Investments in commodity-related financial products: what do we know about the impact on commodity prices?

Presentation prepared for the

AMF 2011 Scientific Advisory Board Conference

The financialisation of commodity markets:
what are the challenges for the regulators?

Paris, 6 May 2011

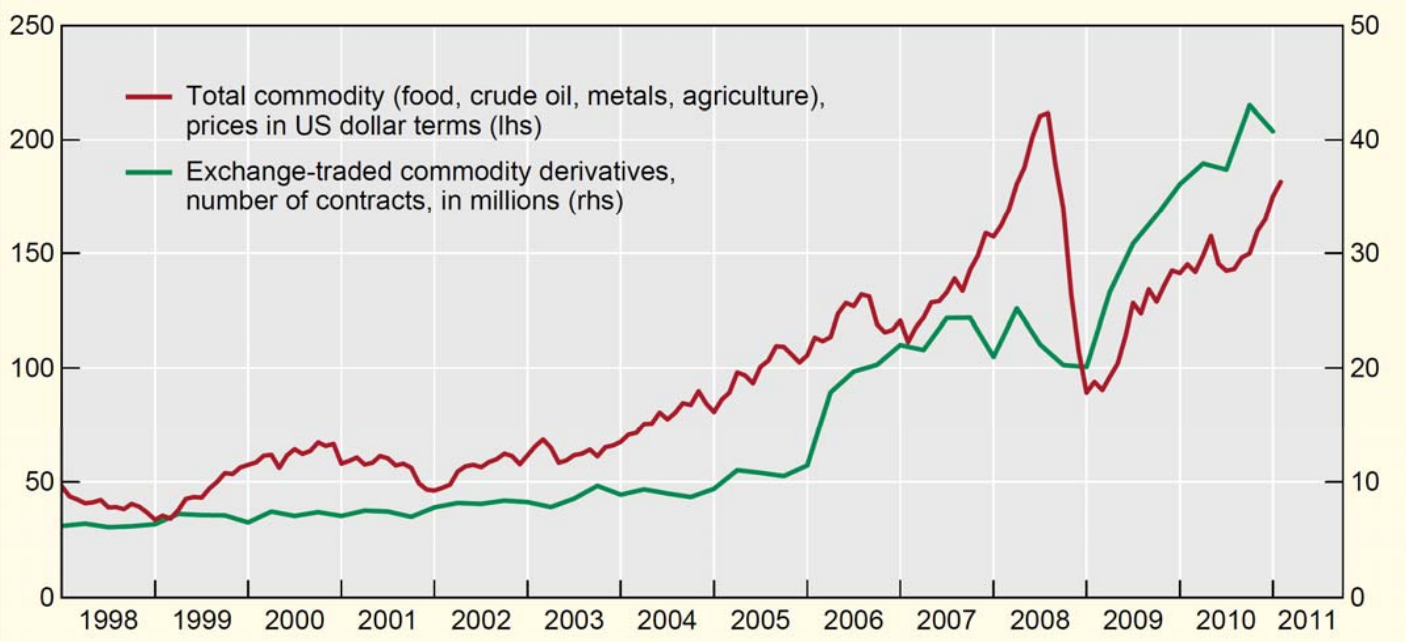
Dietrich Domanski*

*** This presentation reflects my own views, not necessarily those of the BIS.**

Background

- Has financial investment in commodities been a major driver of higher commodity prices?

Graph 1: **Commodity prices and derivatives traded**



Sources: IMF; BIS.

Roadmap

- How do investors get exposure to commodity markets?
- How should we think about the impact on commodity prices?
- What evidence do we have?
- Concluding remarks

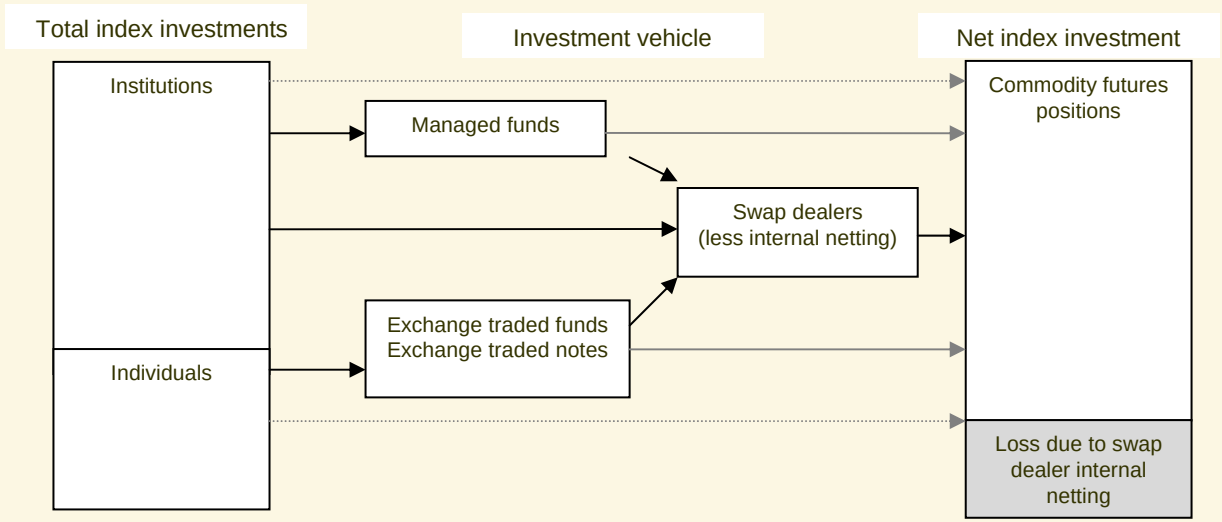
How to invest in commodity markets?

- Investors seek extra return and/or diversification from investing in commodities
- This can be obtained by investing in commodity derivatives, especially futures
- No holdings of physical stocks (usually)
  - Storage costs
  - Limited storability

Futures markets are at the centre of commodities investment…

Graph 2

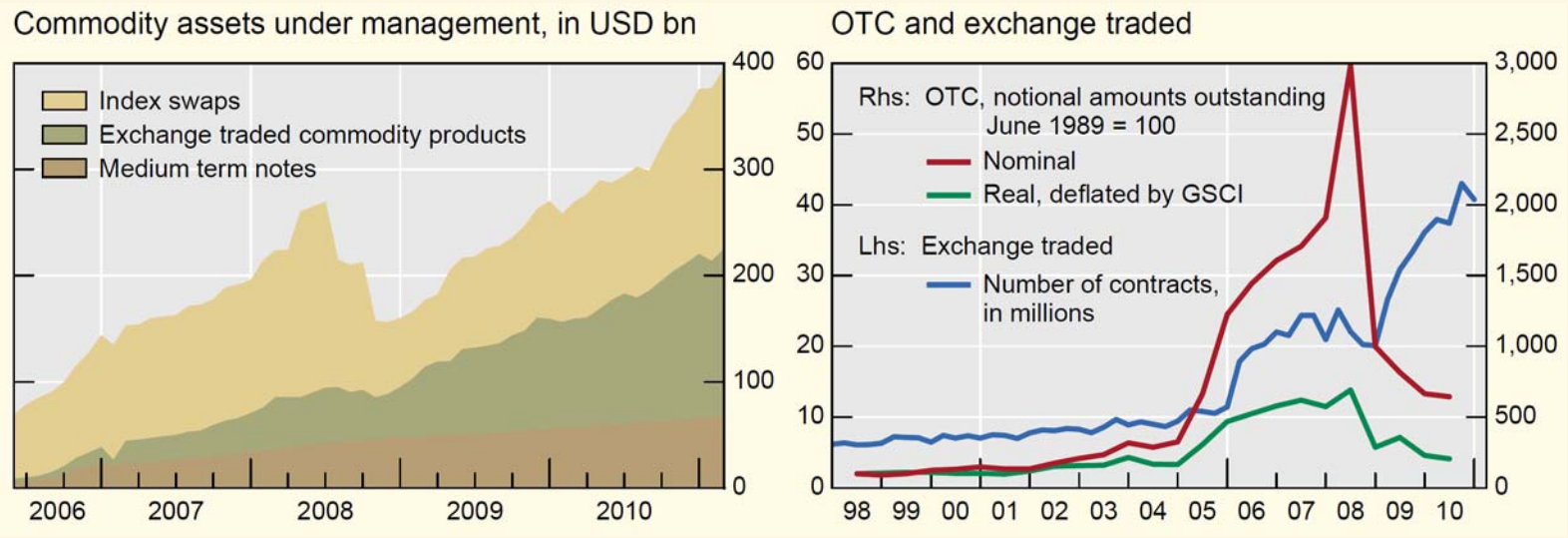
Flow of index investments into commodity futures markets



Source: Based on Irwin and Sanders (2011) and Stoll and Whaley (2010).
Note: Dashed lines represent less used avenues for commodity index investment. Darker lines suggest heavier avenues for investment. Positions that are "lost" due to internal swap dealer netting is often limited in agricultural futures markets where very little non-index trading occurs over-the-counter. Conversely, it can be quite large in energy and metals.

…and have grown rapidly over the past five years

Graph 3: **Financial products linked to commodities and commodity derivatives**



Sources: Barclay's Capital; BIS.

How should we think about the impact of investment on futures markets?

- Several possible channels
  - Long investment shifts demand curve right ⇨ **Price level up**
  - Demand curve becomes steeper as demand driven by diversification is price inelastic ⇨ **Volatility up**
  - Demand is correlated across commodities that are part of an index ⇨ **Correlations up**

How should we think about the impact of investment on futures markets (II)?

- But it is not as simple as that
  - There is a diversity of financial investors that take positions on both sides of the market
  - Many index investors adjust positions actively
  - Investors may have heterogeneous expectations
- Bottom line: impact on commodity future price levels, volatility and correlation is an empirical question

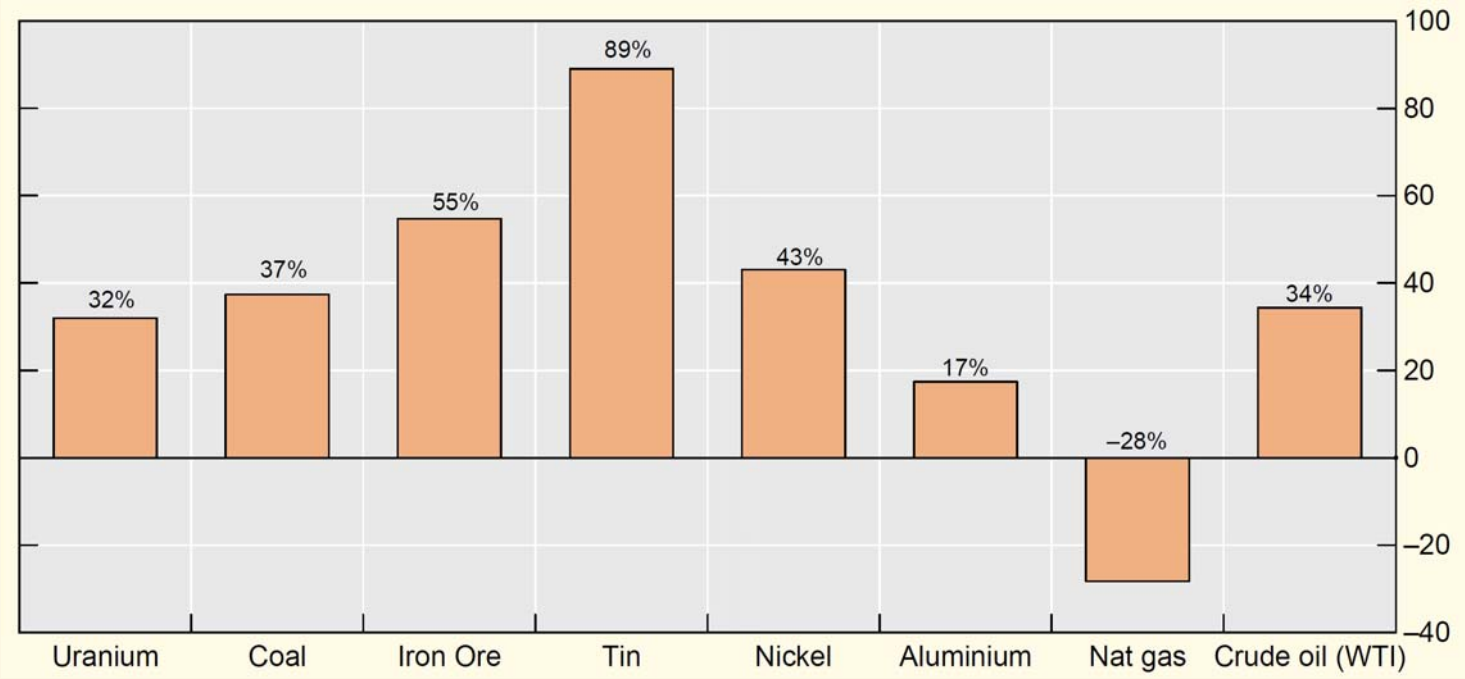
How do futures price changes affect physical (spot) markets?

- Financial investors are typically not active in physical markets
- But changes in futures prices can affect behaviour of producers and consumers
  - Inventory adjustment
  - Other behavioural changes
- Strength of the price-inventory relationship depends on several factors
  - Expected persistence of shock
  - Changes in risk premiums

Evidence I: Price levels

- No clear pattern of price increases across exchange-traded and other commodities

Graph 4: **Commodity price increases since 2009**

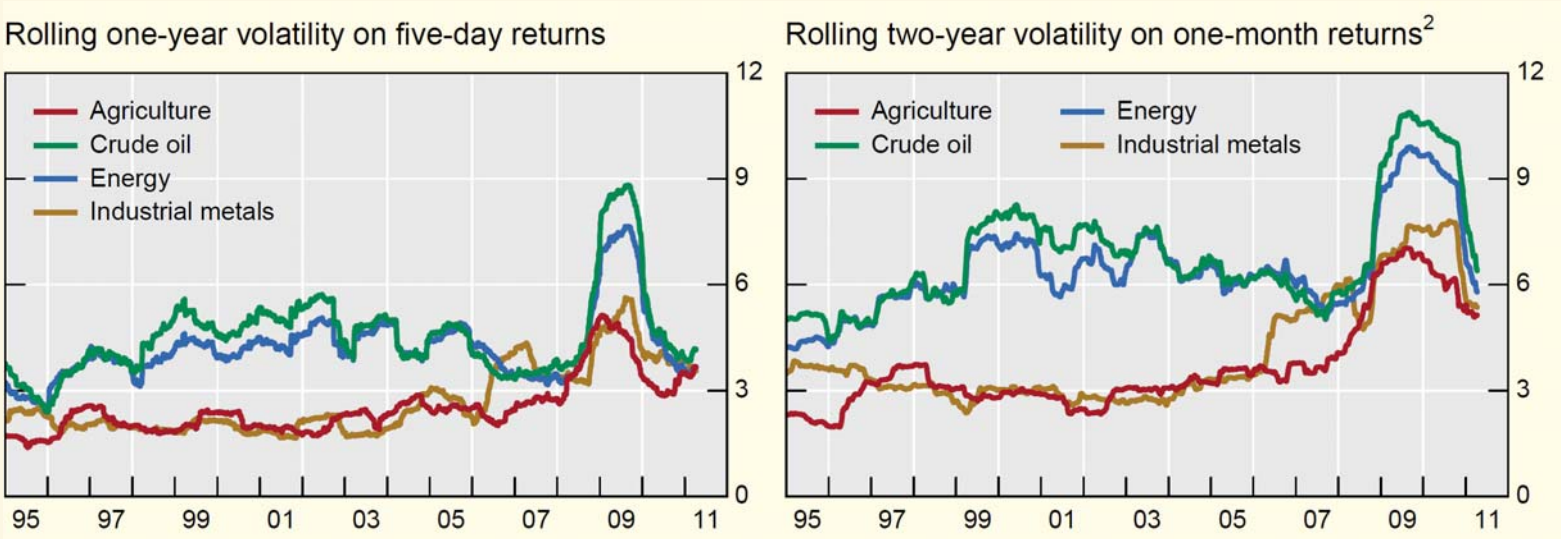


Source: Datastream.

Evidence II: volatility

- Little change in day-to-day volatility, but some signs of increased longer-term volatility

Graph 5: **Commodity price volatility**



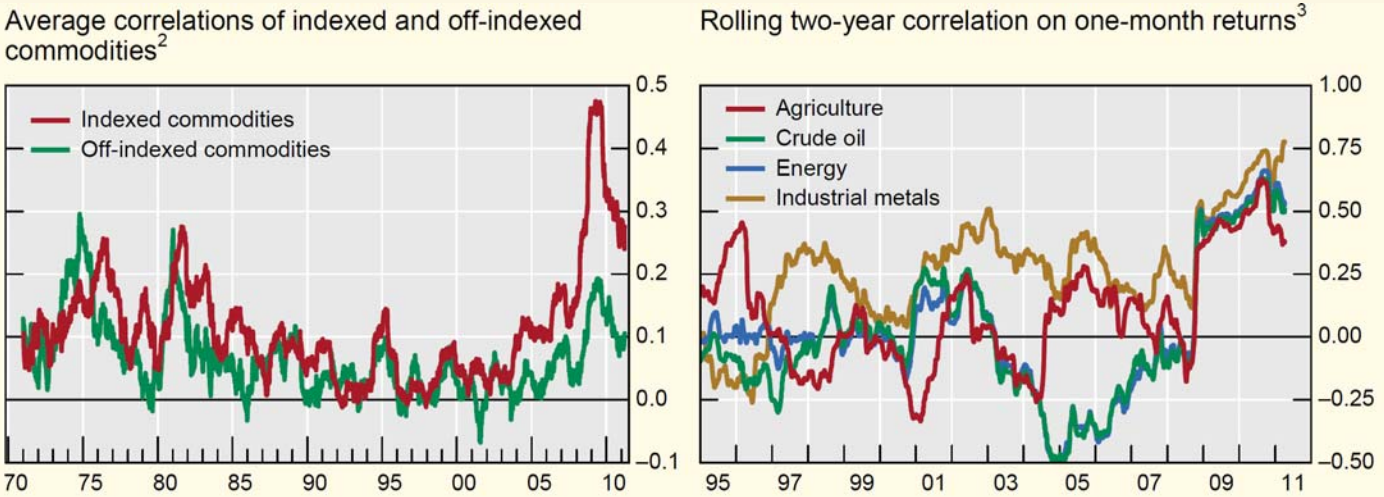
[1] Calculated from percentage changes of S&P GSCI total return commodity indices over specified sample periods. [2] Rolling 22 business day percent changes.

Sources: Standard & Poor's; Datastream; BIS calculations.

Evidence III: correlation

- Correlation patterns suggest significant impact of financial investors

Graph 6: **Commodity price correlation**



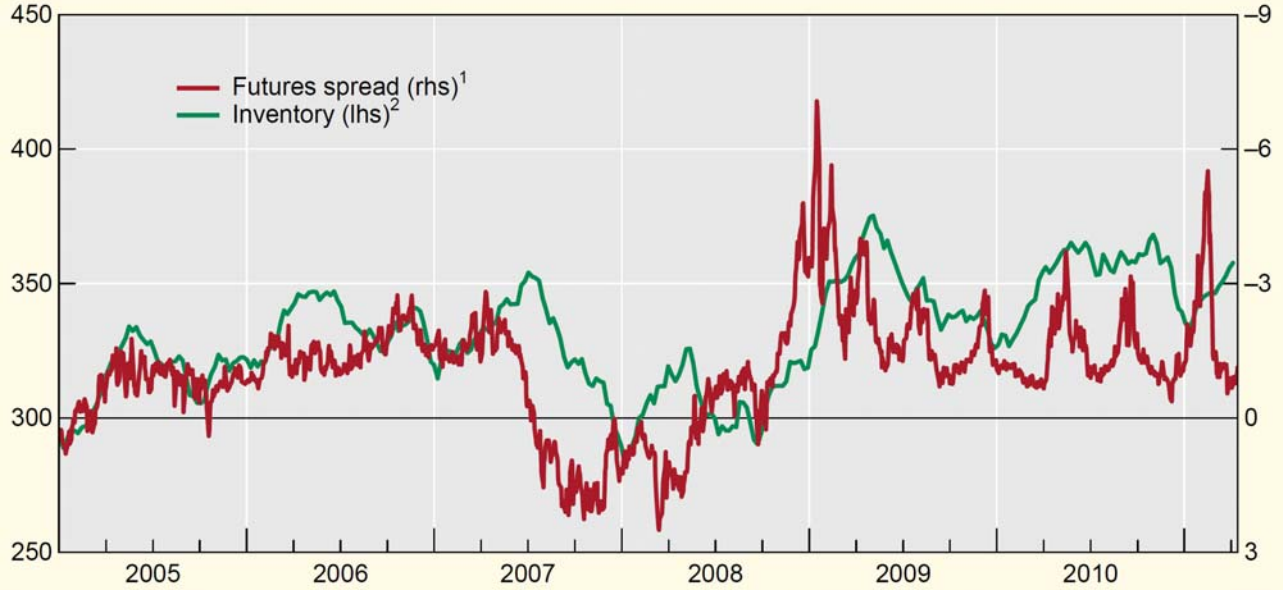
[1] Correlations calculated from percentage changes of S&P GSCI total return commodity indices and S&P500 total return index over specified sample periods. [2] One-year rolling correlations of daily returns on indexed and off-indexed commodities. [3] Rolling 22 business day percent changes.

Sources: Standard & Poor's; Datastream; Bank of Japan; BIS calculations.

Evidence IV: price-inventory relationship

- There is a relationship, but it is not particularly tight over shorter periods of time

Graph 6: **Oil futures spread and inventories**



[1] Inverted scale, 2nd generic futures contract minus 4th generic futures contract. [2] Weekly ending US crude oil stock excluding SPR, in millions of barrels.

Sources: Bloomberg; U.S. Energy Information Administration; BIS calculations.

Concluding remarks

- Financial investment does influence commodity markets
  - Commodity price patterns resemble those of “traditional” financial assets more closely
- But: it is not clear that there is a widespread “speculative bubble”
  - Changes in underlying supply and demand conditions have been large
  - Mixed evidence for crude oil and other commodities
- Possible policy implications: regulation versus transparency