Sachem Cove Partners

The Big Uranium Short(age): The Best Entry Point of the Cycle

> *In the end, Lewis Ranieri's Mortgage Backed Security mutated into a monstrosity that collapsed the whole world economy. And none of the experts or leaders or talking heads had a clue it was coming... But there were some who saw it coming... While the whole world was having a big ol' party, a few outsiders and weirdos saw what no one else could. (Not me, I'm not a weirdo. I'm pretty cool. We'll meet later.)* ***These outsiders saw the giant lie at the heart of the economy. And they saw it by doing something the rest of the suckers never thought to do: They looked.***

This is the opening monologue of Adam McKay's adaptation of Michael Lewis's best-selling book, *The Big Short*. Apropos, no? Once again, a group of outsiders and a few weirdos have identified a major lie at the heart of one of the world's most important, yet least understood, energy sources. The thesis is simple: There is a uranium shortage, and prices must rise in order to incentivize miners to produce more uranium to fill that deficit. And when prices of physical uranium rise, the equities of uranium mining companies will increase in value, perhaps dramatically. It's simple (but not easy) *if* you are paying close attention and are incentivized to understand the nuances and complexity as to why it must be true. Further, one must be capable of seeing through the misinformation spread by the various interested parties with no real skin in the game.

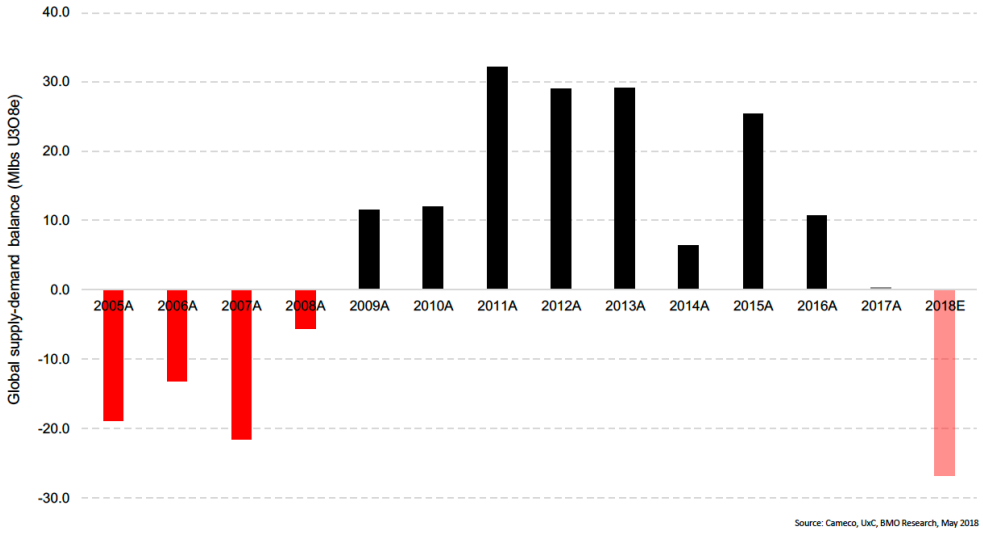
> *[Phone rings]*
> ***Mark:*** *Vinny, you there?*
> ***Vinny:*** *Mark, hello. Mark, you there?*
> ***Mark:*** *Did you hear? Subprime defaults are through the roof. Is anyone jumping off a building yet?*
> ***Vinny:*** *Why would they? Subprime mortgage bond prices are up.*
> ***Mark:*** *What? So, subprime loans go bad—but subprime bonds, which are made up of those loans, are more valuable?*

Despite significant improvements in fundamentals (sentiment, supply, demand, etc.) prices of both equity and physical uranium have yet to reflect these changes. Fundamentals are leading securities prices. Why? There are unnatural, non-economic forces weighing on price discovery. Before discussing what's holding up a material re-rating of the sector, we will review our thesis within the context of today's fundamental backdrop.

Market Overview

The near-decade-long bear market for uranium miners has ended. Due to unsustainably low prices, the market is seeing significant production curtailments, no green-field project development, shrinking inventories, and reduced secondary supplies. As a result, the uranium market has entered a significant multi-year supply deficit. The price of uranium needs to rise at least 100% from today's spot market levels—and stay there for a sustainable period—before the majority of miners can even contemplate re-starting idled capacity or moving ahead with new project development.

Even with the proper incentive price, the length of time (2–10-plus years) to bring on new projects necessary to meet increasing global nuclear power demand will drive deficits for years into the future. On the demand side, numerous long-term contracts inked by utilities during the previous contracting cycle (2007–2011) are expiring at an accelerated pace, leaving the nuclear power utilities at dangerously low levels of inventory and threatening its biggest concern, security of supply.



Uranium Market Bottom

The spot price of uranium has declined 86% from peak to trough. Uranium related equities have declined even more—or disappeared entirely—during this grueling, multiyear bear market. There is a very high probability that the market bottomed in Q4 2016, and as a result the equity of certain miners remains dramatically mispriced.

Rising Demand

Contrary to public perception, nuclear power (low enriched uranium is the fuel) is a large scale, 24/7, carbon-free source of electricity that provides 11% of global energy needs and helps satisfy climate initiatives. Driven by surging demand in the developing world, there are 55 reactors under construction today, totaling nearly three-

quarters of a trillion dollars of in-process construction. We forecast demand for uranium to grow 20% between 2019 and 2030.

The global nuclear demand story had positive developments during Q1, and they continue into Q2.

1. The Nuclear Energy Leadership Act (NELA) is a U.S. legislative proposal to accelerate the development of advanced nuclear technologies and re-establish the U.S. as a technology leader in this area. It was reintroduced in the U.S. Senate with a strong push from famous nuclear energy supporter Bill Gates.

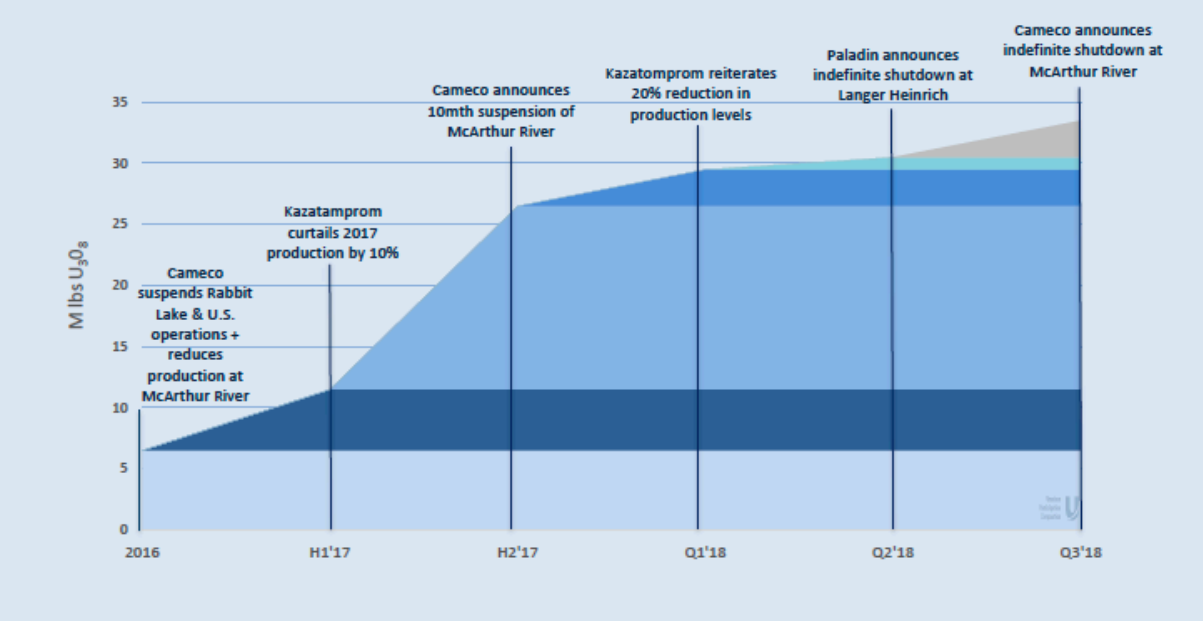
2. For the first time since 2016, China has decided to approve and invest another U.S.$12 billion in the construction of new nuclear reactors. This opens space for the construction of several safer reactors with more improved technology, the so-called third generation. The Chinese approval also paves the way for the construction of six to eight units per year by 2030—in line with the country's goal to at least triple its installed capacity by then. This additional growth will require an additional 70 million pounds of uranium per year.

3. France derives 75% of its electricity from nuclear power and had a plan to reduce that dependency to 50% by 2025. That would have eliminated 14 nuclear reactors by 2025. However, in order to fulfill President Emmanuel Macron's aim of making the country carbon-neutral by 2050, France will delay the partial shutdown by 10 years. Now, according to the new plan, just two to four reactors will close by 2028; however, our estimates included the 14 reactors. For context, each reactor consumes about 500,000 pounds of uranium per year. At a minimum, this news adds another five million pounds per year to our demand scenario. That's about 2% of existing global demand.

Reduced Production

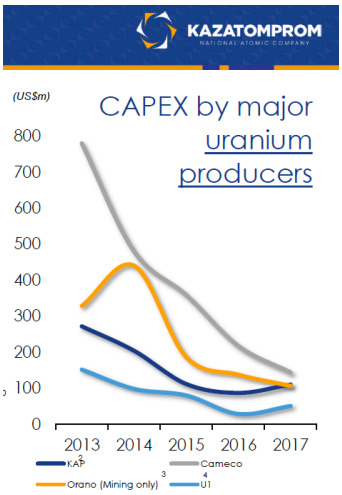
Mining uranium at today's prices is uneconomical. Extraction costs exceed both the spot pricing and the long-term price for most of the cost curve—by a large amount—and uranium miners are under water This has led to reduced capital expenditures by miners on exploration and development, as well as dramatic production cuts totaling more

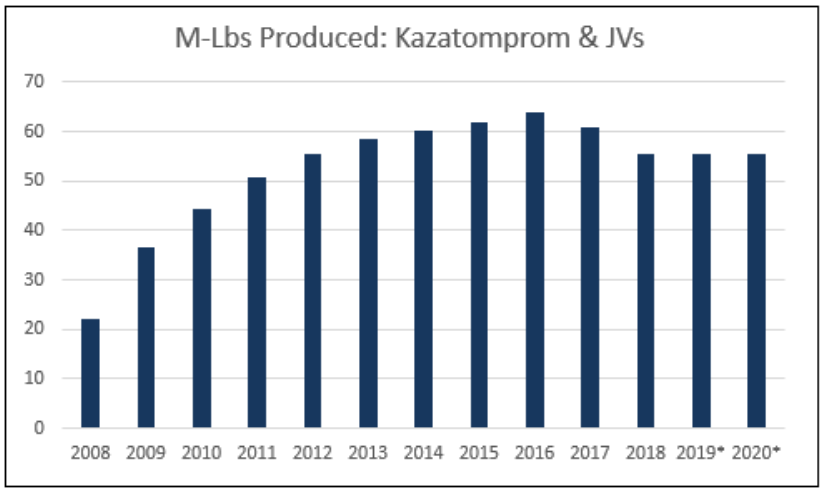
than 20% of existing supply since 2017. There is not enough combined primary mine production and secondary supply to meet future demand.



Market Disrupter Displaying Discipline

Kazatomprom, the state-owned uranium producer of Kazakhstan, combined with its joint venture (JV) partners, accounts for ~41% of global supply. In January 2017, they announced a 10% production cut. Since that time, the Kazakhs have announced a further 20% cut from planned production through 2021. Kazatomprom recently floated 15% of the company to the public and has strongly reiterated its value-over-volume commercial strategy.

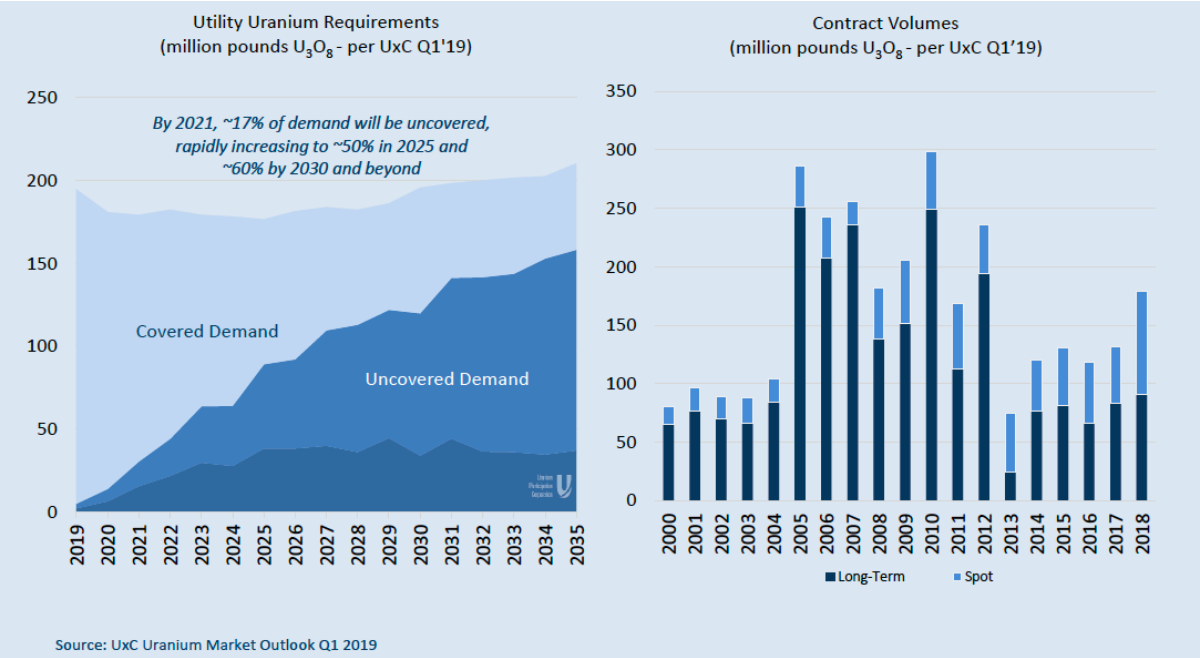




At a recent industry conference, Kazatomprom Chief Strategy and Marketing Officer Riaz Rizvi, addressed a room full of utility nuclear fuel buyers. He emphatically stated that the company's production is nearly at capacity, and they should not be relied upon to fill any supply deficits. He went on to point out that, based on current supply/demand dynamics, in order to meet global needs multiple Kazatomproms (meaning similar in size) will need to be discovered and developed. That's a powerful statement.

Legacy Contracts Are Expiring

The uranium market is characterized by long-term contracts (7–10 years) between the miners and nuclear power utilities. The contracts entered into preceding the March 2011 Fukushima nuclear accident are entering a phase of rapid expiry. About 20% of utility uranium demand is uncovered for 2021, and this increases rapidly to roughly 75% by 2025. Given the length of the fuel cycle (two years) and the lack of green-field development, utilities are putting security of supply at great risk without a commencement of long-term contracting in the short term. The significant contracting cycle in the last uranium bull market was a major component of the price gains.



Equity Shortage

At the peak of the last bull market in uranium there were over 500 uranium miners. Today we estimate there are only about 40 contenders for investor capital.

This is an exceptionally bullish backdrop. Why, then, hasn't the price of uranium begun its rapid ascent towards the marginal cost of production (~$50/lb.)? Two reasons. First, and most explicit, is the 232 Petition filed with the Department of Commerce ("DOC") by U.S. uranium producers Energy Fuels and Ur-Energy. The second is the reconstitution of the Global X Uranium ETF ("URA") index, causing it to become a forced seller of nearly the entire universe of uranium miners.

The Hold Up

Section 232

In January 2018, two miners filed a joint petition asking the DOC to investigate the effect of foreign sources on U.S. uranium miners. The U.S. reactor fleet consumes around 50 million pounds of uranium per year, while it will produce less than one million pounds in 2019—or about 2% of the nation's needs. The U.S. miners driving the

Petition feel this has become a matter of national security leading 20% of the country's energy grid to be reliant on foreign sources.

DOC submitted its recommendations on April 14, 2019, to President Trump. The president has 90 days to either take the DOC's recommendation or provide his own remedies. Discussions with nuclear fuel cycle participants led us to conclude that the uncertainty surrounding the potential outcome has caused most fuel buyers to sit on the sidelines until there is clarity from President Trump.

Regardless of the 232 Petition outcome, prices must exceed $45/lb. for the lowest cost, highest grade U.S. producers to even consider entering into long-term contracts. For the rest of the industry, prices must be materially higher. While this delay in the cycle's turn may frustrate some market participants as prices remain subdued, the delayed buying today means the need for uncovered uranium at the global utilities is growing meaningfully.

Ultimately, the utilities have no other choice but to start contracting—and soon—as their uncovered uranium needs exiting 2020 exceed 20%. From the order date, it takes utilities 18–24 months to get the fuel. For context, at the start of the prior bull market in 2003, uncovered needs were essentially zero for the following couple of years. (Refer to the graphic on page seven for a visual as to the extent of contracting that occurred when fear of supply shortages occurred.)

Additionally, since the market remains stuck in the $25–29/lb. range, no projects can even consider moving forward. The longer the price stays subdued, the more the timetable for new green-field development will be pushed back—further limiting the market's access to badly needed new sources of supply.

Cameco is the uranium mining leader in the West. On its recent earnings call, it said it had put out a request for proposal (RFP) to purchase one million pounds of uranium (not a lot) in the spot market. Consensus is the spot market is full of uranium—but Cameco couldn't get the request filled. It was not even close, and that speaks volumes to the disconnect between consensus and our view that spot is tight, and a deficit has formed.

ETF Reconstitution

The second reason is potentially more pernicious, but less appreciated by those outside the industry: The decision in mid-2018 by Global X (sponsor of the URA) to reconstitute the index their ETF tracked. It went from a pure play uranium mining to 60% miners/40% nuclear construction expressed via mostly Asian conglomerate equities. The rebalancing had been intended to add diversification and reduce volatility in an attempt to attract more assets. It had the opposite impact, however, and the AUM has fallen from over $400 million to slightly more than $200 million. The combination of rebalancing away from thinly traded junior miners and the loss of assets has been a perfect storm for many mining equities. According to one source, during the rebalancing towards the newly-created Solactive Global Uranium and Nuclear Components Total Return Index, URA sold over $150 million worth of its uranium equities into the public market, pushing down the share prices of many of its holdings. This was despite a rising U3O8 spot price over the same period.

Conclusion

So where does that leave us? Two non-economic forces have delayed the sector from re-rating, while our fundamental thesis continues to improve and be de-risked daily.

In our humble opinion, investing in uranium equities is the most asymmetric investment opportunity available in today's market. Not only is the asymmetry sufficient to warrant taking a position, but 232 and the URA reconstitution have made this the best entry point of the cycle by holding down security prices despite a dramatic improvement in fundamentals.

At the Sachem Cove portfolio level, we have been using weakness in the equities to complete a significant number of private financings in order to acquire the attached two- to five-year warrants, which will provide further leveraged exposure to the inevitable rebound. Our fund was set up in order to take advantage of the complexity and inefficiency of the sector. The only negative about complexity and inefficiency is it can take time for others to catch up and decipher the opportunity. And sometimes the people who are supposed to know what's going on don't know—or don't even care.

> ***Scene 2***
> ***Vinny:*** *Mortgage defaults have done nothing but go up, yet you quote us a higher price on the bonds. Please explain that to me. There's no way that makes sense. There's no way you are marking these swaps appropriately. I MEAN WHY SHOULDN'T WE BACK OUT OF THIS TRADE RIGHT NOW?*
> ***Jared Vannett:*** *Didn't I say when we made this deal that the ratings agency, the SEC, and the big banks were clueless? Didn't I say that?*
> ***Front Point Team:*** *Yes, yes, you did.*
> ***Jared Vannett:*** *Didn't I say it? Now their foot's on fire, and they think their steak is done, and you're surprised?*

We wouldn't necessarily say the ecosystem of participants in the nuclear fuel cycle are all clueless, but it is very clear who is incentivized to determine the true state of supply/demand and, therefore, the investment opportunity. Without naming names, there are a few parties who sell dated, biased, or—due to certain reporting guideline handcuffs—inaccurate information to buyers who are not incented by price. While frustrating to a generalist investor, this is partially why the opportunity exists.

In spite of a bevy of biased fuel cycle participants, supplier discipline and falling secondary supply have created a large supply deficit that cannot be filled with new mines in the near future. Demand is accelerating, and sentiment is shifting in favor of further nuclear power growth. The 232 Petition process is nearing a conclusion, which will allow for real price discovery. Financial buyers are increasingly active in the space, taking physical uranium off the market—as well as providing capital to miners. ETFs may become net buyers instead of net sellers, adding fuel to a very small market. And here's the ultimate catalyst: A massive contracting cycle *must* begin in order to ensure that utilities have security of supply.

This is it.

The stage is set.

The Big Uranium Short(age) is here—and very few seem to notice.

When the credits roll for *The Big Short*, we are left listening to the entirety of Led Zeppelin's version of "When the Levee Breaks."

> *If it keeps on rainin'*
> *Levee's goin' to break.*
> *If it keeps on rainin'*
> *Levee's goin' to break.*
> *When the levee breaks*
> *I'll have no place to stay.*

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