SAFEGUARDING FOOD SECURITY IN VOLATILE GLOBAL MARKETS

EDITED BY

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Chapter 21

The global grain contract: towards a new food security instrument

Ann Berg[1]

When futures markets sprung to life in Chicago about 150 years ago, no one could have envisaged how colossal they would become in the twenty-first century. Established as a clubhouse and insulated from public view, futures markets today have achieved celebrity status. Growing at remarkable rates for the past several years, these markets now attract interest from governments, the media, the financial world and the general public. However, outside the circle of professional users, futures markets in general are poorly understood and most recently have been lumped together with other sorts of "investments." This misunderstanding may be masking a potential beneficial role for futures in global price discovery.

How futures and securities differ

Futures contracts are unique instruments. Although various writers have recently classified futures as a type of security, from both a legal and operational viewpoint, they do not meet the securities designation. While securities - such as equity shares or bonds - are issued under strict legal standards by corporate or governmental entities, futures are purchase and sales agreements created by an exchange. Also, all securities offerings require United States Securities and Exchange Commission (SEC) registration (or other national supervisory body) and strict disclosure documents describing the issuing entity - *viz.*- business model, operations, financial results, management structure, etc. whereas futures contracts are filed with the United States Commodity Futures Trading Commission (CFTC) determines as a "Self Certification Submission." If the CFTC that the contract complies with the Commodity Exchange Act, particularly with regard to anti-manipulation provisions, it will allow the petitioning exchange to list the contract for trading.

Additionally, different regulations govern futures and securities. Most notably, rules prohibiting insider trading in securities do not apply to futures trading. As those inside a company play a fiduciary role to shareholders, they are prohibited from disclosing or trading on material non-public information regarding such matters as a takeovers or trade secrets. The concept of fiduciary does not pertain to commodity futures transactions - commodity traders possess varying amounts of information about crops or markets such as weather

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events, export sales, or government interventions, but there are no rules regulating the flow of such information. An exporter can disclose knowledge about potential export business or recent trading activity to anyone. Also many commodity related services publish daily reports on cash transactions and transportation rates. It is, however, illegal for a government official to leak knowledge of an official United States Department of Agriculture (USDA) crop report prior to its scheduled announcement.

The regulatory frameworks of securities and futures have many similarities, such as prohibitions against fraud, or front running, but otherwise have different objectives. Investor protection is the central aim of securities regulation, while preventing market manipulation is the intent of futures regulation. Both the exchange and the CFTC monitor the cash market and actively dissuade traders ("jawboning") from such practices as physical hoarding or non-economic movement of the commodity (distortion of trade). They also oversee the futures trading to guard against corners, squeezes or other price distorting activities.

Operationally, futures and securities differ sharply; futures contracts are hedging vehicles for the purpose of transferring risk - listed in serial months to suit hedging needs. Securities are investment instruments; equity securities represent a share of ownership in a corporation and bonds represent a creditor relationship between bondholder and issuer. In futures, speculators - i.e. traders that have no commercial interest in the underlying asset of the futures contract - hope to profit from taking the opposite side of hedgers' buy and sell orders. In securities markets, the securities buyer hopes to profit from share price increases, dividends or interest payments. In both markets, the speculator and the investor face risk of monetary loss, but from different circumstances. The speculator's loss arises solely from price risk exposure - which may be substantial. The investor's loss, which can stem from declining securities' prices, may arise also from debt default or bankruptcy of the issuing entity - the latter causing forfeiture of the entire investment.

Finally, while securities markets rely on a depository system to settle changes in ownership, futures markets interpose a central counterparty called the clearinghouse between every transaction. The clearinghouse - as the buyer to every seller and the seller to every buyer, relies on a margining system to eliminate the risk of default among market participants. To initiate trading, every clearing member must deposit with the clearinghouse an initial margin, which acts as a performance bond - usually equal to 5-10 percent of contract value. Because the clearinghouse "marks-to-market" members' trading positions, it collects and remits margin monies on a daily basis in accordance with the profit or loss on positions held or closed out. Significantly, gains and losses always offset each other and the number of buy and sell contracts always match. Hence, futures trading is called a zero sum game.

Futures contracts are standardized. For commodity contracts, the terms - usually called the specifications - will include underlying asset, contract size (by weight or volume), quality, currency denomination, minimum price fluctuation, delivery location or pricing basis and method of delivery or settlement. Other terms may include differentials for quality variations or for alternate delivery locations. In some contracts the final expiration price is cash settled, meaning that the price is derived from a formula of cash prices usually reported by reputable cash dealers. Maximum daily price limits and maximum position limits are also usually included in contract terms. Exchanges commonly create rules for dealing with potential price congestion or manipulation, default, and *force majeure* (Table 21.1).

In the United States of America, where commodity futures contracts have existed the longest, futures contracts originally were constructed by the major commercial players. Since the United States of America became a major exporter of wheat starting in the middle of the 19th century with Chicago as the primary storage and trans-shipment hub, the contracts were

Table 21.1: Securities versus futures

Securities	Commodity futures
Corporation/government issued	Exchange created
SEC registration	CFTC submission
Disclosure requirements	CEA compliance
Insider trading prohibition	Free information flow
Investor protections	Anti-manipulation provisions
Investment instruments	Risk transfer vehicles
Mostly collateralized	Highly leveraged
Intangible property	Commodity delivery obligations
Depository settlement system	Central clearinghouse
Capital formation	Zero sum game

meant to be most useful to warehouses which bought cheap cash wheat from the farmer at harvest and simultaneously sold a higher priced deferred futures month when shortages would likely arise. By doing so, the warehouse would "lock in" a profit that would more than offset its cost of storing and handling the grain. Because the warehouse controlled the stocks and the issuance of warehouse receipts - which became legal instruments in the state of Illinois in 1871 - it had considerable pricing power over the market. For example - only the warehouse with graded stocks (and therefore warehouse receipts) in its silos could establish a short futures position and then make delivery against the contract. Other short sellers would have to buy back their short positions, even if the futures price were a substantial premium to the physical commodity that could be brought alongside the elevator. In other words, farmers or grain operators would always take a discount to the futures price from the Chicago warehouse, as they had no way of turning their goods into registered warehouse receipts.[2]

Nonetheless, despite the power of the warehouse to control much of the delivery situation on the short side, long speculators could and often did acquire long positions exceeding the warehouse's abilities to accumulate grain and make delivery, especially in times of shortages (see Chapter 13). Corners and squeezes were a frequent event at the Chicago Board of Trade from its inception, sometimes involving the shipment of foreign wheat into the terminal area to break the corner. Finally, after WWI the Government of the United States of America put various measures in place to regulate and monitor the trading of futures contracts in agricultural commodities.

2 Under the Chicago delivery system, the warehouse would only "buy" and not "store" grain from farmers, wanting to keep control of grain stocks and delivery process. Grain silos outside the delivery market, however, allowed farmers to store grain by issuing farmers WHRs.

Mechanics of futures and hedging

As futures contracts approach expiration their prices begin to converge with underlying cash values, specified as the pricing basis of the contract. For example, the CBOT soybean contract specifies delivery of soybeans to be loaded into barges along the Illinois River. So, theoretically, the futures price will rise or decline to approximate the fob barge price during the delivery period. If futures prices are too high relative to cash, barge loading stations will tend to deliver against short futures sales, as the high futures price will represent a better price for their soybeans than the cash market. Conversely, if futures prices are too low relative to cash, long holders will tend to maintain their long positions to obtain the delivered commodity or until the price rises sufficiently to approximate cash values.

In the Chicago futures system, deliveries are tendered by the short to the clearinghouse which then assigns them to the long with the "oldest" purchase date. Although some futures contracts (such as the Zhengzhou cotton contract) permit the long to state some preference on quality or delivery locations with the clearinghouse, most futures contracts leave all options to the short. Hence, the least valued quality at the least desirable location will tend to be delivered first. Deliveries are tendered and stopped throughout the delivery month meaning that the same delivery instruments (in this case shipping certificates as opposed to warehouse receipts) can be "issued" and "stopped"[3] multiple times by multiple players as futures trading continues from the first day of the delivery month until mid-month. Other countries, such as India, do not allow retendering. There, after contract expiration, the clearinghouse compels the outstanding shorts to tender their deliveries which it then assigns to the outstanding longs. The delivery process is the key in bringing proper convergence between futures and cash - so that the basis level around the delivery market should be close to zero at contract expiration. For reasons discussed in Chapter 13, such as traders using delivery instruments as short term financing arrangements, convergence has become an imperfect process.

Hedging in commodity futures markets has been recognized as proper business activity from the market's inception. Well functioning future markets with ample long and short hedging orders tend to lessen volatility and reduce the trough to peak pricing inherent in the crop cycle. In markets without futures pricing, distressed harvest selling by farmers and end-of-year price spikes by end-users usually characterize price behaviour. Because commodities are volatile, the purpose of hedging is to diminish the price risk of a forward sale or purchase in the physical market. Futures can be thought of as proxy instruments to be held in place until the real transaction can occur: at this point, the hedger will offset the hedge by buying back its futures short or selling out its futures long.

Standard short hedge

Producers are standard short hedgers. After springtime crop sowing, the producer can sell a quantity of futures "short" against anticipated crop production. The sale will protect the producer against falling prices after the crop is harvested during fall. At harvest time, while making a cash market sale, the producer will buy back the hedge (same quantity/same contract month), thereby offsetting the trade. In the simplified example below ("zero" basis assumption), the producer anticipates a production of 50 000 bushels of corn - which is the equivalent of 10 futures contracts - 5 000 bushels each. In June, the producer decides to sell 10 December futures contracts at USD 5.00 and later, during November, buys back the futures at

[3] Issues and Stops are the standard terms exchanges use for making and taking of deliveries. The information is published daily during the delivery period.

Table 21.2: Standard short hedge example		
Month	Cash harvest price (USD/bushel)	Dec Futures price (USD/bushel)
June	Harvest bid is 5.00	Sell 10 contracts of corn @ 5.00 (50 000 bushels)
November	Sell 50 000 bushels to elevator @ 4.00	Buy 10 contracts of corn @ 4.00
Difference	-1.00 (loss)	+1.00 (gain)
The cash sale of corn @ 4.00 is improved by futures gain of 1.00		Net price of corn realized = 5.00

Table 21.3: Standard long hedge example			
Month	Cash price Jan/Feb (USD/bushel)	March Futures Price (USD/bushel)	Basis
September	Cash bid is 6.00	Buy 100 contracts of Wheat @ 6.75	-.75
January	Buy 500 000 cash wheat @ 5.00	Sell 100 contracts of wheat @ 5.25	-.25
Difference	+1.00 (gain)	-1.50 (loss)	.50
Cash purchase of wheat @ 5.00 incurred extra hedge cost of 1.50		Net price of wheat bought = 6.50	

USD 4.00 while selling the harvested production at USD 4.00. The producer realizes USD 5.00 per bushel for the sale. Whether the price increases or decreases, the producer would realize the same USD 5.00 for the grain by executing the USD 5.00 hedge.

Standard long hedger

Wheat millers are standard long hedgers. A wheat miller can protect against rising prices of wheat by buying futures contracts equal to its milling needs for a particular time period. In this example, the miller determines in September that it can profitably mill wheat into flour at the prevailing USD 6.00 per bushel January cash price and buys 100 contracts of wheat at USD 6.75 (minus USD 0.75 basis assumption). By January, the wheat price has dropped unexpectedly allowing the miller to buy cash wheat USD 1.00 lower, at USD 5.00. The basis level, however, has appreciated because farmers are reluctant to sell after the price drop and is now minus USD 0.25. After buying the USD 5.00 cash wheat, the miller sells out futures long hedge at USD 5.25, incurring a futures loss of USD 1.50. The miller's cost of wheat is therefore USD 0.50 higher than the "locked in" price of USD 6.00 making the purchase price USD 6.50.

Table 21.4: Pitfalls of hedging example: soybeans

Month	Cash harvest price (USD/bushel)	Nov Futures price (USD/bushel)
June	Harvest bid is 10.00	Sell 20 contracts of soybeans @ 10.00 (100 000 bushels)
October (harvest cut in half)	Sell 50,000 bushels to elevator @ 15.00 total proceeds = USD 750 000	Buy 20 contracts of soybeans @15.00 total futures loss = USD 500 000
Producer realizes total income return of USD 250 000 due to hedging and crop loss instead of projected USD 1 000 000		

Pitfalls of hedging

The standard hedges in the previous paragraphs in actual practice may turn out very differently depending upon developments in the crop year. The producer may only harvest half a crop for example, meaning that the loss incurred by buying back the hedge could dramatically diminish the proceeds from the cash sale. The following example illustrates the outcome of a producer using futures to hedge 100 000 bushels of soybean production at USD 10.00 - anticipating "locked in" revenue of USD 1 000 000 with devastating consequences when drought cuts harvest to 50 000 bushels (see Table 21.4).

In addition to quantity mismatches, other factors can undermine hedging strategies and execution.

Quality mismatch

The particular attributes of a commodity can make a significant difference in its value. For example, in 2008, wheat millers which hedged their needs for dark northern spring wheat[4] in the CBOT soft red winter contract, would have lost over USD 10 per bushel as DNS wheat traded as high as USD 25 while the Soft Red Winter (SRW) wheat contract reached USD 12.

Timing Mismatch Combined With Extreme Backwardation or Contango

In 1996, grain companies in the United States of America promoted a special type of hedging contract to producers called "hedge-to-arrive." Producers were urged to hedge expected harvest production in the July contract rather than the December because of the approximate USD 0.70 per bushel premium of the July over the December contract, a structure called "backwardation." For example, the July and December contract were trading around USD 3.70 and USD 3.00 respectively. The July hedge would eventually have to be "rolled" into the December to actually fix the cash price. As the crop year proceeded the July/December differential (called a "spread") widened substantially to about USD 1.60 - premium July. Producers that had to roll the July into the December (by buying back the July short and selling the December) incurred up to USD 1.60 per bushel loss in executing this strategy, cutting their cash price in half. A similar loss can occur when long hedgers need to roll hedges forward (selling spot and buying deferred contracts) and the market is configured in a steep contango - i.e. spot month is heavily discounted to deferred.

[4] Dark Northern Spring wheat is the highest quality bread making wheat and is traded on the Minneapolis Grain Exchange. Soft red wheat is primarily used for crackers and cakes.

Basis Trading and Basis Risk

The 'basis', or the differential between cash and futures prices, is a common trading vehicle among commercial traders. The phenomenon of basis trading was first documented in the 1950s by Holbrooke Working. Taking issue with Keynes concept of natural backwardation,[5] Working proposed that hedgers used futures not as a risk aversion strategy but as a means of maximizing profits by trading the basis.[6] It is usually more predictable, especially for exporters with extensive logistical capacity and knowledge of global and regional supply and demand fundamentals. Theoretically, the basis cannot trade higher than the futures price plus the full cost of shipping the commodity to another site. If the basis approaches this value, then traders will simply buy the futures and use the deliveries as a source of cash to satisfy a short position elsewhere. For example, if the corn cash basis is trading at a USD 1.00 premium to the March futures for Gulf fob cargos for April shipment and the costs of barge shipment and fobbing the corn into a vessel is USD 0.95, then traders will sell the gulf basis and maintain a long March futures position until they receive delivery. This strategy can create considerable profit for a firm possessing shipping and fobbing capacity: as corn is drawn out of the delivery market, typically the futures price will rise; and, when the barge-loads of corn reach the gulf export market, the exporter can profit from both sides of the trade.

The basis, however, can present tremendous risk - particularly to a hedger, often called an "out of position" hedger. An out of position hedger is a trader long or short a commodity in a region that is distant from the price basis of the futures contract. For example, in 2007, if owners of wheat in the Black Sea region or South Asian[7] wheat growing regions sold CBOT futures as a hedge against that ownership, they would have incurred significant losses. As export taxes (or outright export bans) kept wheat prices in the region artificially low, the price of CBOT wheat tripled - from around USD 4.00 to USD 12.00. The CBOT price spike was a response to a global supply shock and an accompanying rise in demand for United States of America origin wheat. Because of the asymmetrical pricing between the two regions, the futures loss could not have been offset by gains in cash wheat ownership.

Another instance of problems associated with "out of position" hedging occurred in July 2010 on the Euronext-Liffe cocoa contract when a single hedge fund purportedly took delivery of virtually all of the cocoa tonnage in the delivery markets and sent the cocoa price to a record level. Because the delivery markets are in Northern European ports, such as Amsterdam, Antwerp and Hamburg, the growers of cocoa in the African countries of Côte d'Ivoire and Ghana could not sell futures against production and then make delivery to profit from the high price.[8] Indeed, any short in the July contract without registered delivery warehouse capacity was forced to buy back its short at a considerable loss. Unlike the CBOT wheat case, the price spike could be mostly attributed to the activities of a single player - after the July futures expired, the September futures dropped by almost 30 percent.

The section above demonstrates some basic drawbacks to futures trading and hedging in a globalized world: the playing field is asymmetric with large commercial players having

5 Keynes theorized that the futures price was usually lower than the spot cash price because short hedgers would pay an "insurance premium" to hedge long holdings and thus drive futures below the spot.

6 See Working (1953).

7 The Russian Federation, Kazakhstan, Ukraine, India and Pakistan are major wheat producing countries and, during years of bountiful crop production, tend to export significant quantities.

8 Similar to the early Chicago market, only the operators and owners of the warehouses can sell futures and make delivery via warehouse receipts.

tremendous advantage over small players. Also, for out of position players, hedging can be disastrous. Many countries have understood the hazards and complexities of international futures trading and have encouraged the establishment domestic markets - both cash and futures - to aid producers, processors and users in commodity risk management.

Domestic initiatives have been extremely successful in helping the producer side of the market. Many recent studies have demonstrated how futures have aided producer income realization, by reducing distressed selling, facilitating credit, offering marketing choices, and rewarding quality production. However, government policy constrains most domestic markets. The Government of India for example halted trading in several basic food commodities after perceiving inflation in wheat, tur, dal, potatoes and sugar.[9] The Government of China has frequently intervened in futures markets. Consequently, futures in emerging markets have limited suitability for international hedging and in some cases (e.g. India) foreign direct investment is prohibited. On the opposite side of the supply chain, import dependent countries have almost no instruments to manage commodity price risk outside the international markets such as the CBOT and more recently the Euronext Liffe, where the milling wheat, corn and rapeseed contracts have been gaining benchmark status rapidly. Perhaps now is the time to explore new instruments for addressing the consumption side of the market.

Global contracts

Because of their unique attributes, futures contracts are open to a wide range of design options. Past futures contract creation favoured warehouses and commercial exporters. With few exceptions,[10] these contracts were based on a single country of origin. The large international exchanges could, however, construct global contracts for cereal and oilseed markets that would complement their current product offerings. Instead of tracking prices that converge with cash values in a single geographic area, global contracts could track "cheapest to deliver" commodities by designating delivery points all over the world. As noted previously, commodities of least value are the ones tendered first by the short. This means, for example, that traders in countries with comparative surpluses and hence low relative prices would deliver on the futures. These deliveries would set the price of the contract.

A precedent for global contracts in the commodity futures market does exist: both the InterContinental Exchange and Euronext Liffe list a global sugar futures contract. The Euronext Liffe contract - based on white sugar - specifies delivery fob vessel in over three dozen countries. The exchanges designed the contracts as such because of the international structure of sugar production, including its staggered hemispheric growths. The ports able to originate the cheapest sugar (with respect to contract differentials) are the first to deliver against the contract. This unique delivery system is a global signalling system of both price and regional supply availabilities - ready for export, unlike interior based delivery systems that are centred in one geographic location. In addition, such a contract would tend to better absorb events such as export bans or export taxes declared by some countries, as it would spread the price impact of a supply or demand shock across all potential exporting countries.

[9] These markets have been restarted.

[10] The Tokyo Grain Exchange corn contract was the first grain contract to specify CIF delivery to a foreign destination - in this case Japanese ports. The contract is also denominated in Japanese Yen and not United States Dollars.

A global fob contract does have a drawback to potential long takers: the uncertainty of delivery location makes logistical planning - including vessel chartering - complicated and more costly than standard futures. However, this type of drawback may be a perfect antidote to the financialization of futures that has characterized futures markets in the United States of America, evidenced by the build-up of speculative long positions reported in the CFTC Commitment of Traders. Because the delivery-taker would need to charter a vessel and execute a *bona fide* sale to another country, the contract would maintain its integrity to the cash market.

A case for wheat

A global fob wheat contract that would specify fob delivery points in the major producing regions such Australia, Argentina, the Black Sea region, Canada, France and the United States of America would be the most logical initial contract to develop for either cereals or oilseeds. Wheat has multiple origination possibilities and is the most basic food grain shipped in international markets. The contract could also contain contract terms to attract speculators but ensure ultimately that the wheat was channelled into proper commercial channels. In fact, such a contract would attract speculators that arbitrage between two markets in the same commodity (e.g. long French wheat/short global wheat). Arbitragers play an important role in reducing volatility and creating price efficiency.

These terms could include:

- Delivery every other month - or alternatively every month to ensure proper convergence with the cash market throughout the year
- Compulsory load-out by the long taker within 60 days of receiving notice of delivery. Compulsory load-out is a feature of Indian futures markets and prevents stocks accumulation by speculators who keep the commodity insulated from commercial channels
- Speculative position limits which are the same for every month, e.g. 1 000 January, 1 000, March, 1 000 May, etc. This would prevent the distorting "roll" before every delivery month
- Contract size denominated in 100 tonnes
- Delivery quantity issued by load-out elevator in multiples of 5 000 tonnes
- Quality to include both hard red wheat and white wheat at differentials

The currency denomination of this contract could involve a hybrid approach of trading in dollars and calculated simultaneously in Special Drawing Rights (SDRs), which are international currency reserve assets issued by International Monetary Fund. SDRs are not a currency *per se* but rather a currency derivative. The SDR value is the reciprocal of the sum of the weighted basket of four currencies (quoted in exchange rate equivalents): the British Pound, the Euro, the Japanese Yen and the United States Dollar. It is recalculated every day (see chart below). Although intended help countries with reserve issues, SDRs have received endorsement by several economists, notably World Bank President Robert Zoellick, as a possible basis for a new monetary system. Officials in China have also proposed the development of a new monetary system based on SDRs. Finally the IMF in December of 2010 has urged the transition from a single reserve currency (United States Dollar) to SDRs. Although it is doubtful that either SDRs or another currency such as the Euro would start to denominate commodities in the immediate future, a double quote system would offer an alternate pricing view, particularly as many countries that draw on SDRs are commodity importers.

Because SDRs are calculated as a reciprocal to non-United States Dollar currencies - they could provide a price mechanism that smoothes out the volatility of United States Dollar

Table 21.5: IMF calculation of SDR value

As of Monday, 20 December 2010				
Currency	Currency amount under Rule O-1	Exchange rate [1]	USD equivalent	Percent change in exchange rate against USD from previous calculation
Euro	0.4100	1.31640	0.539724	-0.829
Japanese yen	18.4000	83.79000	0.219597	0.322
Pound sterling	0.0903	1.55590	0.140498	-0.071
USD	0.6320	1.00000	0.632000	
			1.531819	
USD 1.00 = SDR			0.652819 [2]	0.255 [3]
SDR1 = USD			1.53182 [4]	

[Note: To obtain the SDR value – multiply the currency amount (column 1) times the exchange rate (column 2) and add the results (column 3). The sum - 1.531819 (row 5) is divided into 1 to achieve the reciprocal SDR value of .652819.]
source: http://www.imf.org/external/np/fin/data/rms_sdrv.aspx
(1) The exchange rate for the Japanese Yen is expressed in terms of currency units per United States Dollar; other rates are expressed as United States Dollars per currency unit.
(2) IMF Rule O-2(a) defines the value of the United States Dollar in terms of the SDR as the reciprocal of the sum of the equivalents in United States Dollars of the amounts of the currencies in the SDR basket, rounded to six significant digits. Each United States Dollar equivalent is calculated on the basis of the middle rate between the buying and selling exchange rates at noon in the London market. If the exchange rate for any currency cannot be obtained from the London Market, the rate shall be the middle rate between the buying and selling exchange rates at noon in the New York market or, if not available there, the rate shall be determined on the basis of Euro reference rates published by the European Central Bank.
(3) Percent change in value of one United States Dollar in terms of SDRs from previous calculation.
(4) The reciprocal of the value of the United States Dollar in terms of the SDR, rounded to six significant digits.

based commodities - which tend to rise when the United States Dollar declines. While the United States Dollar value is always held constant as an exchange rate of 1:1, the other three currency exchange rates are computed against the United States Dollar (see IMF notes below chart). If, for example using the chart below, the Euro exchange rate were revalued at 2.00 instead of 1.31 (meaning that the United States Dollar was considerably weaker), then the SDR value would be recomputed (rounded to two digits) from 0.65 at 0.55. If United States Dollar based commodities rose or fell based on weakness or strength, the SDR value would move in opposite direction of commodity price. For example, a wheat price of USD 300 per tonne would be calculated at around 196 SDRs with the SDR rate at 0.65. If wheat rose to USD 360 per tonne and the SDR rate fell to 0.55 due to a weaker United States Dollar, then wheat would be only slightly higher in SDRs - or 198 SDRs.

Conclusions

In sum, the world needs greater understanding of the characteristics, role and possibilities of futures markets in today's globalized environment. Although futures markets have experienced phenomenal growth worldwide over the past ten years, the current system appears insufficient to serve "out of position hedgers" (long cash/short futures) and commodity importers (short cash/long futures). A global contract with multiple delivery ports containing safeguards against excessive speculation and assurances of commercial viability could help remedy the current market shortcomings. A hybrid quote system of dollars and SDRs could prove to be an interesting test case for commodity pricing.

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