Commodity Risk Management Group

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Outline

- Price Risk Management Problems
- Background of Project
- Activities
- Lessons Learned

Macroeconomic Problems of Commodity Price Volatility

- Systemic financial problem created when producers are unable to repay production credit
- Lower than expected tax income, needs for direct assistance, and deferred debt repayments impact budgetary ability to carry out other programs
- Inability to repay debts
- Inefficient allocation of resources
- Macroeconomic instability hampers growth and impedes poverty reduction

Microeconomic Problems of Commodity Price Volatility

- For the producer:
  - Inability to plan crops, allocate resources, obtain credit
  - Low income farmers adopt lower-yield, lower-risk production technologies and shift from cash crops to subsistence crops
- For cooperatives / exporters / traders
  - Inability to properly forecast cash flow, obtain credit, protect from financial lossess
- For banks lending to agriculture
  - High levels of risk in lending / high levels of default due to client losses

Use of Interventions to Manage Price Volatility

- Market interventions
  - Domestic – marketing boards / stabilization funds
  - International commodity agreements / stabilization schemes
- Outcomes
  - have proven inefficient and costly
  - stabilization funds have faced significant financial problems
  - commodity agreements have been short-lived and discontinued
  - Overall financially unsustainable

Use of Markets to Manage Price Volatility

- Involve commercial trading practices in
  - Local forward cash markets
  - Local futures markets
  - International futures and options markets
- Will vary from one organization to the next
- Require cooperation among financial partners
- Require commitment of managers to learning about, analyzing, and managing risk on an ongoing basis
- Require investment (cash) to purchase price protection instruments when available (are not free)

Project Background

Project Goals

- Assess the feasibility for bridging the gap between commodity producers and the markets for commodity risk management instruments.
- Stimulate an enabling environment for the growth of a commercially viable commodity risk management business in developing countries.
- Empower organizations to analyze commodity risks and make informed decisions about the use of market instruments to manage their exposure.

International Task Force
for Commodity Risk Management

- ITF established in 1999
- Membership: private sector, international organizations, donors, researchers, practitioners
- CRM group at WB is the implementation agency
- Initial feasibility work
- Implementation of test cases (pilots) starting in mid-2002

Commodity Risk Management Group within the World Bank

- in Agricultural & Rural Development Group
- Workprogram includes:
  - Macroeconomic issues of risk – price & weather / yield
  - Technical assistance (capacity-building) at level of developing country institutions
  - Integrating with Country Assistance Strategies, Poverty Reduction Strategies, IFC initiatives, other donor governments and initiatives

Activities & Lessons Learned

Phased Approach

- Analysis of commodity risks and identification of organizations, constraints, and training needs
- Select local organizations
  - ✓ Producer organizations
  - ✓ Banks and other financial institutions
  - ✓ Traders, processors, input suppliers, etc.
- Develop and implement a workplan
- Monitor and assess results
- Propose next steps

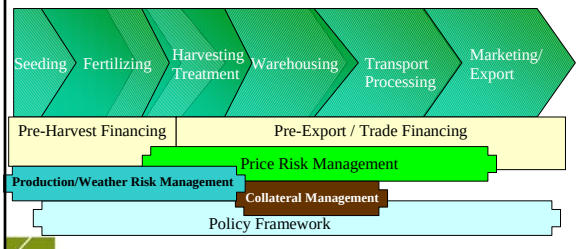
Type of Assistance

- CRM group provides technical assistance to local organizations to help them:
  - ✓Identify and quantify commodity risks
  - ✓Design a risk management strategy
  - ✓Implement a risk management program and initiate transactions
- CRM provides inputs to providers that helps them with KYC

Activities to Date

- Feasibility assessment in various countries
- Initial work focused on coffee, but now starting with cotton and other commodities
- Initial work focused on producer organizations (e.g. cooperatives) and lenders
- Training mostly at managerial / leader level
- Implementation and transactions in:
  - ✓ Honduras, Nicaragua, Tanzania, Uganda (coffee)
  - ✓ First transaction in cotton (Uganda)
  - ✓ Weather-based index insurance transactions in India and Mexico

CRMG Work Areas in the Commodity Value Chain



Lessons Learned

- Significant needs for technical assistance
- Need for wider array of delivery models, particularly linked to financing
- Slow growth of business volumes
- Hedging is opportunistic and contingent on market conditions
- Hedging is an ongoing decision process
- Incentives (e.g. lowered interest rates from lenders) for repeat transactions

Market-Based Price Risk Management Solutions

Julie Dana, CRM Group

Agenda:

- Price Risk in the Cotton Market
- Introduction to Market-Based Instruments
- Delivery Channels
- Implementation Issues

Price Risk Management Issues in Cotton

Cotton Price Volatility

- Cotton prices remain volatile
- Price risk management can impact short-term volatility, not long-term price decline
- Different exposures by:
  - ✓ farmers---outright price
  - ✓ginners, traders---margins
  - ✓banks --- risk of borrowers making losses & defaulting

Cotton Farmers Dealing with Price Risks

- Fixed price systems (e.g. W. Africa)
- Forward selling to ginners: fixed price or minimum guaranteed price (non-delivery risk)
- Access to risk markets
  - ✓Directly (open accounts with brokers)
  - ✓Indirectly (ginners, input-suppliers, credit institutions)
- Key issues: need good producer organizations and training/education in risk management tools

Ginners Dealing with Price Risks

- Back-to-back sales
- Forward selling (depends on market conditions, non-delivery risk, what if prices rise?)
- Minimum guaranteed purchase prices (not as common)
- Use of over-the-counter (OTC) and exchange markets
- Key issues: reliable ginners, know-how and education in risk management tools

Cotton Price Volatility

Graphs courtesy of Nigel Scott, Rabobank

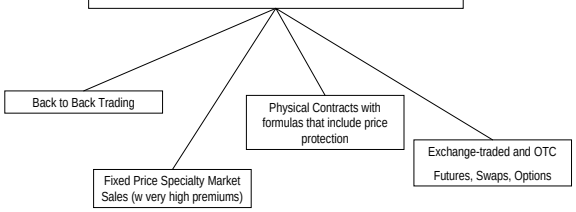
Physical Price Risk Mgmt Instruments

- Rely on existing buyer/seller relationships in the physical trade of the product
- Can involve
  - forward sales contracts
  - designing pricing formulas that reduce mismatch between purchase and sales (back-to-back trading)
  - incorporating price protection into physical sales contract pricing formulas (for a cost)
  - specialty markets – i.e. organic markets where high premiums are available

Financial
Price Risk Management Instruments

- Involve creating new commercial relationships with providers in international markets
- Involve "derivative" products – price "derived from" underlying physical commodity
- Are contracts that are bought and sold
- Can involve
  - Futures
  - Options
  - Swaps
  - More complex structures

Price Risk Management Instruments



Cotton Market Pricing

- New York Board of Trade (NYBOT)
  - Reflects U.S. price / U.S. business
  - Good liquidity in exchange-traded futures & options
  - Over the counter business – options & swaps
  - Trades 2 years forward
- Cotlook A Index
  - Reflects world cotton prices
  - Acts as benchmark price for physical trade
  - Is not a regulated financial exchange
  - Some brokers make markets - swaps

Futures contracts

An agreement between two parties for deferred delivery of an asset or a commodity

- Transferable and standardized contracts that specify price, quantity, delivery date, delivery location
- help "lock in" price levels
- do not have an upfront cost
- require a credit line and daily margin account settlement
- not easily accessible to developing country producers without significant financial collateral

Futures Contract Example:

Physical Market	Financial Market
July 1 • Need sales contracts to secure financing but do not know future prices • Sell cotton forward for December at price based on $0.63 / lb NYBOT • Worried about prices rising before volume is procured	July 1 • Purchase NYBOT futures contract for December at $0.63/lb
-----prices rise -------	-----prices rise -------
Nov 1 • Procure/purchase cotton at price based on $0.67/lb NYBOT	Nov 1 • Sell NYBOT futures contract for $0.67 /lb
Loss = ($0.04/lb)	Gain = $0.04/lb

NET = $0.00

Limitation of Futures…..
Margin Account Requirements

Example of Mark to Market of Futures Position
Prices in $/LB

Date	Price Level Purchased	Market Price	Difference	Volume in MT	Volume in LBS	Account Value
20-Apr	$0.6200	$0.6200	$0.0000	3,000	6,613,860	$0.00
24-Apr	$0.6200	$0.6000	($0.0200)	3,000	6,613,860	($132,277.20)
30-Apr	$0.6200	$0.5800	($0.0400)	3,000	6,613,860	($264,554.40)
5-May	$0.6200	$0.5600	($0.0600)	3,000	6,613,860	($396,831.60)
15-May	$0.6200	$0.6000	($0.0200)	3,000	6,613,860	($132,277.20)
20-May	$0.6200	$0.6300	$0.0100	3,000	6,613,860	$66,138.60
30-May	$0.6200	$0.6600	$0.0400	3,000	6,613,860	$264,554.40

Swap Contracts

- Two parties exchange benefits/disadvantages of the market movement over time
- Buyer of a swap fixes a price that is agreeable, and pays / receives benefit from movements away from that price
- Advantages – can be a no-cost structure; can be structured on Cotlook A prices as well as NYBOT
- Disadvantages - counterparty risk

Swap Contract Example:

Physical	Financial
July 1 • Ginner is interested in committing to long term sales contract • Fix long term sales agreement for entire season (thru Jan) at $0.63 / lb Cotlook A • Worried about fluctuating prices throughout season	July 1 • Purchase Cotlook A swap contract at $0.63/lb
-----prices rise ------- July - Nov 30 • Procure/purchase cotton at fluctuating prices that averaged $0.67/lb NYBOT	-----prices rise ------- July - Nov 30 • Swap contract settles financially at average of $0.67 / lb NYBOT • Buyer receives difference $0.04/lb
Loss = ($0.04/lb)	Gain = $0.04/lb

NET - $0.00/LB

Options Contracts

The right to buy or sell a futures contract within a specific period of time at a specific price level (exercise price)

- Transferable and standardized contracts that specify price, quantity, delivery date, delivery location
- help "lock in" price levels and provide opportunity to participate in positive price movements
- have an upfront cost
- do not require a credit line
- more easily accessible to developing country producers without financial collateral

Option Contracts

- Are two types:

PUTS = The right, or "option", to SELL

CALLS = The right, or "option", to BUY

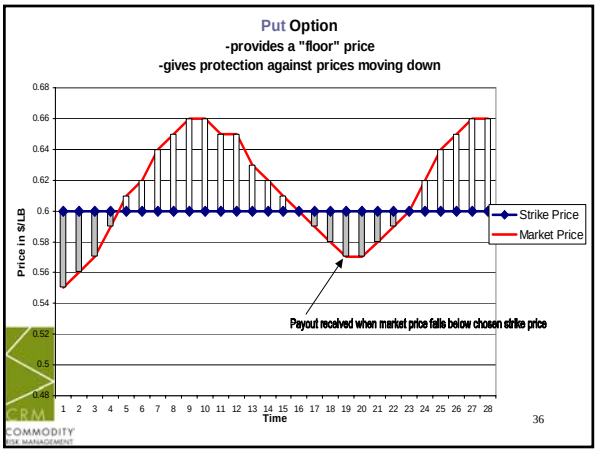
*note – can buy or sell either

Options Contracts

Buying Options Contracts:

PUTS = purchase the "right" but not the obligation to SELL a specific futures contract at a specified price within a specified time

-provides protection against prices moving down



Options Contracts

Buying Option Contracts

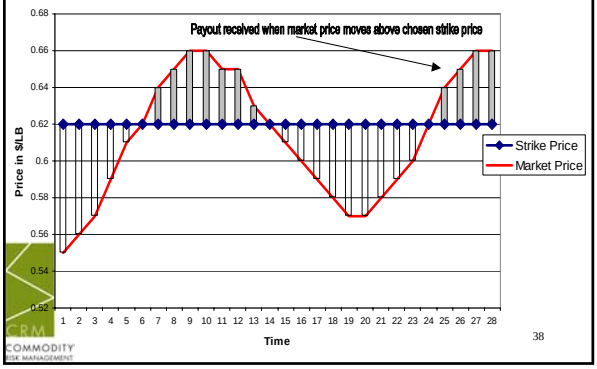
CALLS = purchasing the "right" but not the obligation to BUY specific futures contract at a specified price within a specified time

-provides protection against prices moving up

Call Option

- provides a "ceiling" price

-gives protection against prices moving up



Call Option Contract Example

Physical	Financial
July 1 • Need sales contracts to secure financing but do not know future prices • Sell cotton forward for December at price based on $0.63 / lb NYBOT • Worried about prices rising before volume is procured	July 1 • Purchase NYBOT call option contract for December at $0.63/lb • Cost of option contract is $0.02/lb Premium = ($0.02/lb)
-----prices rise -------	-----prices rise -------
Nov 1 • Procure/purchase cotton at price based on $0.67/lb NYBOT	Nov 1 • Sell back or Exercise call option contract at $0.67/lb NYBOT • Option pays out $0.04/lb
Loss = ($0.04/lb)	Gain = $0.04/lb

NET = ($0.02)

Costs & Benefits to using Options to Manage Risk

Costs	Benefits
• Does not solve all problems of commodity risk •Contracts have a price – usually 3-8% of underlying contract value •Requires significant managerial commitment, i.e. to learning and ongoing administration •Requires detailed account opening procedures •Price protection is in global terms, $ basis (not local)	•Provides price protection & peace of mind •Can allow for more strategic sales decisions •Can allow for greater access to credit (less risky financial situation) •Cost in terms of price is limited, and known upfront •Links with financial markets have indirect benefits – market info, relationships •Hedging strategies can be flexible, customized, change over time

Limitations of Market-Based Instruments

- Will not impact long-term price trends
- Will not help manage exchange rate risk
  - If exchange rates change adversely, could affect the value of the instrument
- Basis risk issue - since the price protection is at the global price level, not local, must watch the correlation between the markets

Delivery Channels

- Smallholders may have trouble accessing financial commodity markets on their own
- Need delivery channel which can be:
  - Trader
  - Ginner
  - Merchant
  - Bank

Price Risk Mgmt Impact on Banks

- Borrowers' business plan assumptions are directly affected by price – low prices create low margins, sometimes below operational viability
- Borrowers incur trading losses when not matching purchase and sales prices and trading losses lead to default
- Adverse price moves can create failure to achieve targeted volumes
- High cost of finance erodes margins for all & impacts competitiveness vs. other countries
- Negative experiences in lending to agriculture affects willingness to expand lending / supply competitively priced credit

Main Challenges for Market-Based Prick Risk Mgmt in Developing Countries

- Bridging the gap – what products/delivery channels will work?
- Counterparty risk
- Basis risk
- Foreign Exchange risk
- Market depth and liquidity
- Premium costs or margins
- Know how
- Institutional strength and resources (human and financial)

Main Benefits for Market-Based Prick Risk Mgmt in Developing Countries

- Better financial planning and management
- Improved access to financing
- Improved selling/purchasing strategies
- Ability to use wider array of business strategies to defend margins / maintain profitability
- Within the sector
  - better input/production decisions if less price uncertainty
  - less default/debt due to mismanagement of price volatility
  - overall supply chain relationships strengthened