

FASID
Development Assistance Survey Unit (DASU) Study Group Meeting
Conducted Jointly with the World Bank Tokyo Office

The World Bank and FASID jointly held a seminar on 15th June, 2009, inviting Dr. John Baffes, Senior Economist at the World Bank, as the speaker. Dr. Baffes gave an informative presentation on recent trends in commodity markets and where they will be heading in the long-run. The presentation was followed by an active discussion amongst the participants, which included government officials, representatives from various development organizations, embassies, academic institutions and private companies, and students.

1. Date: 15th June, 2009 @ 13:00-15:00

2. Venue: World Bank Tokyo Office - Large Conference Room

3. Speaker: Dr. John Baffes (Senior Economist, Development Prospects Group, World Bank)

4. Theme: Commodities at the Crossroads

5.1 Today's presentation

Since the turn of the century, especially after 2003/4, global commodity prices soared, peaking in mid-2008. Issues regarding commodity price development, which in recent years had been considered a topic of global interest, seem to have been put on the back burner following the September 2008 financial crisis. However, commodity price-related concerns are still present, and for many developing countries in particular, they remain an important issue.

The objective of the presentation is to identify the factors that fueled the commodity price boom of the past few years, and to predict where commodity markets will be heading in the long-run.

Characteristics of Different Commodity Groups in the Post-WWII Period

Metals – Prices steadily increased until the early 1960s, reflecting postwar reconstruction in many countries. Interestingly however, prices gradually decreased for the next forty years, by a yearly average of 1.4-1.5%. In early 2002/3, metals showed the most abrupt boom compared to other commodities.

Energy – Prior to the 1973 oil shock, energy prices were stable, due to the fact that crude oil prices were handled by oil companies that negotiated agreements with countries for which they extracted the oil. The first and second oil shocks of the 1970s caused oil prices to soar, and in the mid-1980s they went down again. Energy prices increased dramatically in the recent commodity boom.

Agriculture – Agricultural commodity prices have generally shown a downward sloping behavior in the post World War II period, apart from three specific periods when prices boomed distinctly; during the Korean War, the consecutive oil shocks and the recent commodity boom.

Key Characteristics of the 2003/4-2008 Commodity Boom

- Previously, different commodity prices had followed different paths; however, in the most recent commodity crisis, all commodity prices increased and decreased in tandem, showing similar behavioral trends, unlike previous booms.
- Comparing the Manufactured Goods-Unit-Value (MUV)-deflated world prices in dollars to the CPI-deflated prices in domestic currencies of the three commodity groups (i.e. accounting for effect of the real exchange rate), it is evident that prices in domestic currencies of developing states increased much less than world prices.
- Month-to-month absolute percentage changes in agricultural commodity prices over the past twelve months have demonstrated, on average, three times the amount of price volatility than that of the past 25 years; similar results were obtained for other types of commodities

Factors behind the Recent Commodity Boom

There are many factors that have been identified as the key elements in driving the recent commodity boom, including strong and sustained growth particularly in developing nations, underinvestment in the past in extractive commodities, a weak dollar, fiscal expansion, investment fund activity, adverse weather conditions and other geopolitical reasons. Although it has been argued by analysts that all of these aspects have contributed to the price boom, there have been exaggerations and misrepresentations. On the other hand, the fundamental causes of the 2008 price spike are not fully understood.

☆Increased Income and Dietary Changes in Developing Nations (e.g. China & India)

For the most part of last 40 years, the majority of commodity demand has increased, on average, at a rate higher than the population growth rate and lower than the GDP growth rate, suggesting that as long as such trends continue, we will not suddenly run out of commodities in the near future. Furthermore, regarding the global consumption of different commodities (energy, industrial metals excluding precious metals and food) adjusted by GDP, it has been confirmed that the intensity of commodity demand has been declining with GDP growth, particularly for energy and food, suggesting that technological progress has increased the efficiency of commodity use.

A popular notion thought to be a key factor behind the recent food price boom has been the increased demand for grains by China and India for consumption purposes. However, when the grain consumption for the three main types of grains, rice, maize and wheat, are combined for China and India since 1995, although an upward trend can be confirmed, there is no significant difference in the trend before and during the commodity price boom. Moreover, when the grain consumption of the two countries is taken as a share of global grain consumption, interestingly, it actually demonstrates a decreasing trend in the past couple of years, hence this refutes the idea that the grain absorption of the two countries are causing prices to increase. The decline of global grain stocks to levels as low as mid 1970s' standards has been identified as a key factor that contributed to

the grain price boom.

☆Decline in Yield Growth and the Increased Production of Biofuels

There is discussion that the rates of yield growth have been declining since the green revolution, especially in food commodities, causing food prices to increase. This is true for most agricultural commodities, but yields for cotton and maize have in fact increased. The large-scale adoption of genetically modified cotton by China and India has caused yields to double, and as for maize, there have been intensive inputs of the crop to meet high biofuel demands, especially in the U.S.

The idea that the substitution of food commodities for biofuels production caused the boom is subject to debate. Of course, the diversion has contributed to the boom, but not to the extent that it has been reported by analysts and economists. For example, when the land used for the production for U.S. ethanol is taken as a share of U.S. corn production area, it accounts for almost 30%, which seems relatively high; however, when expressed as a percentage of U.S. grain area, it goes down to 8-9%, and as a percentage of world grain area, it accounts for only 1-2%. Therefore, it is important to keep facts in perspective and consider both their short and long-term effects on commodity prices.

☆Escalating Energy Prices and the Drying-up of Extractive Resources (e.g. Crude Oil)

Escalating energy prices have been identified as a key contributor to increased agricultural commodity prices, since agriculture is an energy-intensive industry. The long-run price transmission elasticities from energy to non-energy commodities based on OLS estimates show that agricultural commodities have a reasonably high elasticity of almost 0.3, implying that a 10% increase in energy prices leads to a 3% increase in agricultural prices in the long-run.

From the late 1980s until the early 2000s, investment in oil and gas by major U.S. multinational companies was low, but the expected correlation of high prices was not observed until after this period. The crucial question to fundamentally understand the causes behind the commodity boom is why did it take so long for energy prices to pick up, given the extensive period of low investment in such commodities? There are three main reasons for this.

1. The global crude oil consumption has been declining, and corresponding to this decline, the share of nuclear energy has increased, going from 1% in 1970 to 7% in 2000. This implies that crude oil consumption is slowly being substituted by nuclear energy, in other words, nuclear energy has taken away some of the energy demand of crude oil, thus leading to the underinvestment in extractive energy commodities.
2. The excess capacity of crude oil with the collapse of the Soviet Union was another factor which contributed to the underinvestment in energy commodities. After the oil crises of the 1970s, there was a huge spare capacity of crude oil. However, due to inefficient production and consumption, which implied that oil prices did not reflect market forces, this capacity remained unutilized. When the Soviet Union collapsed in 1989, although prices were properly reflecting market forces, the income within Former Soviet Union countries declined, so crude oil consumption became inefficient.

3. The chain of financial crises of the 1990s (e.g. South America, East Asia, Russia etc) brought the real GDP growth rate of both developed and developing countries down in the early 2000s and an explosion of growth immediately after.

The amount of known reserves of world crude oil suggest that despite the fast rising demand for oil consumption, known reserves have grown just as rapidly.

The problem with the measurement of reserves is that some countries report reserves that were measured in earlier years and simply make adjustments to the statistics, which leads to small spikes appearing when middle income countries make alterations. Consequently, the U.S. Geological Survey has attempted to modify the data by making two major adjustments. Firstly, according to scientists and analysts, when an oil field is developed, it is often the case that the initial estimates of the oil reserves by regional geologists are 30-40% lower than the actual oil extracted; therefore, the U.S. Geological Survey took this factor into account and included a new term “expected reserve growth” in their survey from 1996. Secondly, they made amendments to the bureaucratic estimates of oil reserves by mapping the regions in question with data based on both bureaucratic estimates and scientific estimates by geologists and engineers, and revised the data. Taking the two major adjustments into consideration, the U.S. Geological Survey predicted that 76% of total crude oil resources is still existent underground, which is another indication that the world is not going to run out of resources abruptly.

The issue does not lie in the amount of oil reserves, but rather in where the supplies are coming from. Data for the last 25 years on global crude oil production reveals that the share of offshore sources (i.e. deep sea, high cost areas, etc) is increasing. This suggests that the oil consumed in the future will be more expensive than in the past, which justifies the reason as to why we have shifted to a new equilibrium of energy prices; it is estimated that we will probably have an equilibrium oil price of perhaps 3-4 times higher than what we experienced in the 1980s through the 2000s.

Five Types of Speculative Activities in the Recent Commodity Boom

Excessive speculative activities have been blamed by several analysts and economists to have attributed to the recent commodity price boom; such activities have been categorized into five different types and are listed below.

1. *Speculators in future exchanges*
2. *Speculators who “corner” markets*
3. *Hedge funds in search of short term returns*
4. *Speculators holding stocks*
5. **Investment, pension and wealth funds**

In Dr. Baffes’ opinion, the last type of speculation may have been one of the **main causes of the recent boom, especially the 2008 spike**. Investment by pension funds, wealth funds and other funds has evidently affected commodity prices. In recent years, most equity and bond markets have started to co-move, and the correlation amongst them have become much stronger than before (e.g. Asian equity markets affect European equity markets, which in turn affect U.S. equity markets). Since investing in highly correlated assets can incur

high risks, investors needed to diversify their assets, and commodity markets were a class of assets that were not correlated with existing classes of assets. Although for such funds, allocating 2-3% of their portfolio to commodities was a minor investment, their actions affected commodity prices significantly.

Commodity Markets in the Long-term – Projections and Forecasts

Apart from policies and technological changes, the increased link between energy and non-energy commodity prices, biofuel mandates and subsidies, intensified investment fund activity, economic growth especially in developing countries and changing weather patterns will become the dominant forces that will shape the long-term outlook of commodity markets. In real terms, commodity prices are expected to average about 50% higher than those in the late 1980s until early 2000s. In terms of crude oil, prices are estimated to increase to about \$70-75 a barrel in current terms, about three times that of the 1980s.

Q & A Session

Why the Metal, Energy & Agriculture Markets Moved Together in the Recent Boom

The three commodity markets are believed to have moved together because of demand forces from developing countries that acted on metals and energy commodities but not on agricultural products. Agricultural commodity prices adjusted later due to the energy and non-energy commodities link.

Implications of Increased Market Demand

There is certainly a high demand in the metal and energy markets. However, as for agricultural commodities, the demand has not increased significantly subsequent to the latest boom in comparison to the previous decade. Put in economic terms, it is a demand issue for metals and energy, but rather a cost issue for agriculture alongside the diversion to biofuel production. There is still a need to investigate the link between energy and non-energy commodities, but if it is the case that with higher energy prices there is a stronger correlation between the two types of commodities, whatever price behavior we may see in energy markets may be reflected in the price behavior of agriculture markets in the future; further econometric analysis on the relationship between the two commodity groups is essential for forecasting the long-run prospects of commodity markets.

Means of Improving Food Production Efficiency

We have to think to ourselves whether we are actually facing a food shortage issue. It is true that a diversion from food to biofuel production is occurring. However, looking at the rice market for example, stocks were in fact lower 3-4 years prior to the recent commodity boom, and there does not seem to be a supply issue at present. In poor areas like in African countries, it is more of an income issue – it is not that they are suffering from a shortage of agricultural products, but rather that they cannot afford such products.

Comments on Commodity Market Forecasts and Future Policies

It is expected that although commodity prices will eventually stabilize, we will probably be facing higher price volatility than before the recent boom. With regards to the prospects of stock holding as a price stabilization mechanism, it is doubtful that this will work given all the past failed attempts.

Prospects of Introducing a Taxation System

It may be possible for a taxation system to be introduced as a means of stabilizing commodity markets in the long-run, for example, the Tobin taxation system or maybe a minimal transaction tax that could impose a behavioral constraint for large transactions, especially in the futures markets. Imposing a progressive taxation system may also be potentially effective in stabilizing commodity markets. However, policymakers will need to consider associated issues upon the introduction of such taxation systems, for instance, how imposing constraints in one area will lead to people making transactions in another area, or how the tax will be collected and allocated.

Additional Information

- Most of the presentation material has been reported in “Global Economic Prospects 2009: Commodity Markets at the Crossroads” (www.worldbank.org/prospects/gep2009/)
- The latest Global Economic Outlook update was released on June 22nd, 2009 (www.worldbank.org/prospects/)
- For more details, please contact Dr. John Baffes at jbaffes@worldbank.org