Financial risk management in the context of the impact of the implementation of response measures

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IMPLEMENTATION OF ARTICLE 4, PARAGRAPHS 8 AND 9, OF THE CONVENTION PROGRESS ON THE IMPLEMENTATION OF ARTICLE 4, PARAGRAPH 8

Report on the UNFCCC workshops on insurance

**Bonn, Germany, 12 – 15 May
2003**

46. The workshop also examined a variety of possible instruments for alleviating potential economic losses, including **hedging mechanisms** against possible losses arising from the implementation of response measures (financial derivatives (options, swaps, commodity bonds) for energy products, etc), and other non-formal forms of insurance to hedge against risk, such as **oil funds, savings and stabilization funds, and combinations of savings/stabilization funds**.

47. Policy makers in countries that derive substantial export and fiscal revenue from exhaustible resources such as oil, coal and gas, have attempted to **cushion their domestic economy from the sharp and unpredictable variations in commodity prices and revenues through either savings schemes or stabilization funds**, or both. Examples mentioned include Azerbaijan, Chile, Kazakhstan, Kuwait, Norway, Oman, Qatar, United Arab Emirates (Emirate of Abu Dhabi), United States of America (State of Alaska's Permanent Fund) and Venezuela.

Fifty Years of Commodity Price Stabilisation Schemes

Keynes' Commod Control Agency

- At the Bretton Woods conference in July 1944, John Maynard Keynes (1883-1946) proposed the creation of a **Commod Control agency** to operate a global commodity price stabilisation scheme.

- He envisaged the establishment of a series of **physical buffer stocks** for key commodities that would be bought and stored when spot prices were low and then released back to the market when prices were high.

- The primary objective of the scheme would be to **stabilise the prices of these key commodities** in a tightly defined range around a long-run sustainable equilibrium level.

- Combined with an International Clearing Union (now **IMF**) and International Development Bank (now **World Bank**), he believed that Commod Control was an essential third agency necessary to prevent the kind of economic dislocation that led to the Great Depression of the 1930s.

Fifty Years of Commodity Price Stabilisation Schemes

Buffer Stock and Export Control Schemes

- 1963, IMF: **Compensatory and Contingency Financing Facility**; short-term loans to mitigate export earning losses due to falling commodity prices.

- 1954, UNCTAD (UN Conference on Trade and Development): International **Sugar Agreement** (till 83), export controls

- 1954, UNCTAD: **Tin Agreement** (till 85), buffer stocks

- 1962, UNCTAD: **Coffee Agreement** (till 89), export controls

- 1969, IMF: **Buffer Stock Financing Facility**; finance to buffer stock schemes meeting certain strict criteria.

- 1972, UNCTAD: the **Cocoa Agreement** (till 88), buffer stocks

- 1975, UNCTAD: Integrated Program for Commodities (IPC), giving rise the **International Grains Council**, the **International Jute Organisation**, and the **International Tropical Timber Organisation**.

- 1979, UNCTAD: International **Natural Rubber Agreement** (till 99), buffer stocks

- 1960, OPEC: 'If demand grows, or some oil producers are producing less oil, OPEC can increase its oil production in order to **prevent a sudden rise in prices**. OPEC might also reduce its oil production in response to market conditions in order to **counter falling prices**.'

Source: OPEC Statute
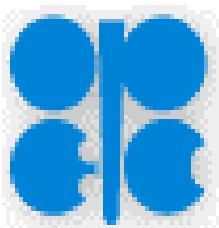
Fifty Years of Commodity Price Stabilisation Schemes

Problems with Buffer Stocks:

- no matter what the starting stock level, there would always be some probability that stocks would be depleted before prices fell or that stocks would grow so large that they exceeded total available storage capacity or finance before prices rose again.

- Keynes acknowledged some practical difficulties in determining an appropriate equilibrium price level, and that it certainly could not be fixed for all time but allowed to evolve by up to 5% per annum

- In short, buffer stock schemes rely on **price reversion to a sustainable equilibrium price level**, **correctly identified** and agreed upon by both **consumers and producers**.

Alternative I: Hedging with Derivatives

- **Futures** and **forward contracts** offer at least a theoretically complete solution to the problem of incomplete markets that result in the welfare loss arising from commodity price risk, and at a lower cost than a traditional buffer stock scheme.

- However, both futures and forward contracts suffer from one major disadvantage, which is that both buyers and sellers are exposed to credit risk: The **difficulty in obtaining credit** is, in particular, the most important reason why **producers in less developed countries** make relatively **little use** of futures (or forward) contract trading to hedge their revenues.

- Even if they could obtain credit, the **time horizon** over which it could be provided is likely to be limited to one crop season as this may be the only source of collateral against which futures margin may be borrowed or to provide security to a forward contract counter-party.

Financial Times

Emissions and Ethanol join the newcomers

By Kevin Morrison

Tuesday November 22

- The launch of a plastic futures market by the London Metal Exchange and the possibility of a steel futures launch next year "underlies the increasing **desire of investors to manage their risk exposure to volatile raw materials prices**."

- What makes a successful contract is an interesting point. For example, **steel** is the second most produced commodity in the world, after oil, yet **there is no viable market for consumers to manage their price exposure**.

- Existing Forward Markets (selection): Gold, Silver, Brent crude oil futures (1978); Sugar based ethanol, plastic.

Alternative II: An "Economic Shock" Fund

- "An **international fund to help poor countries deal with economic shocks such as soaring oil prices** will provide lending of $2.8bn … Gordon Brown, Britain's chancellor of the exchequer, secured the backing of Saudi Arabia during talks at the weekend for the **International Monetary Fund** facility."

- "The 'shock' fund is intended to **help poor countries deal with the effect of high oil prices**, **sudden changes in the value of their commodity exports**, natural disasters and the effect of wars in neighbouring countries."

- "Not every poor country would be expected to apply, however … Potential recipients might be wary of applying for a loan in case **it signalled their economies were vulnerable**. No countries adopted the idea of an IMF Contingent Credit Line a few years ago because they feared that **applications to IMF for assistance would scare off**

Alternative III: Commodity Price Insurance

- Creation of a new **Global Commodity Insurer** (**GCI**) that would operate an international **Commodity Price Insurance** (CPI) scheme with the objective of protecting national government revenues, spending and investment against the adverse impact of short-term deviations in commodity prices, and especially oil prices, from their long-run equilibrium level.

- **Crude oil is the core commodity** in this scheme because energy represents 50% of world commodity exports, and oil price shocks have historically had a significant macroeconomic impact.

- GCI would take advantage of the **rapid growth of trading in derivative securities** in the global capital market by selling CPI insurance contracts tailored to the specific commodity price exposure faced by national government, and offsetting the resulting price risk with a **portfolio of derivative contracts** of five-year or longer maturities, supplied by banks, insurers, re-insurers, investment institutions, and commodity trading companies, with investment grade credit ratings.

Bower & Kamel (2003): Conclusions

1. By exploiting the option-like properties of an insurance contract, a **Commodity Price Insurance** scheme would have a substantially lower cost than that of a comparable physical commodity buffer stock regime

2. The cost to a sovereign government of managing its **exposure to oil price risk** would be at most **US$l.00** per barrel, which is one third of the cost of operating a physical buffer stock scheme such as the US Strategic Petroleum Reserve of around US$3.50 per barrel over the same period and therefore a lesser burden to tax payers in the long run.

3. **Credit risk** issues that typically exclude developing countries from participation in long-term financial market transactions could be entirely avoided.

The **capacity of the global financial system** to manage the increased volume of trading in commodity derivatives that would be required to underpin the issuance of Commodity Price Insurance contracts appears to be sufficient to cover the entire global primary commodity import-export trade.

What is currently missing is a **coordinating agency** to focus liquidity in the trading of commodity derivative contracts at maturities beyond 12-24 months that are typically available in commodity derivative markets. The role of the GCI would be to **complete the market for commodity derivatives** by providing CPI contracts of an appropriate five- to ten-year maturity, and indexed to mean annual commodity prices.

Thank You!

	Oil consumption per capita % growth	Real GDP/capita % growth	Elasiticity Short term	Ealsticity Long term
Australia	*-0.3*	*1.7*	-0.034	-0.068
Austria	*-0.7*	*3.1*	-0.059	-0.092
Canada	*-1.3*	*1.6*	-0.041	-0.352
China	*3.6*	*8.6*	0.001	0.005
Denmark	*-2.5*	*1.5*	-0.026	-0.191
Finland	*-1.2*	*2.1*	-0.016	-0.033
France	*-1.5*	*1.7*	-0.069	-0.568
Germany	*-1.4*	*1.2*	-0.024	-0.279
Greece	*2.2*	*1.5*	-0.055	-0.126
Iceland	*0.5*	*2.2*	-0.109	-0.452
Ireland	*0.2*	*3.9*	-0.082	-0.196
Italy	*-0.4*	*2.2*	-0.035	-0.208 -
Japan	*-1.0*	*8.1*	-0.071	0.357
Korea	*8.3*	*6.4*	-0.094	-0.178
Netherlands	*-0.5*	*1.7*	-0.057	-0.244
New Zealand	*-0.4*	*1.4*	-0.054	-0.326
Norway	*0.2*	*2.9*	-0.026	-0.036
Portugal	*3.0*	*2.9*	0.023	0.038
Spain	*1.3*	*2.1*	-0.087	-0.146
Sweden	*1.3*	*2.8*	-0.043	-0.289
Switzerland	*-0.7*	*0.9*	-0.030	-0.056
UK	*-1.1*	*2.0*	-0.068	-0.182
USA	*-0.7*	*2.0*	-0.061	-0.453

Source:
John C.B. Cooper, 'Price elasticity of demand for crude oil: estimates for 23 countries' *OPEC Review*, Volume 27 Issue 1 March 2003:pp1-8.

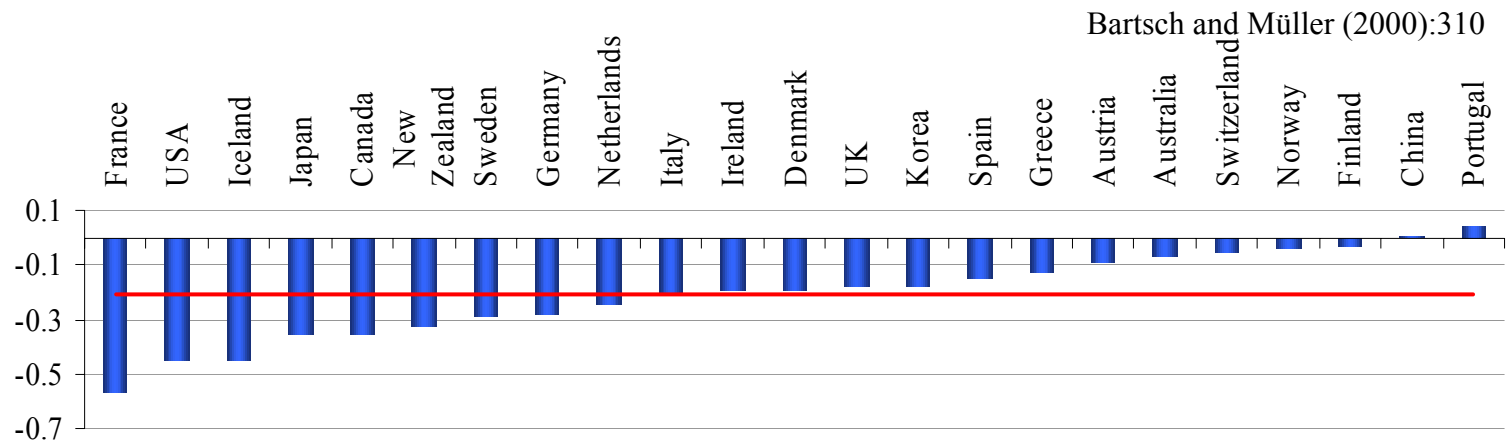*Elasticity*

	Elasticity
OWEM	-1.3
CLIMOX	-0.55

'According to OWEM, a policy of maintaining a similarly high level of oil production in the face of an implementation of Kyoto as the one shown in CLIMOX would lead to a sharp reduction in the price of oil, and large revenue losses. On the other hand, a policy of cutting production sufficiently to lower prices in OWEM by a similar margin as in CLIMOX would lead to revenue losses very similar to those shown in CLIMOX. **Obviously, the inelastic demand in OWEM gives much more scope to producers' influence on revenues, and the impact of Kyoto on revenues, than the more elastic demand in CLIMOX**.'

Bartsch and Müller (2000):310

Source:
John C.B. Cooper, 'Price elasticity of demand for crude oil: estimates for 23 countries' *OPEC Review*, Volume 27 Issue 1 March 2003:pp1-8.