Global Commodities Forum

31 January - 1 February 2011

Commodity Markets and Excess Volatility: An Evaluation of Price Dynamics under Financialisation

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GLOBAL COMMODITIES FORUM

Palais des Nations, Geneva
31 January - 1 February 2011
E-Building, Geneva, Switzerland

UNITED NATIONS UNCTAD

Commodity Markets and Excess Volatility: An Evaluation of Price Dynamics under Financialisation

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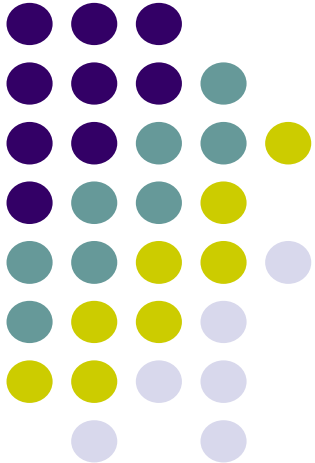
Global Commodity Forum, UNCTAD, 1st February, 2011



Outline

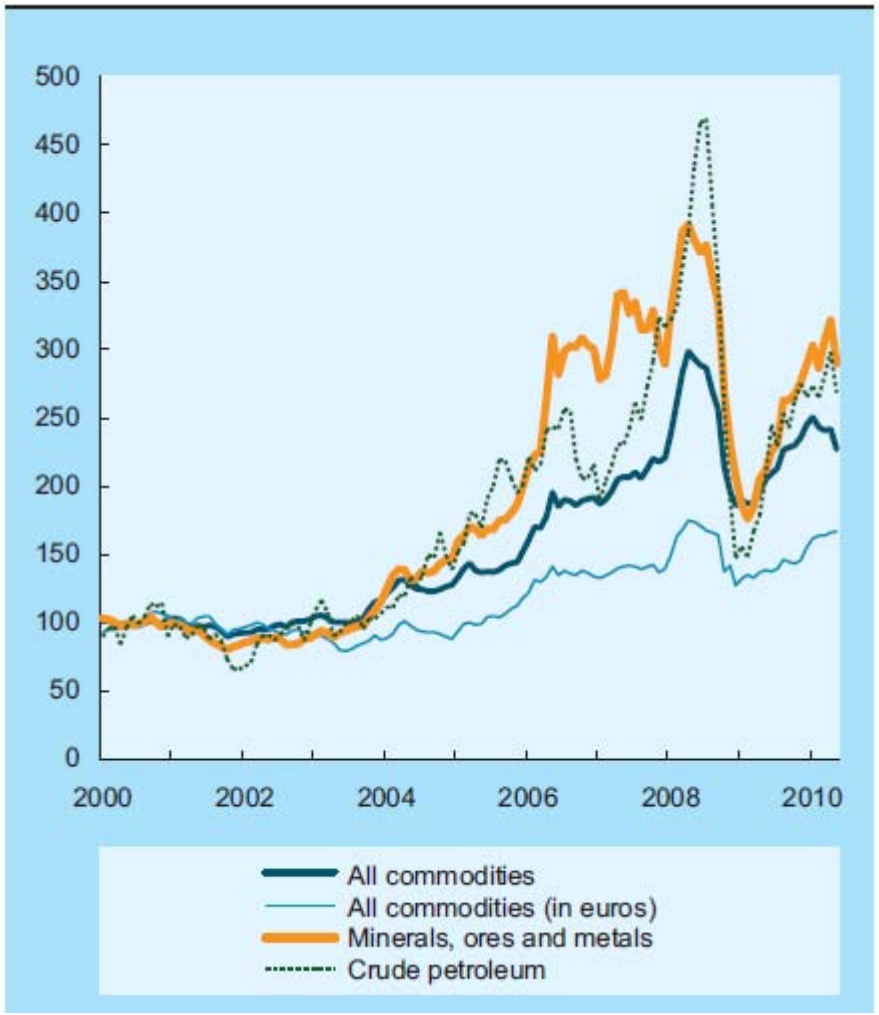
- Changing Structures in Commodity Markets
  - The Recent Commodity Markets Boom-Bust Cycle
  - Changing Market Fundamentals over the Last Decade
  - Increasing Participations of Financial Investors in Derivatives Markets- the Financialisation Process

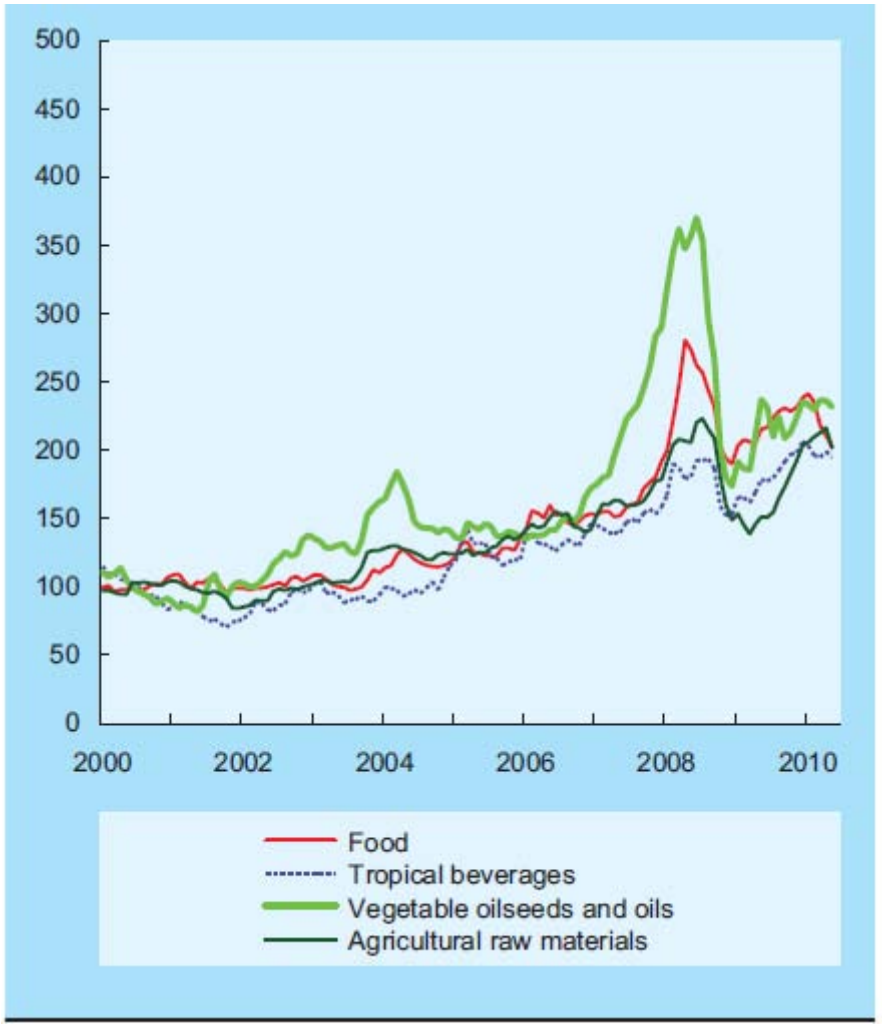
- Financialisation of Commodity Markets and Its Impact on Price Dynamics
  - Intensified Financialisation with the Rapid Expansion of derivatives markets
  - Market Structures and Commodity Price Dynamics
  - Microstructures of Asset Markets and Speculative Bubbles
  - Empirical Tests of the Financialisation Hypothesis

- Concluding Remarks
  - The case for Reducing Excess in price volatility
  - Proposals- Virtual Interventions

Changing Structures in Commodity Markets
Market Funamentals and Financialisation

Background: Commodity Price Dynamics –High Volatility

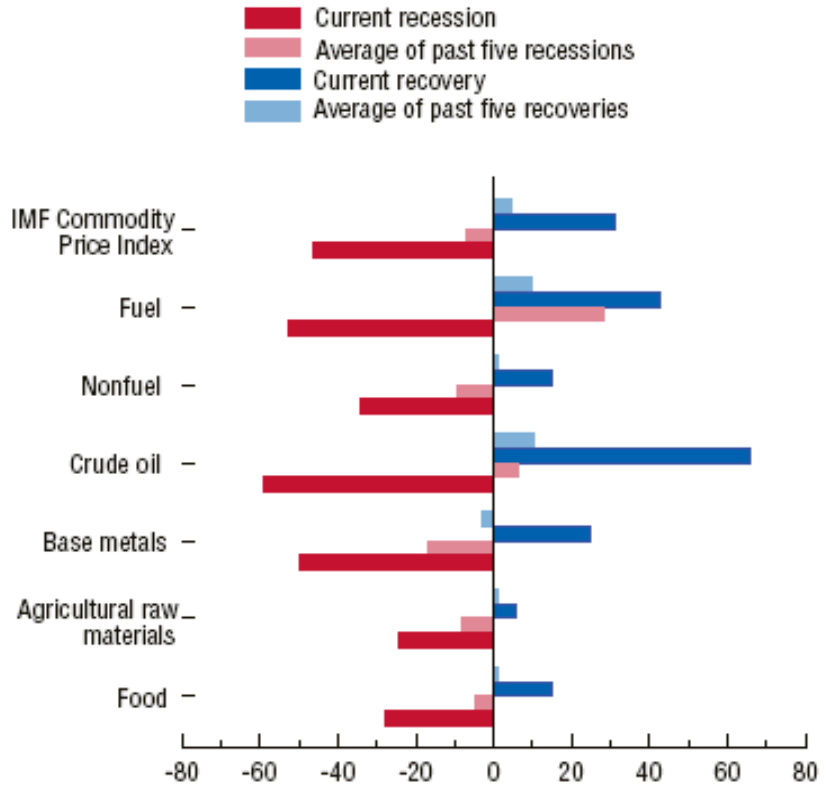




Recent Price Swings: A) Price movement of 2008-9 and B)Price Movement in Global Recession and Recovery

	Percent Change		
	Peak to trough	Trough to June	2009:Q2/ 2009:Q1
IMF Commodity Price Index	–55.6	31.1	15.7
Fuel	–64.1	42.7	20.1
Petroleum	–68.7	66.4	33.8
Nonfuel	–35.5	17.5	9.5
Base metals	–49.6	24.5	15.1
Agricultural raw materials	–33.0	13.6	0.7
Food	–33.4	19.6	10.2

Source: IMF, Primary Commodity Price database.

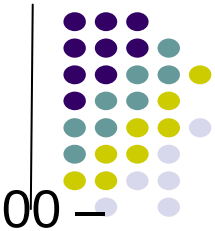


Sources: IMF Primary Commodity Price System; and IMF staff calculations.
[1]Global recessions and recoveries are identified on the basis of monthly peaks and troughs in the log level of a monthly index of global industrial production.

Changes in demand-supply relationships- Market fundamentals

- The shifts in fundamental demand-supply relationships -a key factor for price movements for commodities over *medium term:* Commodity boom in 2002-8 – 'an entering into a super price cycle?'
- *An Asian Driver story on the demand side across commodities (mineral, oil and agricultural raw materials and products;*
- *supply constraints due to subdued investment in the low price periods of the 1980s and 1990s*;
- Neglected agricultural sectors- low investment in agricultural technology and supporting infrastructures in LICs with high dependence on imported food, leading to acute food crisis.
- Inventories was low at the time of price surge for minerals and agricultural commodities– an asymmetry in inventory and price movements;
- The high correlation between minerals, and agricultural vs energy prices- close interlinks between oil and agricultural and mineral prices through higher transport costs and other input cost;
- Higher food prices from the abrupt shift in arable land use from food crops towards bio-fuel crops and increased vulnerability to climate changes (the Climate-change effect);

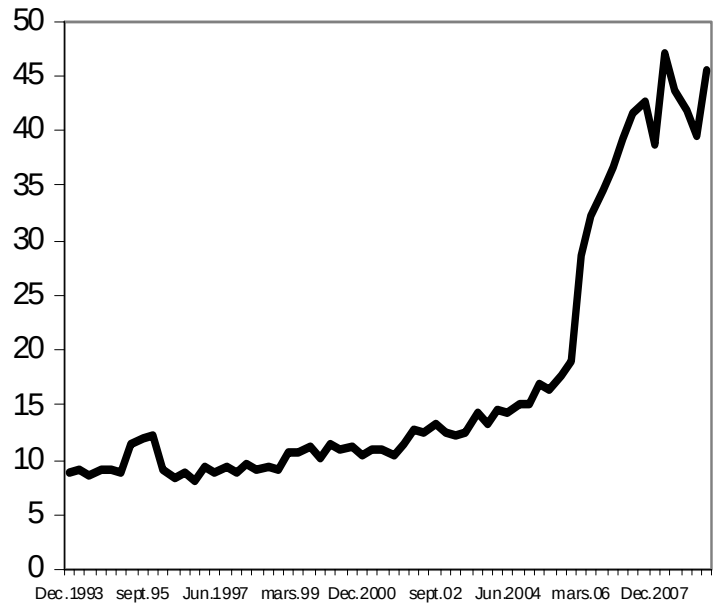
Increased Participation of Fin. Investors in Derivatives Markets and Deals –Financialisation



- the rapid growth of commodity derivatives markets since the early 2000 – associated with dot-com babble-burst, low interest environments
- Easy monetary condition: real interest rates- an important determinant of real commodity price working through shifts in the cost of carrying physical inventories as well as (Kaldor, 1939- through convenience yield (the flow of net benefits yielded from holding stocks)
- The CFTC granted investment banks an exemption from position limits in their over-the-counter (OTC) commodity swaps transactions
- New actors in commodity markets (investment funds, mutual funds, pension and hedge funds and sovereign wealth funds);
- The flights from equity and bonds markets where the advent of financial crisis in the summer 2007 led to further monetary easing: excess liquidity moving into commodity markets
- High correlation across commodities as a result of commodity index trading and momentum trading, less reflective of the fundamentals;
- An intensification of financialisation in 2002-8 (in particular in 2006-8): the 'commodity super-price cycle story at the back of Asian drivers and the high growth performance of EMs and other DCs coupled with 'decoupling' hypothesis

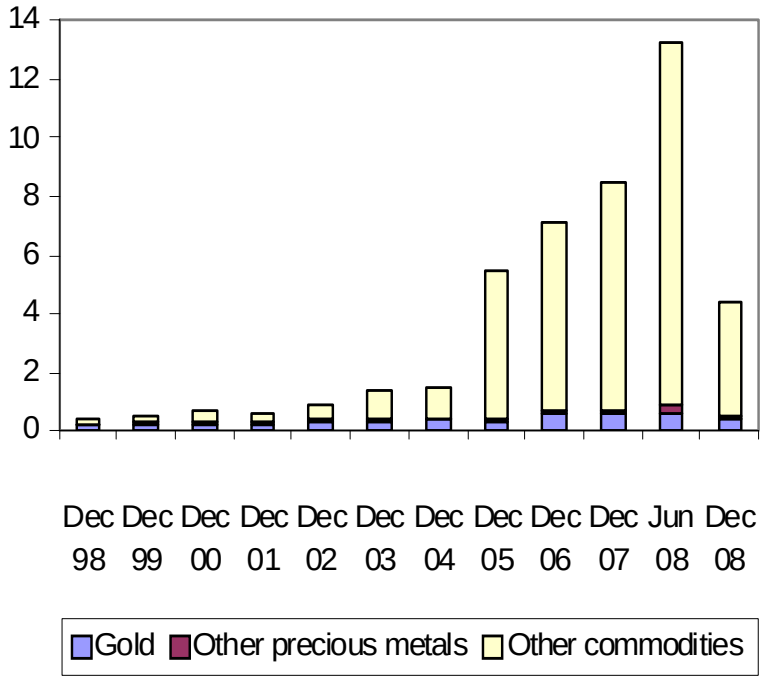
The rapid expansion of derivatives contracts

Figure 1: Futures and options contracts outstanding on commodity exchanges, number of contracts, million, December 1993 – March 2009



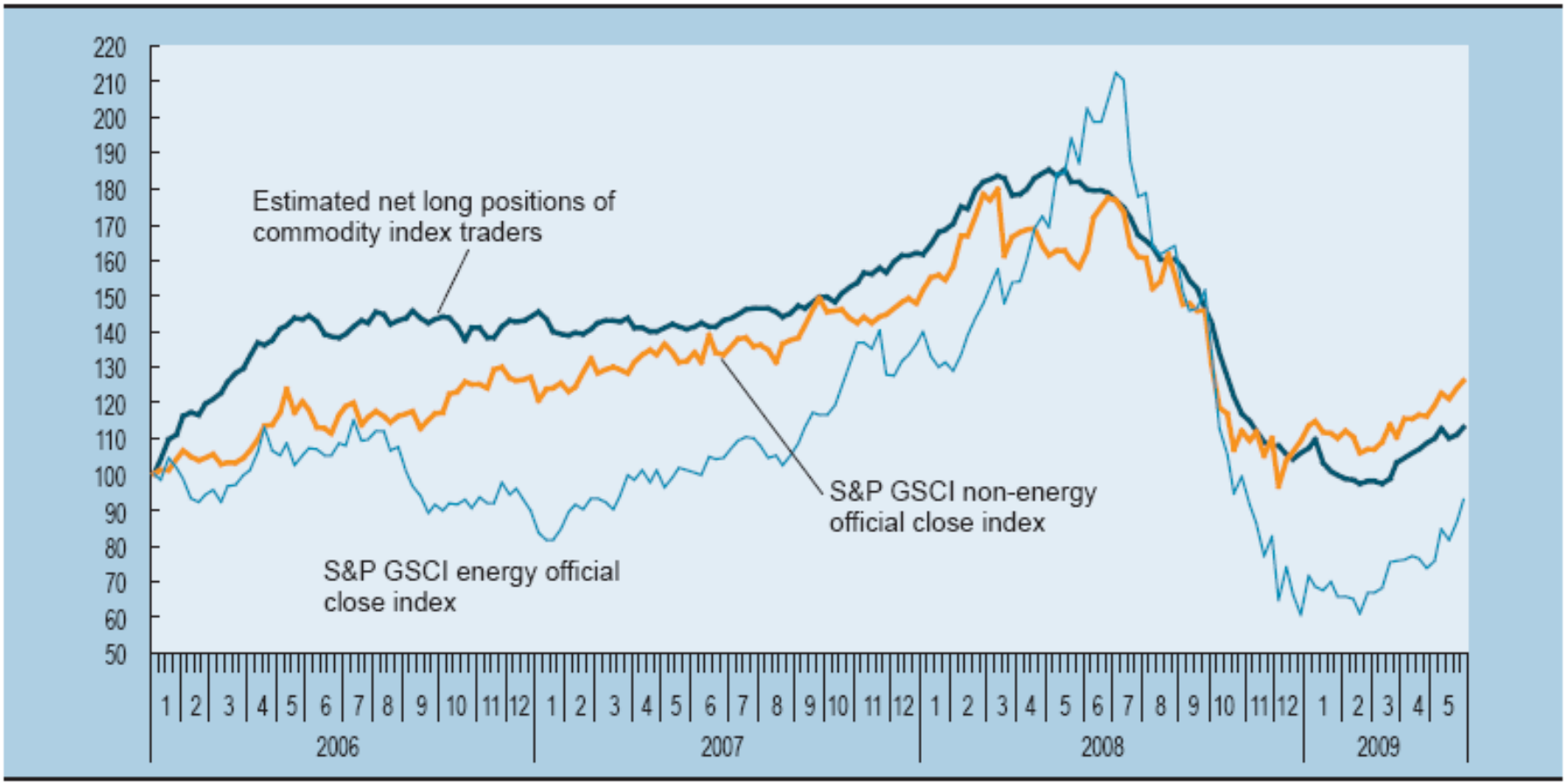
Source: BIS, Quarterly Review, June 2009, table 23B.

Figure 2: Notional amount of outstanding over-the-counter commodity derivaties, December 1998 – December 2008, $trillion



Source: BIS, Quarterly Review, June 2009, table 22A.

Estimated Index trader Positions and Commodity Prices, January 2006- May 2009



Source: UNCTAD secretariat calculations, based on Bloomberg; Goldman Sachs; and CFTC.
Note: The positions of commodity index traders are estimated based on the January 2006 weights of both the S&P GSCI and DJ-UBSCI, and index trader positions reported in the CFTC's Commodity Index Trader Supplement.

Financialisation of Commodity Markets and Its Impact on Price Dynamics

Questions Over Excess Co-Movements in Commodity Prices- the Financialisation Hypothesis

- Q: The large swing and synchronised commodity boom-bust cycle of 2002-9- can be explained exclusively by structural shifts in commodity market fundamentals ?
- Q: Is high price volatility linked to the financialisation?
- the *excess* co-movement hypothesis advanced by Pindyck and Rotembert (1990) - an influence of speculation
- Q: co-movement beyond the effects of common macroeconomic shocks on stock levels?
- Q:Can an “open interest”, i.e. *virtual* commodity stocks held as part of diversified asset portfolios, exert a significant effect on commodity prices?
- Q: Are commodity prices and inventory adjustments are exposed to swings in market sentiments in asset markets in general
- Can excess in co-movement be explained by the “liquidity” effects → traders operating across asset markets are subject to common cyclical movements in market liquidity conditions ?- market liquidity cycles

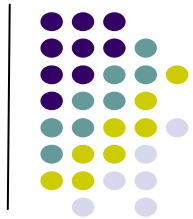
Commodity Price dynamics Under Financialisation

- Q: Has the precipitous fall in prices after Sep. 2008 explained in shifts in market sentiment- a flight to Quality triggered by the crisis of confidence, leading to massive deleveraging in many assets markets?
- Q: How are commodity price dynamics related to development in other financial markets, e.g. bond, equity and currency markets?
- challenges against the position that the financialisation of commodity derivatives markets/deals affect commodity price dynamics :
  - Krugman (2008) “investors interested only in futures not taking delivery cannot change spot prices”
- However, given low price-elasticities, price stability cannot be maintained only through inventory adjustments and changes in futures prices could affect spot prices through changes in market sentiments
- Futures prices can influence spot prices through profit arbitrages, leading not only to changes in precautionary demand for holding commodities, but also to shifts in market sentiments
- physical commodity stakeholders make decisions with reference to futures prices

Factors behind the unprecedented price swings: A Financialisation Explanation

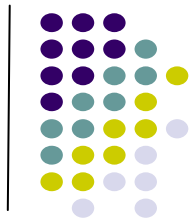
- The precipitous fall and collapse in commodity prices in the last Q of 2008:
  - in part a reflection of the actual and expected shift of demand-supply fundamentals due to the anticipated sharply weakened demand ;
  - resulting from the shift in market sentiments influencing virtual holding commodities - the massive liquidation of long positions in commodity futures and OTC deals through deleveraging on the part of portfolio investors.
- disentangling empirically the two conditions(the fundamentals and the financialisation) is not easy, but the spectacular rise and fall in commodity prices for 2006-8 cannot be explained in terms of market fundamentals alone; - reflecting in wedges between futures and cash prices
- The effects of financialisation continue to filter through price dynamics in 2009-10- financial investors are back in commodity exchanges

Market Structures and Commodity Price Dynamics



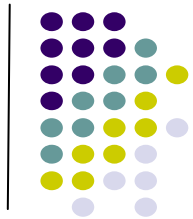
- The significant overshooting and undershooting in commodity prices – commodity prises are determined as other assets prices, on the basis of expectation formation on the part of heterogeneous participations
- Q: whether their expectations are always formed in relation to commodity market fundamentals;
- Strongest arguments against the financialisation hypothesis - the Efficient Market Hypothesis (EMH)
- Q : whether the "EMH" holds or not: "any and all information required for rational decisions is contained in prices determined in competitive markets
- If Markets are efficient, it play an important role of "Price Discovery" and " Risk Management".
- Empirical test of the EMH in commodity markets on account of :
- commodity market structures: heterogeneous traders : informed trading, noise trading and uninformed trading;
- information failures' and 'weight-of-money' effects by examining changes in commodity market structures (e.g. Mayer, 2009, Gilbert 2008-9)

Market Structures and Commodity Price Dynamics (Cont'd)



- Three types of traders (trading rules):
  - Informed trading: stakeholders in physical commodities, use derivatives for hedging purpose,based on market fundamentals but constrained due to uncertainties over future findamenatals, poor inventory data and noises in market information: when markets are in bubbles, tend to follow market sentiments and the herd;
  - Noise trading e.g. commodity index traders and strategic investors in relation to development of other asset markets; traded in aggregate as index, commodity prices get correlated;
  - Uninformed traders (e.g. money fund managers)- use momentum trading and high-tech chartists, not refer to market fundamentals; React to price development, but not distinguishing between price changes due to shifts in market fundamentals or moves of noise trading
- the information failure effects – information does not reflect commodity market fundamentals – imperfect information
- The 'weight-of-money' effects – prices are influenced by a position taken by large traders in the absence of matching counter-party liquidity – imperfect competition

Market Structures and Commodity Price Dynamics



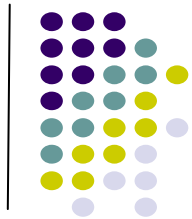
- Momentum or programme trading create arbitrage/profit opportunities
- The composition of traders (trading rules) change as market conditions shift - in search for high risk premium and market liquidity cycles
- Profit/arbitrage opportunities arising from the interface of these three trading rules, leading to a creation of speculative bubbles
- Activities in futures prices through leveraging and deleveraging of portfolio investors
- Q: Is speculation stabilising (if guided by fundamentals, then liquidity enhancing arbitrage dominates) or destabilising (if acting on fads)? If agents do not refer to fundamentals in decision-making, their expectation formation becomes extrapolative (not regressive with anchoring in fundamentals), leading to destabilising speculation
- Asset prices deviating from fundamentals, if agents enter and act predominantly on fads and in search for risk premium
- Shifts from fundamental equilibrium to bubble equilibrium (behavioural finance literature on existence of multi-equilibria)

Empirical Tests of the Financialisation Hypothesis

- Testing excess in co-movement in commodity prices and those with returns of different assets: Lescaroux (2009) vs Tang and Xiang (2010) or Silvennoinen and Thorp (2010)
- Testing the presence of speculative bubbles and the effect of index trading
  - Irwin and Sanders (2010) "no empirical evidence of speculative bubbles in prices of agricultural commodities as results of the financialisation of futures markets"
  - Gilbert (2010)- modest presence of extraporative bubbles with substantial impcts of index-based investments
  - Mayer (2009)-Money managers vs index traders
- Testing interactions of market fundamentals and financialisation forces (Redrado et.al (2008)
- financialisation generates a non-linear adjustment pattern of commodity prices to its fundamental value.
- Slow adjustments to fundamentals after an exposure to shocks in futures
- the impact of financialisation can be on short run price dynamics, rather than in the long term equilibrium level of prices

Concluding Remarks : Policy Implications

Consequences of Market Failures



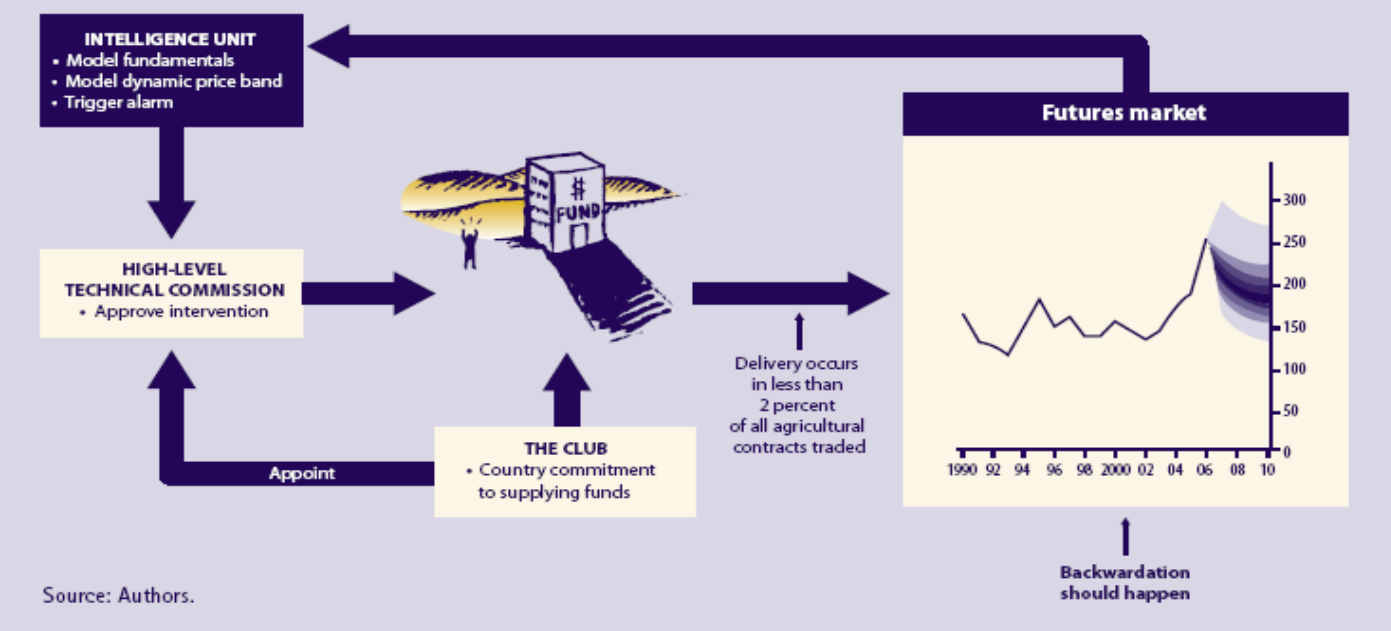
- the entry and presence of speculative noise trading or the prevalence herd behaviour (Pindyke (2004) ;
- Excessive volatility not reflecting commodity fundamentals- not good for markets- markets do not work for hedging and risk management for commodity stake-holders:
- Price signal- does not indicate and predict properly a future price movement for investment and other technological advancement (for substitution and conversation)
- An enormous wedge between private returns (short-term gains) and social returns (long term consequences) as a result of market failures
- In the end, it is not a situation of winners and losers, but a negative-sum game for the global economy and community.
- The cost for Commodity Dependent LICs- huge- Commodity Dependence Trap
- The failure of the earlier ICAs should not be an excuse for non-action now

What can be done ? towards making Markets Work

- Regulatory measures over markets (e.g. by CFTC):
  - i) aggregate position limits on futures contracts to counteract the "weight-of money" effects;
  - ii) increase the transparency of futures markets and OTC deals;
  - iii) capital deposit requirements on portion of each future transaction;
  - iv) Eliminate the loopholes in regulations;
  - iv) counter-cyclical margin requirements.
- Regulatory reform of commodity derivatives markets as a part of reforms over other asset markets- requiring international coordination and harmonisation
- Relying exclusively on buffer stock management for stabilisation is both ineffective and costly in the face of rapidly shifting market fundamentals
- What is required is a smart and efficient regulation, working in favour of market development; i.e. liquidity enhancing for risk hedging purposes
- Aiming at acting on excessive volatilities (defending price levels can be difficult when market fundamentals change rapidly)
- Innovative commodity stabilisation schemes through virtual intervention cum better inventory management

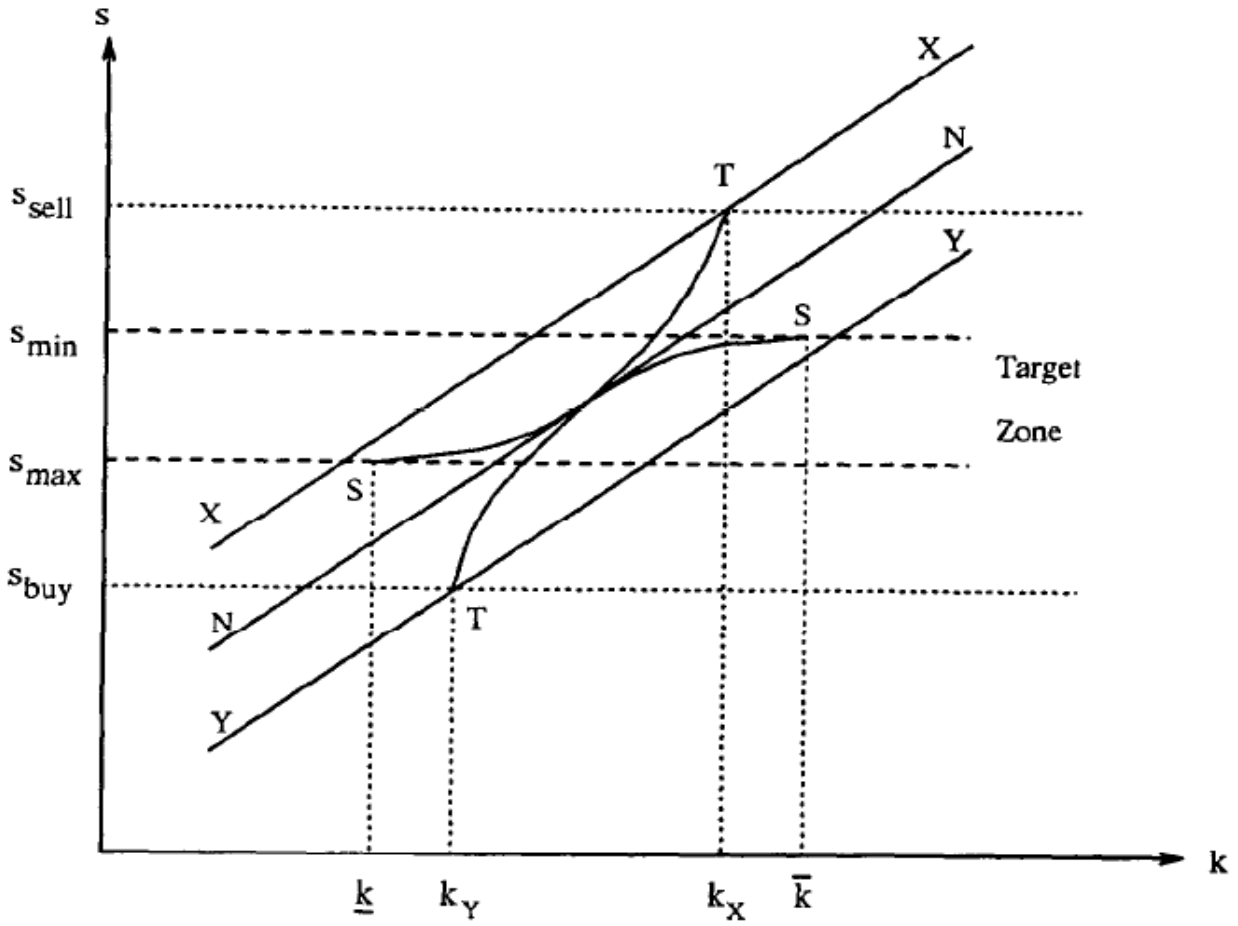
Innovative (Virtual) Stabilisation Schemes and inventory management

- IFPRI Proposal (Two- Pronged Schemes):
  - 1) A small physical food reserves should be established to facilitate a smooth response to food emergencies (5 % of the current food aid flow, managed by the WFP in different locations, backed up by emerging funds
  - 2) An innovative **virtual** reserve, backed by financial funds, and intervention mechanisms in futures market should be set up to prevent price **spikes** and to keep prices close to fundamentals



Target Zone schemes

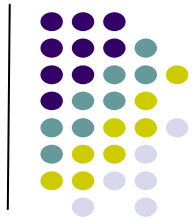
- Working effectively on agents' expectation formation with "credible" intervention (creating "honeymoon" effects and "announcement" effects)
- Which instruments can deliver this credibility?



The Case for Price- stabilisation – Target Zone Schemes

- Moving Target zones applied to commodity derivatives transactions with the use of multi-tier transaction tax as a part of global fin. tran. tax
- understanding movements of “equilibrium” prices in market fundamentals
- implicit target or guidance zones for prices of main assets, including commodities (a wide and adjustable target zones in the light of shifts in fundamentals).
- Multi-tier transaction tax schemes (Nissanke 2005)- working on agents’ expectation, taming excessive volatilities, leading to speculative bubbles
  - The first tier tax can be zero under normal market conditions operating within a band, as it serves “as a monitoring and controlling device”, but allow normal efficient function of markets with plentiful liquidity.
  - The second tier of the exchange surcharge would function as an automatic circuit-breaker at times of increased probability of speculative bubbles;
  - The threat of a surcharge levy alone, if credible, may sufficient to keep prices within a target zone, without the use of physical reserves or buffer stocks.
  - The possibility of orderly realignments of commodity prices in light of market fundamentals

Can such innovative mechanism be made feasible?



- The credibility and effectiveness of innovative mechanisms would rest on:
  - how well the future price development is forecasted in terms of market fundamentals
  - how closely the moving target zone could be designed and implemented to reflect such an evolution of fundamentals
- Public goods provision in addressing excess volatility demands highly information- and knowledge-intensive activities from specialised international agencies and institutions (e.g. CFC or UNCTAD) in collaborations with international commodity agencies and councils
- The success of the schemes depends on the political exigency and willingness of the global community