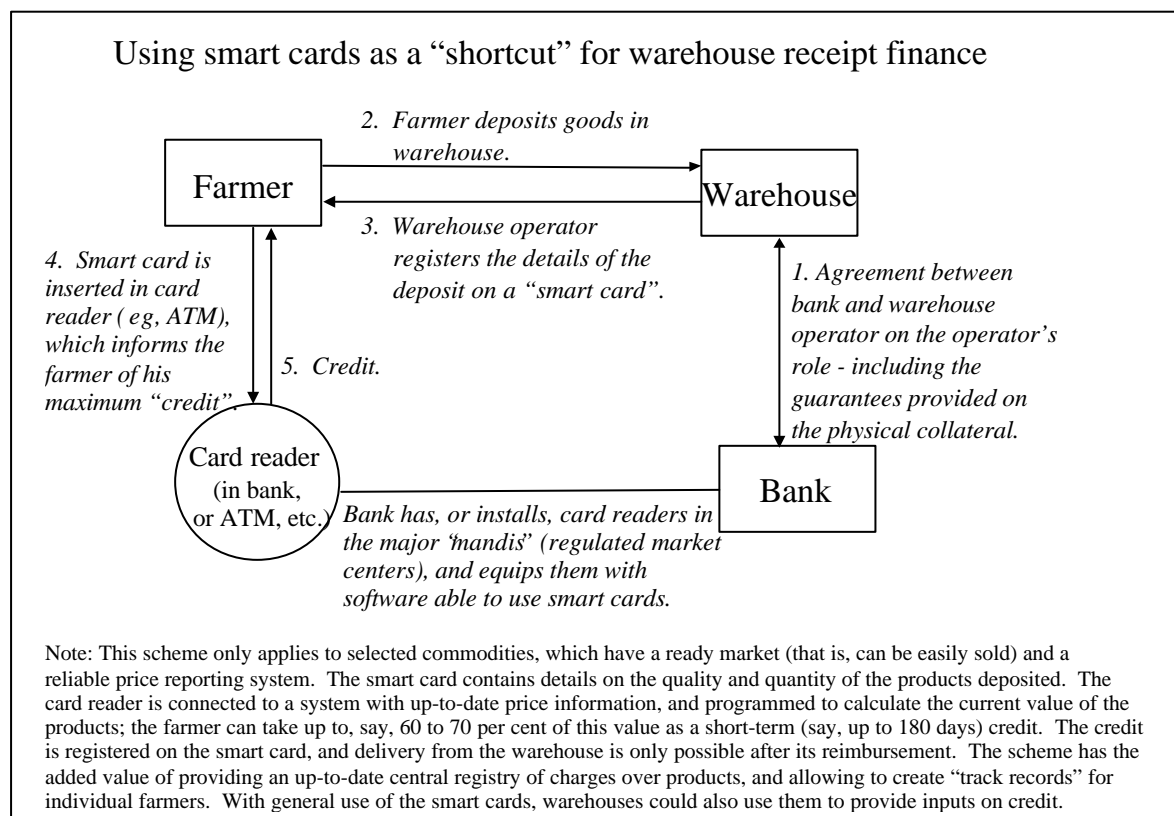
In this system, a seller puts his products into a warehouse approved by the B2B exchange. The offer is put on the web, and a buyer successfully bids. He pays 20% of the value, and if he wishes, a bank that cooperates with the B2B exchange automatically finances the remaining 80% (so that the seller can be immediately paid). As long as the goods are in the warehouse, the finance remains in place.

The bank relies on the creditworthiness of the B2B exchange and its clearinghouse - there is less work and less credit risk than when lending through individual loans to individual traders. Note that funds do not need to come from banks: as long as they trust the warehouses and/or the financial strength of the B2B exchange, through the already-existing electronic network, institutional investors could also put their money in a scheme such as this, bidding on the various financing transactions on offer.

Future possibilities: using smart cards, warehouses and an electronic network

The rapid development of smart card technology, coupled to the communication possibilities offered by cellular telecommunications and the Internet, also provide interesting possibilities to disintermediate agricultural finance.

The chart below describes, for the case of India (which has, in most of the country, well-organized central market places, “mandis”, which all have a warehousing infrastructure), how smart cards can be used to provide direct access to warehouse receipt-based finance. The involvement of a warehouse company shifts the credit risk (from the financier's perspective) from the farmer (or trader, processor) to the warehouse firm. The use of a smart card eliminates the paperwork and procedures which would be required for normal warehouse receipt finance. Given the trepidation with which many farmers would normally enter into a bank office, or the often poor reception that farmers receive in banks, the effect of the elimination of procedures should not be underestimated.



Schemes like this may appear utopian, but farmers, and even more so traders and processors, are normally quite open to new technologies if this has a demonstrable impact on their lives. One can note for example the widespread use of cellular telephones to gather market information. An article in the Economist, in mid-2000, noted for example how fishermen in Kerala used their telephones to phone several markets to check prices before deciding where to land their catches. Technology is sufficiently sophisticated to build in an overwhelming number of safety features to avoid abuse of the system by warehouses, those holding card readers or others. And technology is cheap enough to make large-scale introduction possibly (it would cost a warehouse not more than a few hundred US\$ to install the equipment to print smart cards; and details can be downloaded as a batch once a day to a central registry, which keeps communication costs very low)

The system described above is one where one bank sets up the system, and provides the financing. However, one can well imagine systems where farmers turn physical stocks into warehouse receipt paper, and then, through the Internet, tender this paper among financiers, to get the lowest cost of funding possible. Technology is ready for this, and investors would benefit from such offer. What is required is an entity willing to take the initiative, partnering with other players and setting up a pilot scheme.

### **Policy implications**

Tapping into local capital markets to finance local agriculture is a structural innovation, and is thus likely to meet considerable resistance. This resistance is both a direct result of the status quo (rules and regulations are written for the old way of doing things, and may thus hinder progress – a good example are the common restrictions on the investment policies of pension and insurance funds), and a result of a lack of knowledge among, in particular, institutional investors. Policy makers have a clear role in, firstly, revising the rules and regulations pertaining to pension funds and other institutional investors, and the secondary trade in “agricultural paper”; and secondly, in actively promoting the emergence of this market by awareness-raising, education and sponsoring pilot projects (with support from the international community). Governments should also make more of an effort to convince donors and international financial institutions to support work in this area. Improving access to foreign capital is a good thing, but the resources available domestically can be mobilized too. The agricultural sector in most developing countries suffers from serious under-investment, while at the same time, deposits are lying largely unused. Financial engineering techniques can bridge the gap.

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