Why Haven't Uranium Futures Contracts Succeeded? A Case Study

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This article is excerpted from a three-day seminar on why some futures contracts have succeeded while others have failed.

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EDHEC pursues an active research policy in the field of finance. EDHEC-Risk Institute carries out numerous research programmes in the areas of asset allocation and risk management in both the traditional and alternative investment universes.
Why have some seemingly promising futures contracts not succeeded in the recent past? In this paper, we will examine one such example, the uranium futures market. In two companion working papers, we will also analyse two other futures market failures: namely, the pulp market and in the weather derivatives market.

The structure of this brief paper is as follows. First we provide some background on the uranium futures contract as well as a description of this contract, and then we note how the uranium market does not sufficiently match up against the criteria for the successful launch of a futures contract.

**Background on the Uranium Futures Contract**

Very helpfully, a report by the U.S. Senate in 2014 provides details on the uranium futures contract. According to U.S. Senate (2014):

- The uranium futures contract "was established and began trading for the first time on May 6, 2007."
- "This financially-settled contract is traded on the CME Globex and CME ClearPort trading platforms, and is linked to prices provided by Ux Consulting Company, LLC."
- "In recent years, the uranium futures market has had relatively few participants, the U3O8 contract has rarely traded, and open interest has generally remained relatively low."
- "There are frequently zero reported trades per day.
- For example, for the week of September 9–September 16, 2014, only one trade was reported, involving 50 contracts."

**Uranium Futures Contract Specifications**

The specifications for the CME Group’s uranium futures contract are provided in Exhibit 1.

*Exhibit 1:*

![Ux Carbon U3O8 Futures Contract Specs](http://www.cmegroup.com/trading/metals/other/Ux_Futures/Ux_Carbon_U3O8_Futures_Contract_Specs.png)

*Source: http://www.cmegroup.com/trading/metals/other/uranium_contract_specifications.html, which was accessed on November 23, 2014.*
The Uranium Market versus the Criteria for the Successful Launch of a Futures Contract

Sandor’s Criterion Met: There Should be Sufficient Volatility
Sandor (1973) notes that one criterion for a futures contract to be successful is that the price variability of the commodity must be sufficient. That would appear to be the case for uranium prices. The U.S. Senate (2014) noted: “In recent years, the uranium market has experienced significant price fluctuations, based on massive swings in market sentiment towards nuclear power and technology changes for alternative sources of energy.” This is illustrated in Figure 1.

Pirrong’s Criterion Not Met: There Should be Fragmented Marketing Chains
Pirrong (2014) notes that “futures contracts are most viable when…” not only are there “large holdings of inventories to be hedged”, but also when “there are relatively fragmented marketing chains …”

In contrast, there is a “lack of [trading] counterparties in the [uranium] market, [which] add[s] to the risk of holding uranium assets,” according to the 2014 U.S. Senate report, which, in turn, cited a December 2008 Goldman Sachs memorandum on uranium trading.

In explaining why pulp futures contracts have never become successful, Pirrong (2014) explained that there has been “a lot of vertical integration in pulp, and even freely traded pulp … [has] not been traded in long chains like grain or oil is. [As a result, there are] few trader intermediaries [in the pulp markets].” (Italics added.)

Does this consideration apply to uranium? The short answer is yes. According to the World Nuclear Association (2014), “With the main growth in uranium demand being in Russia and China, it is noteworthy that the vertically-integrated sovereign nuclear industries in these countries (and potentially India) have sought equity in uranium mines abroad, bypassing the market to some extent.”

Gray’s and Silber’s Criterion Not Met: There Should be a Level Playing Field Amongst Participants
Both Gray (1966) and Silber (1985) discuss how, in order to be willing to provide liquidity to a futures market, speculators should not be at a large informational disadvantage.
In contrast, the 2014 U.S. Senate report quoted a December 2008 Goldman Sachs memorandum as stating that the uranium "market was characterized by 'long-term physical participants trading with each other,' which could lead to significant informational disadvantages for new entrants ..."

**Conclusion**

While uranium prices have been sufficiently volatile to merit a futures contract, it appears that the industrial organisation of the uranium industry has not been conducive to the success of a futures contract.

**References**

- Pirrong, C., 2014, private correspondence, October 8. [Craig Pirrong is a Professor of Finance at the University of Houston, http://www.bauer.uh.edu/directory/profile.asp?firstname=Craig&lastname=Pirrong.]
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