

### *Chapter III*

## **Managing the financialization of commodity futures trading**

#### **A. Introduction: commodity markets and the financial crisis**

The build-up and eruption of crisis in the financial system was paralleled by an unusually sharp increase and subsequent strong reversal of the prices of internationally traded primary commodities. The recent development of commodity prices has been exceptional in many ways. The price boom between 2002 and mid-2008 was the most pronounced in several decades in its magnitude, duration and breadth. The price decline since mid-2008 stands out for its sharpness and number of commodity groups affected. The price hike for a number of commodities put a heavy burden on many developing countries relying on imports of food and energy commodities, and contributed to food crises in a number of countries in 2007–2008, while the slump of commodity prices in the second half of 2008 was one of the main channels through which the dramatic slowdown of economic and financial activity in the major industrialized countries was transmitted to the developing world.

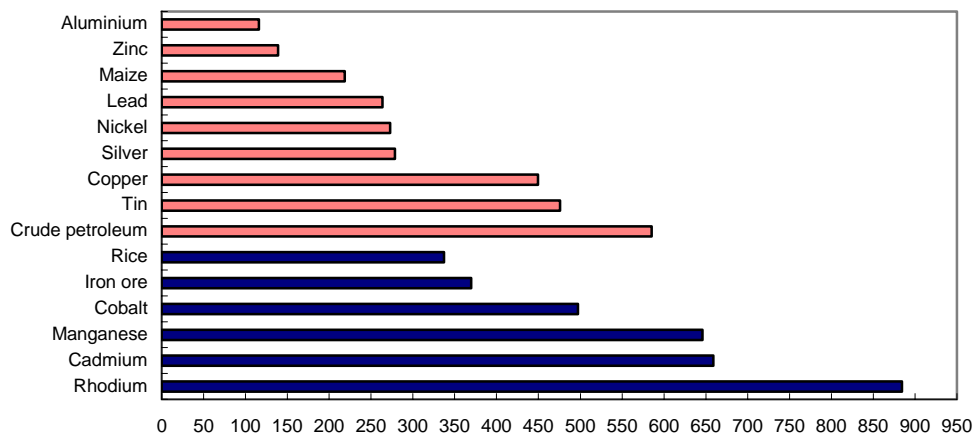
The strong and sustained increase in primary commodity prices between 2002 and mid-2008 was accompanied by a growing presence of financial investors on commodity futures exchanges. This “financialization” of commodity markets has raised concern that much of the recent commodity price developments – and especially the steep increase in 2007–2008 and the subsequent strong reversal – was largely driven by financial investors’ use of commodities as an asset class.

Over the 78 months from early-2002 to mid-2008 the IMF’s overall commodity price index rose steadily and nominal prices more than quadrupled. During the same period, UNCTAD’s non-fuel commodity index tripled in nominal terms and increased by about 50 per cent in real terms. Since peaking in July 2008, oil prices have dropped by about 70 per cent, while non-fuel prices have declined by about 35 per cent from their peak in April 2008. This reversal is considerable; however, it corresponds only to about one seventh of the previous 6-year increase, so that commodity prices remain well above their levels of the first half of this decade. While the timing differed from commodity to commodity, both the surge in prices and their subsequent sharp correction affected all major commodity categories, and they affected both exchange-traded commodities and those that are either not traded on commodity exchanges or not included in the major commodity indices (figure 3.1). It is this latter category that many financial investors use for their investment in commodities.

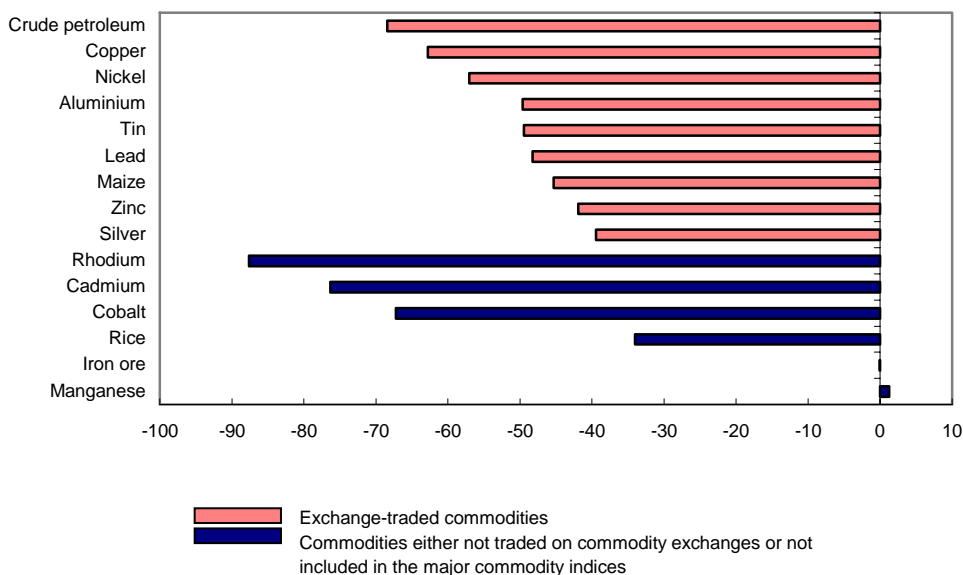
Figure 3.1

COMMODITY PRICE CHANGES, 2002–2008

A. JUNE 2008 VS. JANUARY 2002  
(Percentage change)



B. DECEMBER 2008 VS. JUNE 2008  
(Percentage change)



Source: UNCTAD secretariat calculations, based on *Metal Bulletin*; and *UNCTAD Commodity Price Bulletin*.

The sometimes extreme scale of changes in recent commodity price developments and the fact that prices had increased and subsequently declined across all major categories commodities suggests that, beyond the specific functioning of commodity markets, broader macroeconomic and financial factors which operate across a large number of markets need to be considered to fully understand recent commodity price developments. The depreciation of the dollar clearly was one such general cause for the surge in commodity prices. But a major new element in commodity trading over the past few years is the greater weight on commodity futures exchanges of financial investors that consider commodities as an asset class. Their possible role in exacerbating price movements away from fundamentals at certain moments and for certain commodities is the focus of the following sections.

## **B. The growing presence of financial investors in commodity markets**

Financial investors have been active in commodities since the early 1990s. Initially, they mainly comprised hedge funds that have short-term investment horizons and often rely on technical analysis. The involvement of financial investors took on new proportions in the aftermath of the dot-com crash in 2000 and started a meteoric rise in early 2005. Most of this financial investment in commodities uses swap agreements to take long-term positions in commodity indexes. Two common indexes are the Standard & Poor's Goldman Sachs Commodity Index (S&P GSCI) and the Dow Jones-American International Group Commodity Index (DJ-AIGCI), which are composites of weighted prices of a broad range of commodities, including energy products, agricultural products, and metals.<sup>9</sup>

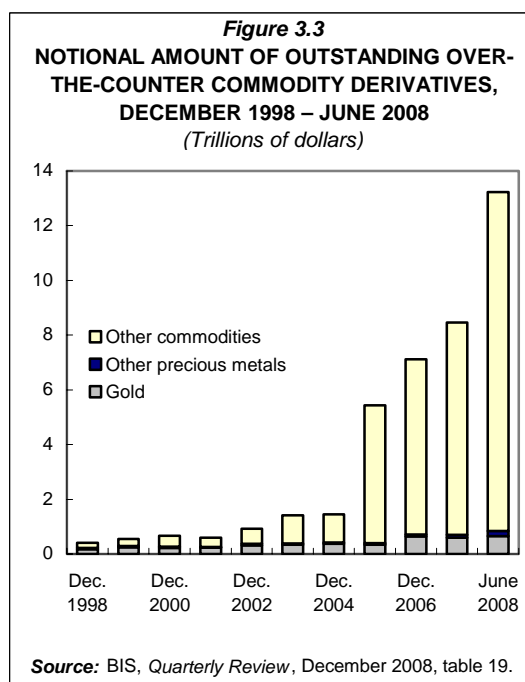
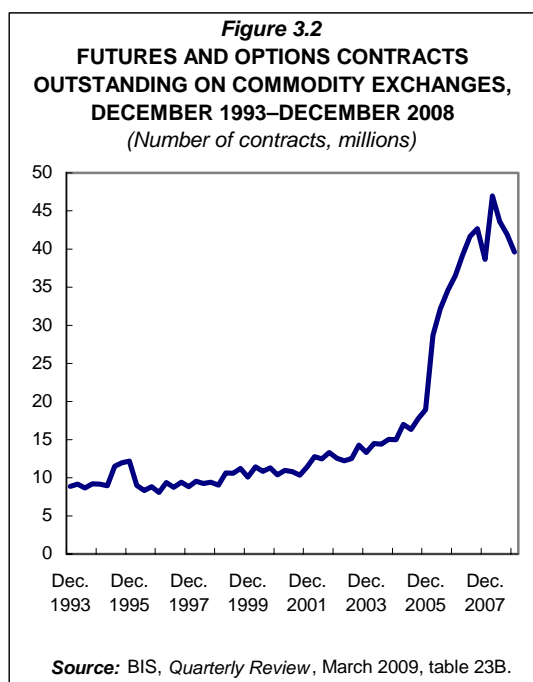
Investors in commodity indexes aim at diversifying portfolios through exposure to commodities as an asset class. Index investors gain exposure in commodities by entering into a swap agreement with a bank which, in turn, hedges its swap exposure through an offsetting futures contract on a commodity exchange. All index fund transactions relate to forward positions – no physical ownership of commodities is involved. Index funds buy forward positions, which they sell as expiry approaches and use the proceeds from this sale to buy forward again. This process – known as “rolling” – is profitable when the prices of futures contracts with a long maturity are below the prevailing price of the futures contract with a remaining maturity of one month (i.e. in a “backwardated” market) and negative when the prices of futures contracts with longer maturities are higher (i.e. in a “contango” market).

Trading volumes on commodity exchanges strongly increased during the recent period of substantial commodity price increases. The number of futures and options contracts outstanding on commodity exchanges worldwide increased more than fivefold between 2002 and mid-2008 and, during the same period, the notional value of over-the-counter (OTC) commodity derivatives has increased more than 20-fold, to \$13 trillion (figures 3.2 and 3.3).<sup>10</sup> But financial investment sharply declined starting in mid-2008. This parallel development of commodity prices and financial investment on commodity futures markets is a first indicator for the role of large-scale speculative activity in driving commodity prices first up and then down.

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<sup>9</sup> In the DJ-AIGCI, weights are limited to 15 per cent for individual commodities and to one third for entire sectors, while in the S&P GSCI weights depend on relative world production quantities, with energy products currently accounting for about two thirds of the total index.

<sup>10</sup> The Bank for International Settlements (BIS) is the only source that provides publicly available information about OTC commodity markets. However, these data do not allow for commodity-specific disaggregation. Notional amount refers to the value of the underlying commodity. However, traders in derivatives markets do not own or purchase the underlying commodity. Hence, notional value is merely a reference point based on underlying prices.



### C. The financialization of commodity futures trading

Among economists there is, however, scepticism with regard to the link between speculation and commodity price developments. This scepticism is based on the efficient market hypothesis. According to this view, prices in a freely operating market perfectly and instantaneously incorporate all relevant information available. Thus, if speculators were driving market prices above fundamental levels, consumers would demand less than producers are supplying. The resulting excess supply must appear in inventories. For example, Krugman (2008) argues that no inventory accumulation could be observed during the sharp increase in oil prices in 2007–2008 so that speculation cannot have played a role in the oil price run-up.

However, the short-term price elasticity of many physical markets for commodities like oil and food is low. Prices can be driven up by the mere fact that everybody expects higher prices, which in itself may be driven by rising futures prices following rising demand for futures by financial speculators. If producers increase prices consumers do not have many means to hold up. If no substitutes are quickly available they have to accept for a time higher prices. No inventories appear, the market is cleared but prices are much higher than without speculative activity. The efficient market hypothesis fails on commodity markets because the number of counterparties (especially those with an interest in physical commodities) and the size of their positions are less than perfectly elastic. Hence, large orders may face short-term liquidity constraints and cause significant price shifts. This implies the possibility of a “weight-of-money” effect: position changes that are large relative to the size of the total market have a temporary, or even a persistent, price impact.

There is at least one other reason why the efficient market hypothesis may fail on commodity markets. Changes in market positions may result from the behaviour of a certain group of market participants who respond to factors other than information about market fundamentals. Huge amounts of uninformed traders may misinterpret certain pieces of information as a genuine price signal and, by incorporating this signal into their trading strategy, perpetuate the “informational” value of this signal across the market. Given that uninformed traders often use similar trend extraction techniques, they run the risk that collectively they will generate the trends that they then individually identify and follow.

In addition, available inventory data are incomplete. For example, market participants may want to accumulate inventories but do not succeed because of tight supply. In such a situation, mere attempts to accumulate inventories may push up prices without any actual increase in physical inventories. Moreover, a large part of inventories is not included in published data. In the case of some non-ferrous metals for instance, official inventories have strongly increased since mid-2008 despite declining prices. This is likely to reflect a massive de-stocking of private inventories by market participants who had accumulated commodities when prices were rising and the ready availability of physical commodities could provide significant extra benefits and are now depositing their products in official warehouses in exchange for cash. Thus, developments of official inventory data are not reliable indicators in the debate on the relative impact on commodity prices of financial investors and of fundamentals.

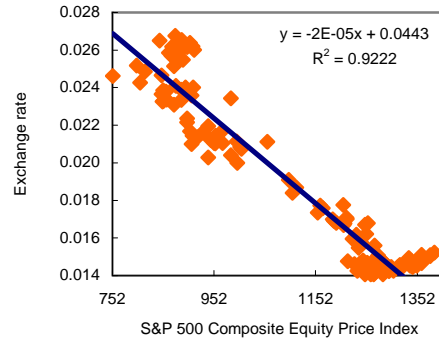
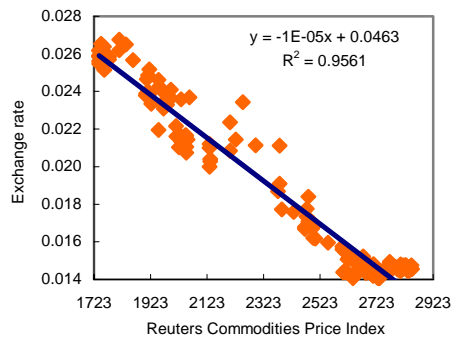
Uninformed trading combined with herd behaviour relates to those managed funds that use technical-analysis tools (trend identification and extrapolation, algorithmic trading) for position taking. This can result in increased short-term price volatility, as well as the overshooting of price peaks and troughs. Moreover, if traders react to changes in non-commodity markets and the price changes stemming from their position changes feed into the trading strategies of uninformed traders, commodity markets will become exposed to spillover effects from other asset markets. Uninformed trading on commodity markets is not a new phenomenon. However, the sustained trend towards greater financialization of commodity trading is likely to have increased the number and relative size of price changes that *per se* are unrelated to fundamental conditions.

A strong indication for the role of uninformed trading in price setting on commodity markets is the strong correlation between the unwinding of speculation in different markets that should be uncorrelated. Figure 3.4 shows that there are phases of speculative activity where currencies, even those of small countries like Iceland, and commodity prices are clearly driven by factors beyond fundamentals because the fundamentals underlying the different prices cannot go into the same direction. Obviously, all participants react to the same kind of information, to the same “news” by winding or unwinding their exposure to risky assets.

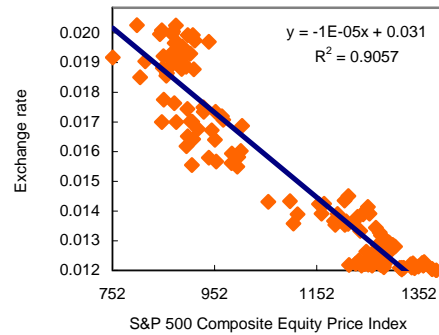
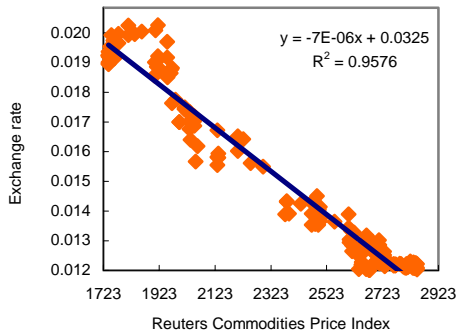
Figure 3.4

**CORRELATIONS BETWEEN THE EXCHANGE RATES OF SELECTED COUNTRIES AND EQUITY AND COMMODITY PRICE INDICES, JUNE 2008–DECEMBER 2008**

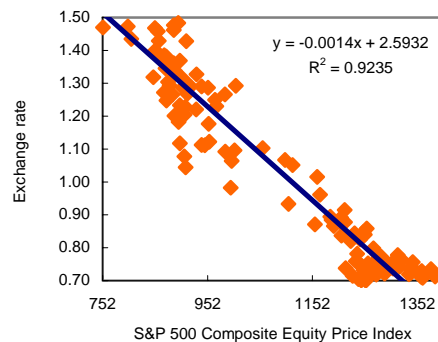
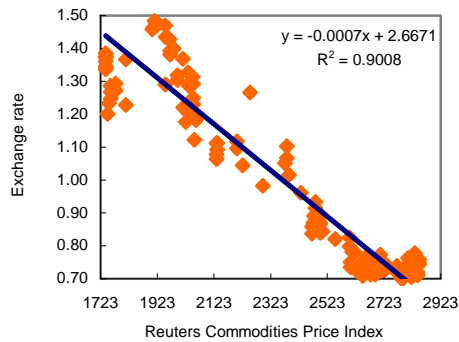
**A. BRAZILIAN REAL TO JAPANESE YEN**



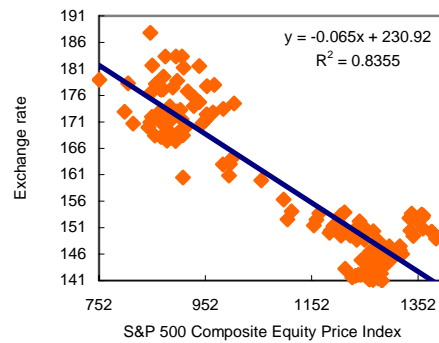
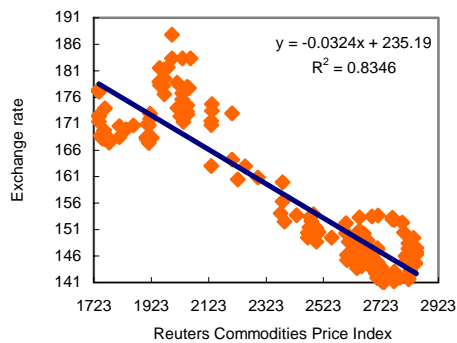
**B. NEW ZEALAND DOLLAR TO JAPANESE YEN**



**C. ICELANDIC KRONA TO JAPANESE YEN**



**D. HUNGARIAN FORINT TO JAPANESE YEN**



Source: Thomson Datastream database.

The weight-of-money effect relates primarily to index-based investment, which allocates positions across many commodities in proportions that depend on the weighting formula of the particular index. As a result, index-based investment generates price pressure in the same direction across a broad range of commodities. Moreover, index-based investment positions can be large relative to the size of the entire markets, as shown below.

Making this analytical distinction between informed, uninformed and noise traders is straightforward in principle (table 3.1), but in practice making this separation is not easy. The Commodity Futures Trading Commission (CFTC) – the institution mandated to regulate and oversee commodity futures trading in the United States – publishes trading positions in anonymous and summary form in the weekly Commitments of Traders (COT) report. The CFTC classifies market participants as “commercial” if they are hedging an existing exposure and “non-commercial” if they are not. It is widely perceived that, as a consequence of the increased diversity of futures markets participants and the increased complexity of their activities, the COT data may fail to fully represent futures market activity (CFTC, 2006a). Many institutions reporting positions as hedges, and which therefore are classified as commercial, are held by commodity swap dealers to offset financial positions which, if held directly as commodity futures, would be counted as non-commercial. Responding to these concerns, the CFTC started in 2007 to issue supplementary data on positions of commodity index traders (CITs) for selected agricultural commodities (CFTC, 2006b). According to the CFTC (2009), CITs generally replicate a commodity index but may come from either the commercial or non-commercial categories.

**Table 3.1**

**Commodity futures trading behaviour: traditional speculators, managed funds and index traders**

|  | <i>Traditional speculators</i>   | <i>Managed funds</i>   | <i>Index traders</i>  |
|--|--|--|---|
| General market position                              | Active positions on both sides of market; able to benefit in both rising and declining markets   | Active, often large positions on both sides of market; able to benefit in both rising and declining markets; relatively opaque positions   | Passive, large and long-only positions in swap agreements with banks which, in turn, hold futures contracts to offset their short positions; able to benefit only in rising or backwardated (spot price > forward price) markets; transparent positions   |
| Position taking behaviour                            | React to changes in commodity market fundamentals (supply, demand, inventories); mostly trade in one or two commodities on which they have intimate knowledge; leveraged positions     | Some (e.g. hedge funds) conduct some fundamentals research and thus react to changes in commodity market fundamentals. Others (e.g. commodity trading advisors) mostly use technical analyses (trend identification and extrapolation, algorithmic trading), which extract information from price movements, thereby risking to misinterpret noise trader position taking for genuine price information, to engage in herding behaviour and to cause snowball effects; leveraged positions | Not interested in fundamentals of specific commodity markets but may take views on commodities as a whole; relative size of positions in individual commodity determined by index weighting formula; idiosyncratic position taking such as rolling at predetermined dates; position changes relatively easy to predict; fully collateralized positions  |
| Impact on liquidity                                  | Improve liquidity  | Active, large positions can improve liquidity and make hedging easier for large commercial users. In periods of rapid and sharp price changes, large positions are a "liquidity sponge", making it difficult for hedgers with commercial interests to place orders   | Passive, large positions act as "liquidity sponge"  |
| Reaction to sharp price changes                      | May be taken by surprise if price changes are unrelated to fundamentals; can be forced out of market if insufficient liquidity to meet margin calls triggered by sharp price increases | Taking and closing positions often automatically triggered by computer programmes; risk of causing snowball effect   | Different price developments for individual commodities require recomposition of relative investment positions to preserve predetermined index weight pattern; sharp price declines may cause disinvestment   |
| Reaction to changes on other markets                 | Operate only in commodity markets; normally concentrate on one or a few commodities and, thus, react little to developments in other markets   | Operate across different asset classes. Commodities tend to have a fixed weight in managed fund portfolios so that price movements in other markets can lead to position changes in commodity markets  | Operate across different asset classes. Potentially strong links between commodity futures market activity and development on equity and bond markets, in two dimensions: (i) risk-return combinations in other asset classes can become more attractive, causing a withdrawal from commodity markets; (ii) margin calls on other investments can trigger closing of positions in commodities and accelerate contagion across asset classes |
| Classification in CFTC Commitment of Traders Reports | Non-commercial user category   | Mostly in non-commercial user category   | Mostly in commercial user category  |

**Source:** UNCTAD secretariat.



A primary concern often expressed with respect to the financialization of commodity trading relates to the magnitude of index trader activity combined with the fact that they tend to take only long positions. Table 3.2 provides evidence on the relative share of both long and short positions held by different trader categories in those agricultural markets for which the CFTC has published disaggregated data starting in January 2006. The data clearly show that index funds are present almost exclusively in long positions and that they account for a large portion of the open interest in some food commodity markets. Indeed, over the period 2006–2008, the net long positions of index traders in cotton, live cattle, feeder cattle, lean hogs and wheat were significantly larger than the respective positions of commercial traders, while they were roughly of equal size for maize, soybeans and soybean oil.

While the number of index traders is relatively small, their average long position is very large (middle panel of table 3.2), sometimes more than ten times the size of an average long position held by either commercial or non-commercial traders. Positions of this order are likely to have sufficiently high financial power to drive prices (Capuano, 2006). As a result, speculative bubbles may form and price changes can no longer be interpreted as reflecting fundamental supply and demand signals. All of this can have an extremely detrimental effect on normal trading activities and the efficiency of the market, despite the existence of speculative position limits.

In fact index traders actually exceeded speculative position limits in wheat contracts on the Chicago Board of Trade (CBOT) and for other commodities they came much closer to these limits than did the other trader categories (right-hand panel of table 3.2). This is legal as index traders are mostly classified as commercial traders and, therefore, are not subject to speculative position limits. But as noted by Sanders, Irwin and Merrin (2008: 8) “it does provide some indirect evidence that speculators or investors are able to use ... [existing] instruments and commercial hedge exemptions to surpass speculative limits”.

**Table 3.2**  
**Futures and options market positions, by trader group,**  
**selected agricultural commodities, January 2006–December 2008**

(Per cent and number of contracts)

| <b>Long positions</b> |  |                   |              |                      |                              |                   |              |                           |
|-----------------------|--|-------------------|--------------|----------------------|------------------------------|-------------------|--------------|---------------------------|
| <i>Commodity</i>      | <b>Percentage share in total positions</b> |                   |              |                      | <b>Average position size</b> |                   |              | <b>Speculative limits</b> |
|                       | <i>Non-Commercial</i>                      | <i>Commercial</i> | <i>Index</i> | <i>Non-reporting</i> | <i>Non-Commercial</i>        | <i>Commercial</i> | <i>Index</i> |                           |
|                       | Maize                                      | 42.4              | 23.4         | 22.8                 | 11.3                         | 1134              | 1499         |                           |
| Soybeans              | 42.1                                       | 20.4              | 25.2         | 12.2                 | 590                          | 1052              | 6024         | 10000                     |
| Soybean oil           | 38.0                                       | 28.4              | 23.8         | 9.8                  | 790                          | 1719              | 4418         | 6500                      |
| Wheat CBOT            | 39.0                                       | 12.3              | 41.1         | 7.5                  | 553                          | 964               | 8326         | 6500                      |
| Wheat KCBOT           | 38.1                                       | 23.4              | 21.0         | 17.5                 | 680                          | 632               | 1816         | 6500                      |
| Cotton                | 41.0                                       | 20.1              | 30.7         | 8.3                  | 363                          | 1010              | 4095         | 5000                      |
| Live cattle           | 39.3                                       | 12.0              | 39.7         | 9.0                  | 580                          | 409               | 4743         | 5150                      |
| Feeder cattle         | 42.5                                       | 15.7              | 24.6         | 17.2                 | 258                          | 162               | 469          | 1000                      |
| Lean hogs             | 36.3                                       | 8.7               | 43.8         | 11.3                 | 419                          | 712               | 3983         | 4100                      |

| <b>Short positions</b> |  |                   |              |                      |                              |                   |              |                           |
|------------------------|--|-------------------|--------------|----------------------|------------------------------|-------------------|--------------|---------------------------|
| <i>Commodity</i>       | <b>Percentage share in total positions</b> |                   |              |                      | <b>Average position size</b> |                   |              | <b>Speculative limits</b> |
|                        | <i>Non-Commercial</i>                      | <i>Commercial</i> | <i>Index</i> | <i>Non-reporting</i> | <i>Non-Commercial</i>        | <i>Commercial</i> | <i>Index</i> |                           |
|                        | Maize                                      | 34.7              | 47.2         | 1.2                  | 16.9                         | 618               | 2469         |                           |
| Soybeans               | 36.4                                       | 44.6              | 1.2          | 17.8                 | 365                          | 1696              | 736          | 10000                     |
| Soybean oil            | 29.1                                       | 63.2              | 0.9          | 6.7                  | 512                          | 3385              | 720          | 6500                      |
| Wheat CBOT             | 41.7                                       | 42.3              | 3.0          | 12.9                 | 554                          | 2124              | 1218         | 6500                      |
| Wheat KCBOT            | 20.4                                       | 56.0              | 0.5          | 23.1                 | 378                          | 1123              | 221          | 6500                      |
| Cotton                 | 39.8                                       | 54.1              | 1.0          | 5.1                  | 380                          | 2706              | 496          | 5000                      |
| Live cattle            | 34.5                                       | 43.8              | 0.7          | 21.0                 | 456                          | 879               | 487          | 5150                      |
| Feeder cattle          | 34.0                                       | 20.9              | 1.0          | 44.2                 | 166                          | 150               | 213          | 1000                      |
| Lean hogs              | 38.3                                       | 43.1              | 0.8          | 17.9                 | 405                          | 1952              | 353          | 4100                      |

**Source:** UNCTAD secretariat calculations, based on data from CFTC; speculative limits from Sanders, Irwin and Merrin (2008: 25).

**Note:** Following the methodology applied by Sanders, Irwin and Merrin (2008), spread positions were added to both long and short positions for the percentage shares in total positions. Average size of spread position is not reported here.

#### D. Financialization and commodity price developments

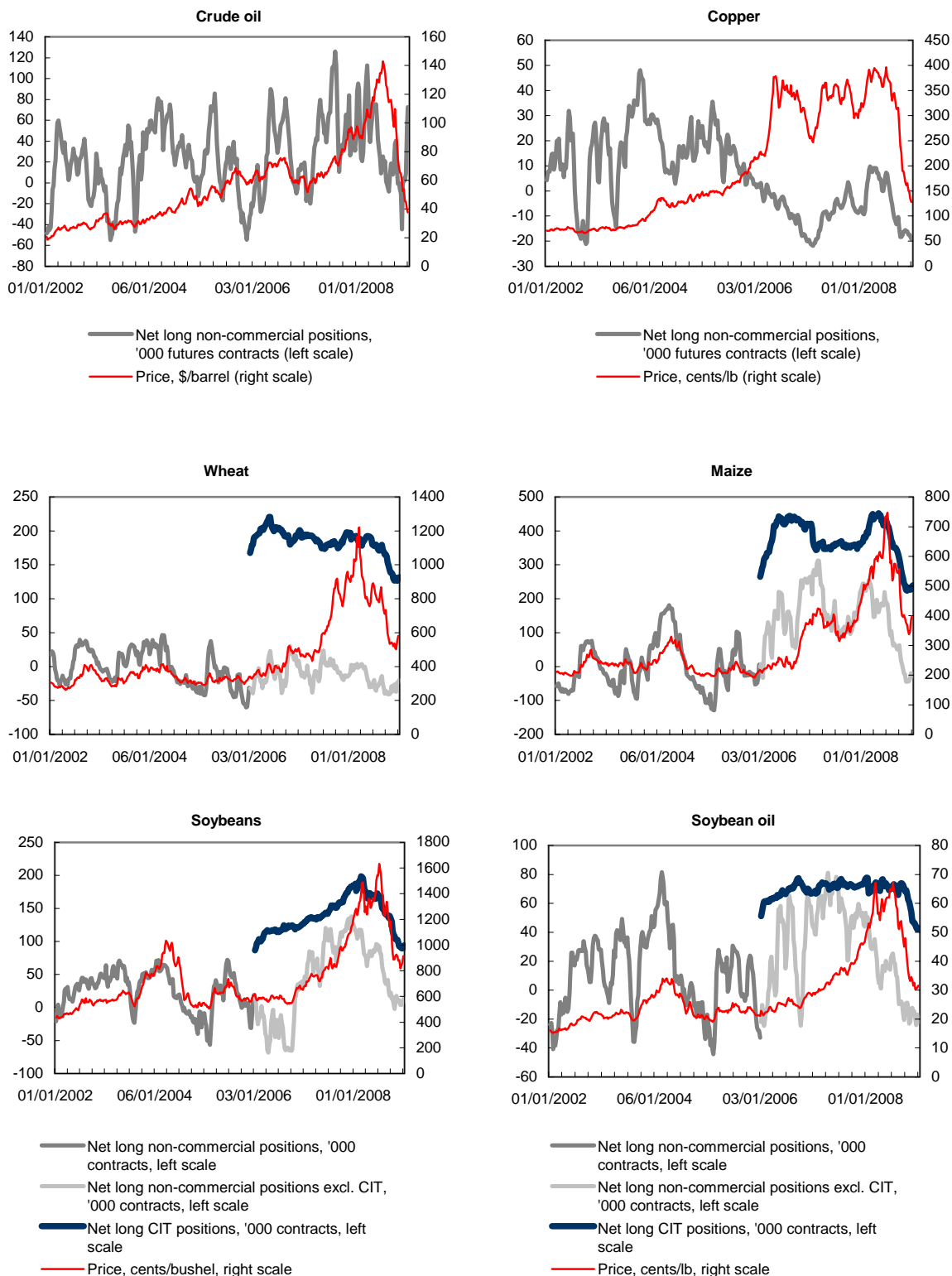
To gauge the link between changes in trading positions and price changes figure 3.5 shows for the period 2002–2008 net long non-commercial positions for crude oil, copper, wheat, maize, soybeans and soybean oil, as well as the net long index-trader positions for those commodities (wheat, maize, soybean and soybean oil) for which the CFTC has published data separately starting in 2006. A first finding from this figure is that index trader positions are overwhelmingly taken by market participants included in the commercial category, as already indicated in the evidence presented in table 3.2.

However, figure 3.5 provides only scant evidence for a correlation between speculative-position and price developments. While there clearly are periods and commodities where positions and prices move together, especially during the recent downturn and occasionally during the previous price upturn, there are other times when positions were not rising during periods of rapid price

appreciation. For example, in the wheat market there was no increase in either non-commercial positions or index trader positions during the steep price increase from mid-2007 through the first quarter of 2008. By contrast, during the same period there appears to be a weak correlation between market positions and prices in the maize and soybean markets, while the evidence is mixed for the soybean oil market. For oil and copper, where separate data on index trader positions are not available, non-commercial positions were declining along prices in the second half of 2008. By contrast, evidence for the earlier price increase does not suggest a correlation between non-commercial positions and prices: non-commercial copper positions were declining during the period of the sharpest price increases, roughly from the beginning of 2004 through mid-2006. For oil non-commercial positions exhibited strong volatility, even as oil prices rose almost continuously from the beginning of 2007 through the second quarter of 2008, by which time net oil positions had dropped roughly to zero.

Figure 3.5

COMMODITY FUTURES PRICES AND FINANCIAL POSITIONS, SELECTED COMMODITIES, JANUARY 2002–DECEMBER 2008



Source: UNCTAD secretariat calculations, based on data from Thomson Datastream and CFTC.

Short-term price effects resulting from index traders' position changes may be misinterpreted by other traders as incorporating new market information. More importantly, in the presence of uninformed traders that use technical analyses such as trend extrapolation to determine their position taking, such short-run effects may well give rise to "explosive extrapolative behaviour" that causes speculative bubbles (Gilbert, 2008a, b).<sup>11</sup>

Such behaviour has been found for the market of non-ferrous metals prices over the period February 2003 to August 2008, during which ten months with explosive behaviour were detected (Gilbert, 2008a). Similar results were obtained for Chicago grain markets and the period 2006–2008, including numerous instances of explosive behaviour of soybean oil (Gilbert, 2008b). The finding of explosive behaviour of soybean and soybean oil prices is of particular importance because of the pivotal role of soybeans, which are substitutes of wheat and maize in production, of other vegetable oils and animal feedstuffs in consumption, and of crude oil in energy. Taken together these results indicate that explosive extrapolative behaviour is widespread in commodity futures markets, and that this may have contributed to price volatility over recent years. The evidence also suggests "that the efficient markets view that uninformed speculation has no effect on market prices and volatility should be rejected" (Gilbert, 2008a: 21).

#### **E. The implications of increased financial investor activities for commercial users of commodity futures exchanges**

If the financialization of commodity trading causes futures market quotations to be driven more by the speculative activities of financial investors and less by fundamental supply and demand factors, hedging against commodity price risk becomes more complex and long-term hedging by commercial users may be discouraged.

To the extent that financial investors increase price volatility, hedging becomes more expensive, and perhaps unaffordable to developing country users, as they may no longer be able to finance margin calls. For example, during the period January 2003–December 2008 margin levels as a percent of contract value increased by 142 per cent in maize, 79 per cent in wheat and 175 per cent in soybean on the Chicago Board of Trade (CME, 2008: 17–18). In early 2007, the LME raised its margin requirement by 500 percent over the space of a few months (Doyle, Hill and Jack, 2007). Larger, well-capitalized firms can afford these increases, but smaller participants may need to reduce the number of contracts they hold. This could itself reduce liquidity, add to volatility and discourage more conservative investors. Hedging food commodity exposure may become particularly risky because of the typically long-term nature of such hedges, corresponding to harvest cycles. Evidence reported by the Kansas City Board of Trade (2008) indeed points to a reduction in long-term hedging by commercial users at the beginning of 2008, caused by higher market volatility.

Moreover, since 2006, there have been numerous instances of a lack of price convergence between spot markets and futures contracts during delivery for maize, soybean and wheat. The price of a futures contract that calls for delivery may differ from the current cash price of the underlying commodity, but these prices should very closely match when the futures contract expires. The difference between the futures and the cash price (also called "basis") will tend to widen when storage facilities are scarce and shrink when physical supply becomes tight. If, in an otherwise balanced market, prices diverge by more than the cost of storage and delivery, arbitrageurs would usually act to

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<sup>11</sup> Gilbert (2008a, b) argues that commodity prices are subject to explosive extrapolative behaviour if the current price is related to the past price through an auto-regressive relationship with an auto-regressive factor slightly in excess of unity and if this slight excess prevails only for short periods of time. More formally, tests for explosive extrapolative behaviour are based on the following equation:  $\ln f_t = \alpha + \beta \ln f_{t-1} + \varepsilon_t$ , where  $f_t$  and  $f_{t-1}$  are the current and past prices, respectively,  $\beta$  is the autoregressive factor, and  $\varepsilon$  is an error term.

make the prices converge eventually. Failure to do so causes increased uncertainty about the reliability of signals emanating from the commodity exchanges with respect to making storage decisions and managing the risk of market positions. This could eventually result in decreased hedging, as commercial users seek alternative mechanisms for transferring and managing price risk (Irwin et al., 2008). The use of commodity exchanges by commercial users could also decline because, in addition to increased uncertainty, the non-convergence of futures and spot prices increase the cost of hedging (Conceição and Marone, 2008: 56–57).

## **F. Policy implications**

Open-market price discovery and price risk management have traditionally been seen as the main benefits that commodity futures exchanges would provide to developing country users. By reducing price risk, hedging on commodity futures exchanges was also seen by some as an alternative to supply management under international commodity agreements. Meanwhile, commodity exchanges have come to assume a broader developmental role as their utility for developing countries has increasingly been seen as removing or reducing the high transaction costs faced by entities along the commodity supply chains (UNCTAD, 2007b). Given that the financialization of commodity futures trading has made the functioning of commodity exchanges increasingly controversial, the question that the current financial crisis poses is how the functioning of commodity futures exchanges can be improved in such a way that they can fulfil their developmental role. In trying to answer this question, it is useful to look at regulatory issues regarding commodity futures exchanges *per se*, before addressing broader international policy measures.

### **1. Regulation of commodity futures exchanges**

Most commodity futures trading is executed on exchanges located in the United States, the regulation of which is mandated to the CFTC. Commodity exchange regulation has to find a reasonable compromise between overly restrictive limitations on speculative position holdings, which could impair market liquidity and reduce the hedging and price discovery functions of commodity exchanges, and overly lax surveillance and regulation, which would allow prices to move away from levels warranted by fundamental supply and demand conditions and, thus, equally impair the hedging and price discovery functions of the exchanges. Abuse of futures trading by speculators is addressed through the concept of “excessive speculation” defined as trading that results in “sudden or unreasonable fluctuations or unwarranted changes in the price” of commodities underlying futures transactions (section 4a of the Commodity Exchange Act (CEA)). To limit the amount of speculative trading, the CFTC has set speculative position limits, which define the maximum position, either net long or net short, in one commodity futures (or options) contract, or in all futures (or options) contracts of one commodity combined, that may be held or controlled by one person other than a person eligible for a hedge exemption.

While it is often held that commodity exchanges have generally functioned well, the recent very sizeable price changes, occurring sometimes within a single trading day, have given rise to greater controversy regarding the appropriateness of regulation. This controversy relates to concerns of both the adequacy of information that the CFTC is mandated to collect and the restrictiveness of regulation regarding financial investors relative to that imposed on participants with genuine commercial interests. The need for tighter regulation has been discussed mainly under the “swap dealer loophole”.

The “swap dealer loophole” has played a particularly important role in the current debate on regulatory changes of the CFTC’s regulatory mandates. This is because the greater involvement of financial investors in commodity futures trading has significantly increased the positions that swap dealers hold in commodity futures contracts. Swap dealers typically sell over-the-counter swaps to their customers (such as pension funds buying commodity index funds) and hedge their price exposures with long futures positions in commodities. Swap dealers are generally included in the

category “commercial traders” as they use commodity exchanges for hedging purposes. This has allowed them to be exempted from regulation regarding speculative position limits. But contrary to traditional commercial traders, who hedge physical positions, swap dealers hedge financial positions.

Several proposals have been advanced on how to close the swap dealer loophole. For example, the Kansas City Board of Trade (2008) proposes addressing the index fund hedge exemptions by limiting their total direct or indirect futures hedge position to a percentage maximum in the contracts with a remaining maturity of one or two months, thus creating an incentive to spread the total position across several months and ease position concentration. It also suggested changes to the definition of a *bona fide* hedger and a related bifurcation in margin requirements between those that have true commercial hedge positions and those that hedge financial positions, as well as to alleviate strains to finance margins by accepting commercial agricultural collateral (warehouse receipts, etc). Particularly these last two changes would tend to improve the functioning of commodity exchanges with respect to participants with truly commercial interest.

Given the global character of commodity futures trading and the fact that through trading arbitrage some contracts involve the jurisdiction of regulatory authorities in more than one country, international collaboration of regulatory agencies is required. Such collaboration would involve not only the sharing and publishing of information, some of which is already in place, but also more enhanced cooperation and greater harmonization in trading supervision.<sup>12</sup> It would appear particularly urgent that exchanges whose legal basis is London provide data on positions by trader categories similarly to those that the CFTC has made publicly available for some agricultural products through its COT supplementary reports. Moreover, the product coverage of these supplementary reports would need to be enlarged. Product coverage has remained limited because for many commodities traded on US-exchanges look-alike contracts can be traded in London. As a result, data on positions on US-exchanges provide only a partial picture of the total positions of traders that are active on both the United States and London exchanges. Moreover, it would appear that in the absence of such data for energy products, legislation enacted in the United States to address the London loophole will fail to be effective unless similar data on positions taken on (Intercontinental Exchange) ICE will be available.

## **2. International policy measures**

In addition to regulatory issues, the financialization of commodity futures trading confronts the international community with the question as to how supply-side measures can address excessive commodity price volatility. This issue is of particular importance for food commodities because current grain and oilseed stocks are at historic lows so that any sudden increase in demand, or a major shortfall in production, or both, will rapidly cause significant price increase. Hence, physical stocks in food commodities need to be rebuilt urgently and adequately sized to moderate temporary shortages and to buffer sharp price movements and to make speculation much more risky and expensive. Holding large inventories around the world has often been judged economically inefficient. In the light of the crisis and the role of financial “investors” this position is no longer convincing.

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<sup>12</sup> The Financial Services Authority (FSA), which monitors commodity markets in the United Kingdom, has looked at commodity markets as specialised markets which are dominated by professional participants and hence require less regulatory attention than equity and bond markets. It supervises firms active in commodity markets with a view to ensuring financial stability of market participants such that contract settlement can take place on time and without default of any party, and it mandates commodity exchanges to regulate their own markets with a view to providing clearly defined contract terms and ensuring freedom of manipulation. In their advice on the European Commission’s review of commodity business, the Committee of European Securities Regulators (CESR) and the Committee of European Banking Supervisors (CEBS) (CESR, 2008) pointed to potential concerns regarding low levels of transparency in OTC commodity derivatives markets, as well as regarding the current client categorisation rules and transaction reporting requirements, but concluded that there was not much benefit to be gained by mandating through legislation greater pre- and post-trade transparency in commodity derivatives markets and that the current practice of how regulated markets report trading was sufficient.

Obviously, the world needs a new global institutional arrangement consisting of a minimum physical grain reserve to stabilize markets, to respond effectively to emergency cases and humanitarian crisis and an intervention mechanism. Intervention in the futures markets should be envisaged as soon as an existing global institution or a “global intelligence unit” (von Braun and Torero, 2008) considers market prices to differ significantly from an estimated dynamic price band based on market fundamentals. The global mechanism should be able to bet against the positions of hedge funds and other big market participants and would assume the role of “market maker” (Davidson, 2008). Needless to say, adopting such a mechanism would commit a public agency to second-guess market developments and as the agency would need to bet against the positions of hedge funds it could itself become a target for speculators, considerations which would have to be addressed in its eventual design.

If a virtual reserve and intervention mechanism could be made to work satisfactorily it would not make more physical commodities available on markets, except for emergency situations. Given that the historically low level of inventories was one determinant of the abrupt price hike of food commodities in early 2008, the question remains how incentives to increase production and productivity could be fostered in developing countries, particularly in food commodities, including through a reduction in trade barriers and domestic support measures in developed countries.

### **G. Conclusions**

Commodity futures exchanges do not function in accordance with the efficient market view. There are an increasing number of market participants with sometimes very large positions that do not trade on the basis of fundamental supply and demand relationships in commodity markets. The evidence to support the view that the recent wide fluctuations of commodity prices have been driven by the financialization of commodity markets far beyond the equilibrium prices is credible. Various studies find that financial investors have accelerated and amplified price movements at least for some commodities and some periods of time. Some of these effects may have been substantial and some persistent, but the non-transparency of existing data and lack of a comprehensive breakdown of data by trader categories make it difficult to examine the link between speculation and commodity price developments directly. The strongest evidence is found in the high correlation between commodity prices and the prices on other markets that are clearly dominated by speculative activity.

These effects of the financialization of commodity futures trading have made the functioning of commodity exchanges increasingly contentious. They tend to reduce the participation of commercial users, including from developing countries, because commodity price risk hedging becomes more complex and because there is greater uncertainty about the reliability of signals emanating from the commodity exchanges with respect to making storage decisions and managing the price risk of market positions.

It is unclear whether financial investors will continue considering commodities as an attractive asset class. The trading strategy of index investors has proven to be strongly dependent on specific conditions (rising or *backwardated* markets) to be profitable, and it has been fairly predictable so that other market participants may make sizeable profits by trading against index investors. Hence, financial investors are likely to move away from investing passively in indexes towards a more active trading behaviour either by more flexibly determining how and when to roll forward positions or by concentrating on other investment vehicles, such as commodity exchange traded funds.<sup>13</sup> This implies that the distinction between short-term oriented managed funds and other financial investors will become less clear. How this affects commodity prices will mainly depend on the extent to which such a shift in financial investors’ trading strategy will imply a greater

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<sup>13</sup> Commodity exchange traded funds are listed securities backed by a physical commodity or a commodity futures contract.



concentration on specific commodities, instead of commodities as an aggregate asset class. But such a potential shift in financial investors' trading behaviour is unlikely to reduce the relative size of their positions which will continue to be able to amplify price movements at least for short periods of time, especially if investors concentrate on individual commodities.

Better regulation of these markets and direct intervention in case of destabilizing speculation is needed more than ever before.

However, the ability of any regulator to understand what is moving prices and to intervene effectively depends upon its ability to understand the market and to collect the required data. Such data is currently not available. Trading on regulated commodity exchanges and off-exchange derivatives trading have become increasingly interdependent. This calls for comprehensive OTC reporting and record keeping in order to examine trading information about sizeable transactions in look-alike contracts that could impact regulated markets.

Enhanced regulation of commodity futures markets also entails closing the swap dealer loophole to enable regulators to counter unwarranted impacts from OTC-markets on commodity exchanges. At present, banks that hold futures contracts on commodity exchanges to offset their short positions in OTC swap agreements vis-à-vis index traders fall under the hedge exemption and thus are not subject to speculative position limits. Therefore, regulators are currently unable to intervene effectively even though swap dealer positions frequently exceed such limits and may represent "excessive speculation".

Another key regulatory aspect regards extending the product coverage of the CFTC's COT supplementary reports and requiring non-United States, particularly London-based, exchanges that trade look-alike contracts to collect similar data. The availability of such data would provide regulators with early warning signals and allow them to recognize emerging commodity price bubbles. Related stepped-up regulatory authority would allow them to prevent bubble-creating trading behaviour from having adverse consequences for the functioning of commodity futures trading.

To the extent relevant in each case, developing country commodity exchanges may consider taking similar measures, though their trading tends to be determined more by local commercial conditions than be subject to sizeable involvement of internationally operating financial investors.