November 28, 2011
Bank of Japan

Financial Factors in Commodity Markets

Speech at the Paris EUROPLACE

International Financial Forum in Tokyo

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1. Introduction

I feel privileged to have the opportunity today to speak at this International Financial Forum organized by Paris EUROPLACE. This is my second time to stand before you, following my presentation last year. It is always a great pleasure to join this forum, since Paris EUROPLACE has been playing a pivotal role in providing opportunities for market participants to deepen mutual understanding. I salute the members of Paris EUROPLACE for their dedication.

It is also a great pleasure to have our friend Christian NOYER, Governor of the Banque de France, among our distinguished participants. I would like to take this opportunity to extend my sincere gratitude to Christian and the Banque de France for their invaluable support under the French presidency, for the work of the G20 Study Group on Commodities, chaired by my colleague Hiroshi NAKASO.[1] My presentation today, in which I would like to share with you some of the findings of the Study Group, has profited greatly from such cooperative work between the Banque de France and the Bank of Japan. However, the views expressed hereafter are my own, and do not necessarily represent the views of the Study Group.

Last year, I discussed in some detail the nature and impact of electronic trading in financial markets, examining how the global expansion of electronic trading has affected market microstructure. Today, I will focus on another significant development: that is, the growing influence of financial factors on commodity markets. In fact, my presentation this year is in many ways a sequel to the one last year, not

[1] See *Report of the G20 Study Group on Commodities* under the chairmanship of Mr. Hiroshi Nakaso, November 2011.

only because both presentations aim to shed light on financial innovations in the various markets, but also because electronic trading is an important issue *per se* in commodity markets. I will come back to this point later.

2. High and Volatile Commodity Prices

Commodity prices have been fluctuating considerably both in terms of speed and amplitude. A surge in commodity prices until 2008 was followed by a sharp downfall in the midst of the financial crisis. Prices rose again from early 2009 to levels comparable to the peaks reached in 2008, though they had again declined until recently (figure 1).

These see-saw developments pose a serious challenge to policymakers when dealing with, for example, inflationary pressures. Consequently, intensive research has been conducted to discern the main drivers behind these price developments. At this juncture, three factors have been identified as important.

The first, and the most fundamental driver, has been the tightening of demand and supply conditions (figure 2). On the one hand, the rapid growth of the global economy, notably in emerging economies, has been a major factor behind strong commodity demand. On the other hand, a long period of underinvestment, coupled with geopolitical and climate-related shocks, has severely constrained supply growth. Consequently, as inventories and spare capacity have declined, commodity markets have become increasingly vulnerable to various shocks in both demand and supply. The tariffs, export restrictions and other ad-hoc measures adopted by some countries

may also have aggravated market imbalances.

The second factor driving these fluctuations in commodity prices is global monetary conditions. Accommodative monetary conditions, especially in the aftermath of the global financial crisis, seem to have contributed to the rise in commodity prices in various ways (figure 3). In particular, monetary policy affects aggregate demand in general, which in turn influences the demand for commodities.

On top of these two factors, the third driver is what might be described as "financialization" (figure 4). Partly influenced by globally accommodative monetary conditions, financial investors have entered the commodity markets and changed market participants' behavior in important ways, especially with respect to appetite for portfolio rebalancing and carry trades. In fact, during the past several years, the rise in price levels and volatility in commodity markets has coincided interestingly with the growing rate of participation of financial investors in these markets.

3. Growing Importance of Financial Investors

Investment in commodity-related financial products has increased considerably both in quantity and scope in recent years. The estimated market value of commodity-related assets under management reached almost 450 billion USD by mid-2011, from only 260 billion USD in mid-2008.

Both instruments and players have diversified considerably. In addition to the traditional commodity investors, such as commodity trading advisors (CTAs) and commodity-specialized hedge funds, index investors and ETF sponsors have become

prominent players. Moreover, we now observe very active participation of various hedge funds, proprietary trading desks of banks, broker-dealers and trading units of large non-financial enterprises. Accordingly, investment and trading strategies have also become more diverse.

In particular, let me focus on the changing nature of index investment. It is true that a significant proportion of investment is still tied to strategies which replicate major indices by investing in the front end of the curve and passively rolling into the next contract each month. However, some managers are adopting so-called "enhanced" index strategies, which may entail positions on various parts of the curve or allow investments in subsets of commodities.[2]

ETF sponsors have also diversified their investment strategies. ETF sponsors, especially in the case of ETFs linked to the price of precious metals, typically take long positions in commodity spot markets under so-called physical ETF schemes. However, we have seen the emergence of synthetic ETFs, that is, ETFs backed by derivatives. Under synthetic ETF schemes, ETF sponsors often engage in total return swaps or commodity futures to issue ETFs linked to major indices. They also use other types of derivatives to issue complex products such as short ETFs and leveraged ETFs, although their presence is still limited at this stage.

Turning to other participants, hedge funds typically take both long and short positions for arbitrage purposes or based on macro-economic views. CTAs trade in

[2] This is often described as a response to changes in the shape of futures curves and/or a crowding out of investor activities in some part of the curves.

futures markets and often employ technically-based trading strategies such as trend following strategies. More recently, some CTAs have become increasingly involved in algorithmic and high-frequency trading (HFT).

The growing participation of financial investors in commodity futures markets may also affect spot markets. In particular, several leading commercial and investment banks have become increasingly active in some physical markets, providing liquidity to their clients through arbitrage between physical and financial markets.

There seems to be a variety of motives behind the growing investment in commodities. Some investors view commodities as an effective tool in hedging against inflation. Institutional investors with a long-term investment horizon have been attracted by the diversification benefits for portfolio rebalancing and high convenience yields. Furthermore, some investors consider commodity investments as a proxy for investment in rapidly growing emerging market economies. Investable assets in these economies are still limited. Thus, in order to gain exposure to these rapidly growing emerging market economies, some investors turn to commodity investments correlated strongly with growth in these economies. Finally, for some investors, arbitrage opportunities may have been the main motive for investing in commodities.

4. Financial Investors' Impact on Commodity Markets

Greater participation by financial investors in commodity markets, which I have called financialization, brings important economic benefits by providing liquidity to the market. Enhanced market liquidity can reduce hedging costs for both producers

and consumers.

However, there may be costs as well. The growing importance of financial investors suggests that commodity prices may have become more sensitive to financial investors' decisions and position-taking. This may lead to commodity prices deviating from values consistent with their "fundamentals". Such deviation may occur, for example, when financial investors' liquidity constraints outside commodity markets trigger substantial financial outflows, relative to the size of the commodity markets themselves. A similar situation may arise when financial investors' risk appetite swings wildly.[3]

A particularly delicate subject in this regard is the role of algorithmic and high-frequency trading. Although still a matter of some debate, a general consensus seems to be emerging in the equity markets that such trading techniques enhance the proper functioning of the market in normal times by providing liquidity, but in contrast they tend to disappear suddenly from the market and thus contribute to market disruption when sharp price movements occur due to unexpected and unprecedented events. However, in commodity markets, the precise role of algorithmic and high-frequency trading is yet to be determined.

To sum up, it is not easy to identify to what extent the growing presence of financial investors has actually moved commodity prices away from "fundamentals". The current literature on this point is inconclusive. Although there is consensus that

[3] The deviation may also happen when "herding behavior" is observed. Herding may occur, for instance, if market participants extrapolate a series of recent price increases as reflecting better "fundamentals", and then choose to follow such price movements.

the tightening in physical supply and demand has been one of the main causes of large fluctuations in recent years, it is also plausible that financial investments have affected price dynamics, at least over short time horizons, as we have observed the same dynamics in other financial markets.

5. Toward Resilient and Well-Functioning Commodity Markets

In view of what I have described so far with respect to recent developments in commodity markets, let me now draw three policy implications relating to market functioning and macro prudential policy.

To Enhance Transparency

First, the transparency of both physical-products and commodity-derivatives markets needs to be enhanced.

As I mentioned earlier, the expansion of financial investor participation in commodity markets can bring about benefits by reducing hedging costs for producers and consumers. At the same time, trend following strategies, especially when they are combined with algorithmic and high-frequency trading techniques, may move commodity prices away from values consistent with “fundamentals” over short time horizons. This deviation may persist depending on how quickly offsetting forces come into play. In this regard, it is important to enhance the transparency of physical and futures commodity markets in order to improve the market price discovery mechanism.

In this context, improving the quality and timeliness of information in physical-products and commodity-derivatives markets is essential. Improving data availability on commodity market transactions is also a precondition to understanding the microstructure of these markets.

To Guard against Financial Vulnerability

Second, it is important to assess and bear in mind the potential financial vulnerability arising from the increased exposure of financial investors.

The exposure of financial investors to commodity markets appears to remain relatively small when compared to total assets under the management of institutional investors. However, increased diversity and complexity of both financial instruments and players in the commodity markets requires closer monitoring to assess their impact on the risk management of financial institutions, and ultimately, on the overall development of financial markets.

For example, the increased correlation between commodity derivatives markets and other financial markets suggests a higher risk of spillover effects from one market to another. The active involvement of several leading commercial and investment banks in physical commodity markets may present challenges to the way they manage these risks and how they incorporate them into their integrated risk management systems.

The increasing presence of algorithmic and high-frequency traders in the markets also highlights the need to deepen our analysis of their impact on market stability and integrity. Moreover, though their presence in commodity markets is as yet limited,

increasingly complicated products such as short ETFs and leveraged ETFs may also pose substantial risks with respect to counterparty, liquidity, and collateral management when they become popular.

To Develop Emerging Economies' Financial Markets

Finally, I would like to highlight the urgent need to develop and expand financial markets in rapidly growing economies.

As I mentioned earlier, commodity markets seem to be serving to some extent as a proxy for investments in rapidly growing emerging market economies. This tendency may be stronger when monetary conditions are globally accommodative and financial investors' appetite for portfolio rebalancing and carry trades is growing. It would be helpful for financial stability to broaden and deepen local bond and equity markets in those economies, thereby allowing funds to be channeled more directly to investments, and hence reducing possible shocks to commodity markets.

In addition, it is desirable that transparent and resilient commodity markets are developed in Asia, where strong demand for commodities is being generated. Developing such markets further would be beneficial for the area by enhancing the liquidity of commodities in the Asian time zone, as well as by developing tradable markets for those commodities such as rice, which are in great demand and produced in the region, but whose global market is yet to be developed.

6. Concluding Remarks

In my presentation today, I have highlighted recent developments in commodity markets and the implications of these developments. As I have pointed out, the growing participation of financial investors in commodity markets can bring important economic benefits by adding liquidity to the market and thereby improving market functioning. However, the diversity and complexity of financial instruments and players calls for closer monitoring of their impact on the overall development of commodity markets as well as for an assessment of the potential financial vulnerability arising from the increased exposure of financial investors. These developments should be thoroughly and regularly analyzed.

In terms of the macro-prudential framework, the Bank of Japan will continue its efforts to enhance the stability, efficiency and integrity of the financial system as a whole.

Thank you for your kind attention.

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~ Speech at the Paris EUROPLACE International Financial Forum in Tokyo, November 28 ~

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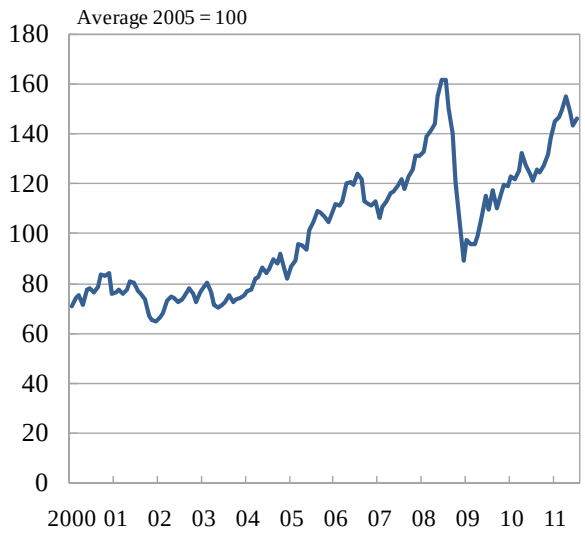
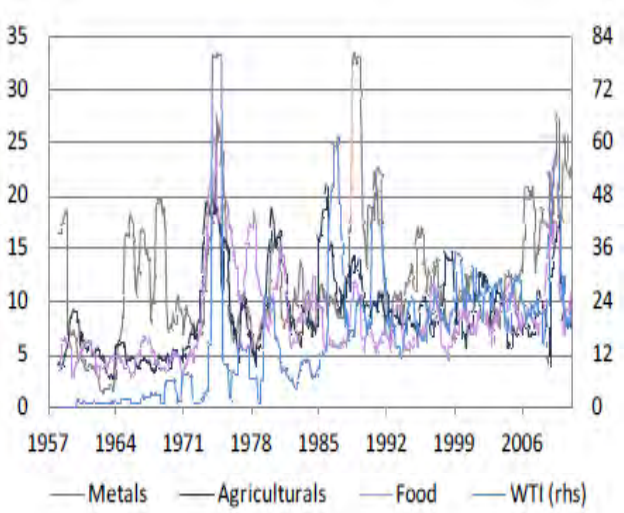
(Figure 1) High and Volatile Commodity Prices

<Real commodity price (1) >



<Commodity price volatility (2) >



Graph 1.2, Report of the G20 Study Group on Commodities, November 2011

(1) In US dollar terms: deflated by world export prices.

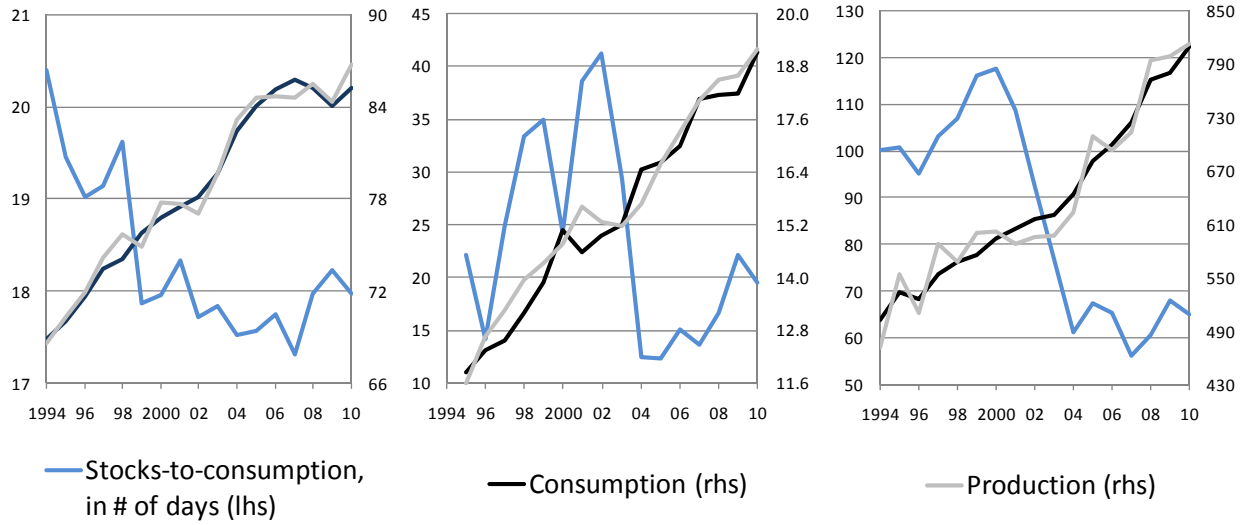
Sources: IMF, International Financial Statistics

(2) Rolling one-year volatility of daily returns.
In per cent, annualized historical volatilities calculated from percent changes (in real terms) of IMF Commodity indices over one year.

(Figure 2)
Tightening demand and supply conditions

-- Supply, consumption and stocks of selected commodities--

<Petroleum (1) > <Refined copper (2) > <Corn (2) >



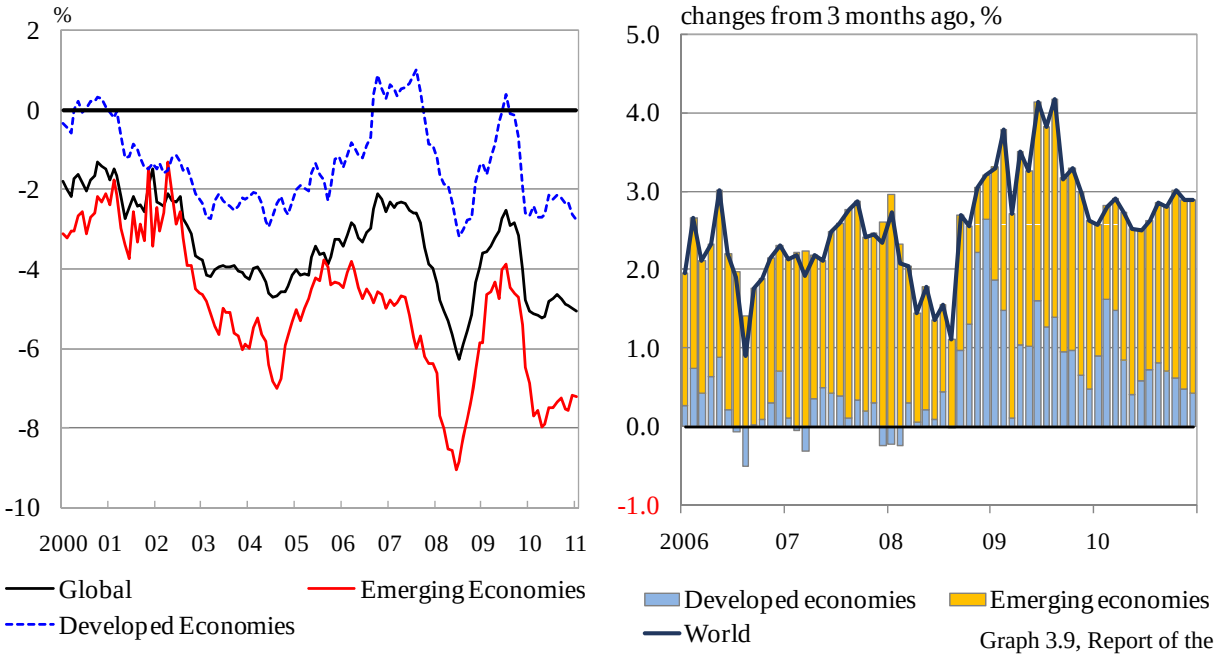
(1) Supply and consumption in millions of barrels per day; stock in billions of barrels.
(2) Millions of metric tons.
Sources: Bloomberg, Energy Information Administration

Graph 2.1, Report of the G20 Study Group on Commodities, November 2011

(Figure 3)
Accommodative monetary conditions

-- Indicators of global monetary conditions --

<Global Interest Rate Gaps> <Global M1>



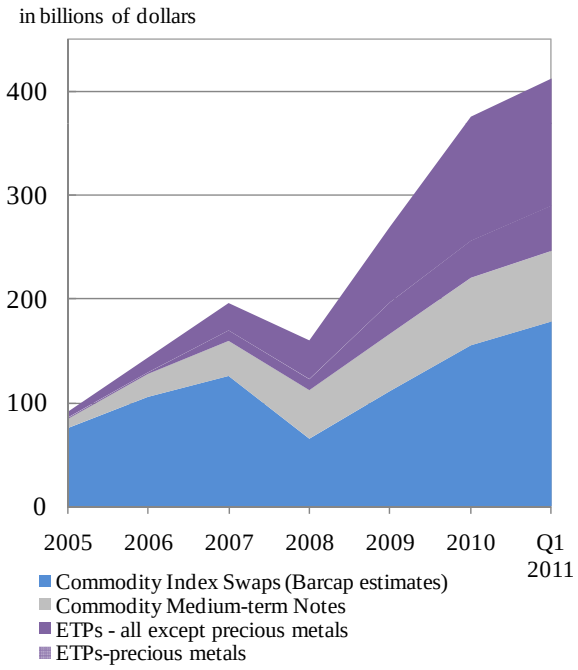
Note: Interest rate gaps are estimated with relevant data published by the International Financial Statistics and the World Economic Outlook of the International Monetary Fund.

Graph 3.9, Report of the G20 Study Group on Commodities, November 2011

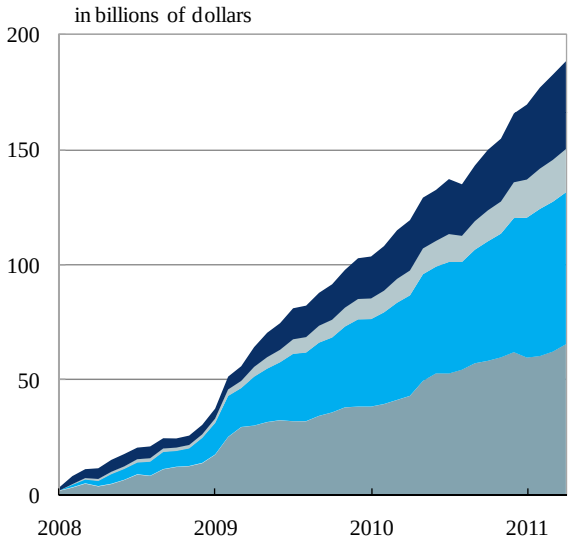
(Figure 4)
"Financializaion"

-- Total commodity assets under management and inflows by commodities--

<Assets under management>



<Cumulative flows by commodity type>



Graph 3.1, Report of the G20 Study Group on Commodities, November 2011

Note: The numbers in the left panel take into account valuation effects, thereby factoring in commodity prices fluctuations.
Source: Barclays Capital

End of Presentation

Dusk at the BOJ Courtyard