Ted Davis

Cotton in Crisis -- (section of a paper for the World Bank written in 2009 with Joe O'Neill)

Introduction

The financial crisis that plunged the world economy into what economists have termed "the worst economic decline since the Great Depression of the 1930s" was often characterized as "the perfect storm." Every sector from stocks and bonds to real estate and basic commodities has suffered serious damage. And at the eye of the perfect storm, we find derivatives – a critical risk management tool that has served many sectors of the marketplace very effectively for a very, very long time.

As an indicator of the scale of derivatives use, the Bank for International Settlements has estimated that the value of outstanding derivative contracts exceeded $400 trillion during the first years of the 21st century. Putting this number into perspective, the GDP for the US economy, the world's largest, was worth less than $15 trillion.

How could a traditional financial tool that provides such a primary function in the world financial marketplace turn into an economic "weapon of mass destruction"? The answers are not singular or simple. But they do require a clear understanding of the original function of a derivative contract and then an appraisal of how it was used in different hands for purposes that sometimes went beyond those fundamental intensions.

The scope of this paper is not to grapple with the "big picture" of the use or mis-use of derivatives in all their forms, but to consider the effect of their changing usage on one commodity – cotton – more specifically the confluence of factors that contributed to the March '08 crisis and nearly precipitated the collapse of the world cotton industry.

We will examine the global growth that changed investment strategies, along with the market fundamentals for cotton that didn't change even as the familiar characteristics and basic functions of the cotton futures market were being ignored or transformed. The numbers associated with supply and demand, open interest and volatility swung widely outside their historical norms and the chaos that emerged produced greater damage than drought, storm or crop disease had historically produced. A closer look at the factors that drove these numbers into uncharted territory provides some clues as to the probable causes and the possible corrective measures.

And beyond the assessment of the damage, the challenge is to re-establish industry confidence in the value of a healthy cotton futures market. The primary question at the end of the story of the crisis is "how do I hedge price risk effectively in a changing marketplace?"

Traditional functions of the cotton futures market

To examine the market factors that nearly brought down an entire industry, it is important that we understand the purpose and practice of the cotton futures market – a market that has been in continuous operation in the United States since 1870. To ensure that everyone starts at the same point of reference in this tale of unintended consequences, we need to reaffirm some common definitions. This exercise will allow us to consider what the turmoil in the global economy has changed on a fundamental level in the cotton market; what basics need to be re-asserted and what

should perhaps be altered to support the continued value and economic role of cotton futures trading.

Commodity futures are one of the oldest forms of derivative contract. Derivatives are defined as financial instruments that derive their value from an underlying more fundamental investment. Therefore the price negotiated for a cotton futures contract is based on the value of cotton defined in the standard contract terms specifying a certain quantity, quality and grade. The contract has a pre-determined expiration date and a contract holder can make or take delivery of the physical cotton. Delivery is not the purpose of the contract and normally less than 5% of all contracts actually result in delivery. The physical delivery capability in the contract ties the futures price to the fundamental economics of the physical market, but it is not a common substitute or replacement for traditional cash market delivery.

The connection between cash and futures price makes price discovery the most important function of the commodity futures market. The price that is negotiated in the cotton futures market is important to everyone in the industry, whether they trade the futures market or not. Every participant in the cotton trade needs to know the market price of their cotton at the point of purchase/sale. Participants then calculate their "basis" (the difference between the type, quality and location of their cotton and the futures price).

With the futures price and their "basis", participants can determine the actual value of their cotton in the cash market. The basis does change, but the futures and cash price must remain connected in order for the price discovery process to produce a "quality" price for cotton that reflects the fundamentals of the cash market. That futures price negotiation brings stability and predictability to a cyclical market and allows all those that sell or buy cotton to navigate the peaks and valleys of supply and demand.

Generally, futures markets work best when this price discovery process reflects knowledge and insight on the physical market rather than on a shortage of buyers and sellers in the futures market. Hence, anything that makes it easier to find buyers and sellers makes the market more efficient. In the ideal liquid market (plenty of buyers and sellers), trading causes prices to move just to where they want to be in terms of the fundamentals of physical supply and demand.

With an effective price discovery negotiation process, participants in the cotton trade can take advantage of the second critical function of that market -- price risk transfer -- in order to hedge their cotton position. If they own cotton, they should sell a futures contract (take a "Short" position) and that historically has protected their selling price, taking the risk out of owning cotton. If they need to acquire cotton to sell or mill then they buy futures (assume a "Long" position) to protect the purchase price. Or they can purchase a "Put" option to protect their selling price or a "Call" option to cover their buy price. Options grant the right, but not the obligation to buy or sell a futures contract at a specified price.

The third function of the futures market is to provide opportunities for speculators to trade and profit from price movement and/or risk transfer. The speculator provides the marketplace with liquidity necessary for the trade to hedge their price risk effectively.

Price discovery, price risk hedging and profit opportunities for speculators from price movement have historically been the drivers of the futures market

Pillars of a healthy agricultural futures market

To support its three primary functions, a healthy agricultural futures market needs a few basic elements:

1. **Abundant supply of commodity** (global in scope with multiple sources) with sufficient quantity of the necessary quality available for delivery against the contract. Physical delivery capability keeps the market "honest" and supports convergence of the futures and cash price at contract expiration (supporting the quality of the price discovery process).
2. **A large number of participants from the trade** (hedgers) with competing price goals ensure liquidity in the market (lots of buyers and sellers). Too few participants could mean a single segment controls the market. If one participant or narrow sector can move the market independently, then the market price can cease to be reflective of the economics of the underlying commodity. For cotton, farmers and textile mills are necessary (seller and buyer), but the intermediaries (shippers, merchants) are the most important because they buy and sell frequently and are therefore constantly in and out of the market. **The merchant is the glue that holds the market together.**
3. **A sufficient number of speculators**. They provide the liquidity that the trade needs on a daily basis. The "specs" historically have come in many forms – local floor traders (trading for their own accounts), brokers and commodity trading advisors who seek profits in the market on behalf of qualified investors. Each speculator trades with different investment objectives, some very short-term, others longer term**. Speculators make the market work.**
4. **Sufficient price volatility** must be present in order to justify hedging and to attract speculator. Price movement means more opportunities for buyers and sellers.
5. **Data transparency and dissemination** is necessary for a level playing field in both the cash and futures market. Supply and demand data along with local price information must be readily available in cash market. Futures information should include price, open interest, trading volume, deliverable supply, notices issued/stopped and even such information as to the type of trader (spec of hedge) that holds the long or the short positions. An extensive price history is also indispensable, as trading strategies are often determined by cycles and patterns in markets.

With our brief primer in mind on how the market is intended to function, we can now review the circumstances and events leading to the March 08 crisis in the cotton market, and consider how the absence or serious alteration of any of the elements of a healthy market can affect its primary functions.