Introduction to Research Council Corner

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In 2015, the J.P. Morgan Center for Commodities (JPMCC) at the University of Colorado Denver Business School established its Research Council. The Council consists of eminent academic researchers and successful professionals of practice, whom are interested in a shared platform for relevant academic commodities research and its dissemination to the wider commodities community. The goal for the Research Council is for it to help shape and validate the research agenda of the Center, according to Ajeyo Banerjee, Ph.D., who leads the JPMCC as its Executive and Faculty Director.

In the "Research Council Corner" section of the *Global Commodities Applied Research Digest (GCARD)*, we are pleased to include articles from the following three distinguished members of the Research Council: Thomas Brady, Ph.D., of the Newmont Mining Corporation; Bluford Putnam, Ph.D., of the CME Group; and Marcelle Arak, Ph.D., of the University of Colorado Denver Business School. Dr. Arak's article is co-authored with Sheila Tschinkel, Visiting Faculty in Economics at Emory University.

Dr. Brady's paper clarifies what the benefits from mining are to host countries. Dr. Brady advocates that host countries evaluate the holistic benefits of this activity and not just the direct monetary benefits derived from taxes and royalties. Dr. Putnam's article then discusses what the main drivers have been for the price of crude oil and what this key commodity's prospects are in 2016 based on *fundamental* factors. In future issues of the *GCARD*, Dr. Putnam will be contributing a regular column entitled, "The Economist's Edge." Dr. Arak's and Ms. Tschinkel's paper, in turn, explains why the price of crude oil has declined as much as it has by focusing on the consequences of the low short-run price elasticity of demand for crude oil in the face of a substantial surplus in oil production (relative to demand.) They also note what the threshold amount of cooperation by core swing producers is that would halt the decline in the price of crude oil; this particular condition was proven *mathematically* by Dr. Arak in previous academic work. Finally, the authors note the present impediments, which have prevented core producers (as of the end of January 2016) from agreeing to the required level of cooperation that would arrest the drop in the price of oil.

The next two pages further summarize this section's highly relevant papers on mining and energy issues. The mining article is quite helpful in public policy debates while the two energy papers are quite useful for petroleum project planning.

The Distribution of Economic Benefits from Mining by Thomas Brady, Ph.D.

Prevalent in the literature concerning economic contributions of mining is the view that royalty rates and taxes which governments levy on mineral extraction are the primary sources of benefits a host-country receives from a typical mining operation. However, more holistic perspectives are needed as significantly more economic value is generated by the spending of mining companies on their supply chains and on employee wages. Governments that ignore these wider benefits are at risk of limiting the returns generated by mining activities within their borders as these typically result in reduced mine lives and lower incentives to invest. As a result, this article recommends a careful analysis of the holistic benefits of mining by host countries.

Oil Market Dynamics and 2016 Outlook by Bluford Putnam, Ph.D.

This article's forward looking analysis of the long-term trends in the crude oil market, including sluggish global growth, continued advances in transportation fuel efficiency, and extraction technology improvements, suggest that the era of relatively low prices could last for many years. In hindsight, what seems remarkable is that oil prices stayed as high as they did for as long as they did, before breaking down in the second half of 2014. Back in the second half of 2014, the oil market experienced a powerful downward price adjustment, which was sustained throughout 2015.

There are several long-term supply and demand forces in play as well as some shorter-term response factors that make for a very difficult mix to analyze going forward. On the supply side, there are the technology-driven improvements in extraction techniques that ignited a production boom in the United States commencing back in 2006. On the demand side, there is the huge shift in the global growth environment, from an emerging market boom period in the early 2000s to a sluggish growth period after the 2008-2009 Great Recession. Also, on the demand side, technology has been steadily at work making transportation considerably more fuel efficient. Shorter-term factors include the time-lagged feedback loops and the behavioral responses as producers have adjusted to a lower oil price environment, as well as policy responses such as the lifting of the US ban on crude oil exports.

This all adds up to a very long and prolonged period of low oil prices as our base case, which would apply so long as economic conditions are the key driver for the price of oil. That said, there are always small probability events, such as further conflict in the Middle East, which could lead to upside price risks, in which case economic conditions would definitely not be the predominant price driver.

Why Do Oil Prices Keep Going Down?
By Marcelle Arak, Ph.D. and Sheila Tschinkel

This article is a practitioner-oriented paper that is based on the insights of Arak and Tschinkel (2016), which, in turn, is an academic paper that is available on SSRN. The present article focuses on the low price elasticity of demand for crude oil in the short run as well as the implications of this observation. For those readers unfamiliar with this economic concept, the definition of price elasticity of demand is the [change in demand in %] / [change in price in %]. With a low price elasticity of demand, a given change in demand requires a correspondingly much greater change in price. Drawing from an example in Hamilton (2008, p. 9), if say the global production of crude oil became 90% of the amount of the previous year, a price increase of 100% would be required to force a 10% drop in demand if the short-run demand price elasticity is -.10, a quite low level. (Hamilton (2008, p. 15) cites past research with even lower levels of short-run elasticities for crude oil.) Given that various studies have shown that crude oil demand is relatively price inelastic in the short run, one can note that any given supply cut should have a magnified impact on the price of crude oil. But how much of a supply cut would be in the best interest of a core group of oil swing producers, who would want to maximize revenue, assuming that "other producers do not change their output in response"? (This assumption is noted in Arak and Tschinkel (2016, p. 2).) Dr. Arak has shown mathematically that a coordinated group of producers with a market "share greater than the elasticity of demand, weighted by … [their] profit margin, could benefit by curbing supply to increase profits". This proof can be found in Arak and Tschinkel (2016, pp. 4-5), and this mathematical result is cited in the present paper. The threshold level of coordination, though, has not happened. Why is the case? This "kind of cooperation is much less likely [now], as oil-producing countries don't appear interested or even able to work together to raise prices – let alone do so unilaterally. They have varying foreign policy interests and economic structures," concludes the present paper, and therefore, "the price of oil is likely to continue its slide."

References

Arak, M. and S. Tshinkel, 2016, "The Direction of Crude Oil Prices: The Role of Market Structure," February 15. Available at SSRN: http://ssrn.com/abstract=2732918.

Hamilton, J., 2008, "Understanding Crude Oil Prices," National Bureau of Economic Research Working Paper 14492, November. [J. Hamilton is also a member of the Research Council of the J.P. Morgan Center for Commodities at the University of Colorado Denver Business School.]