The Seven Stages of Commodity Market Evolution

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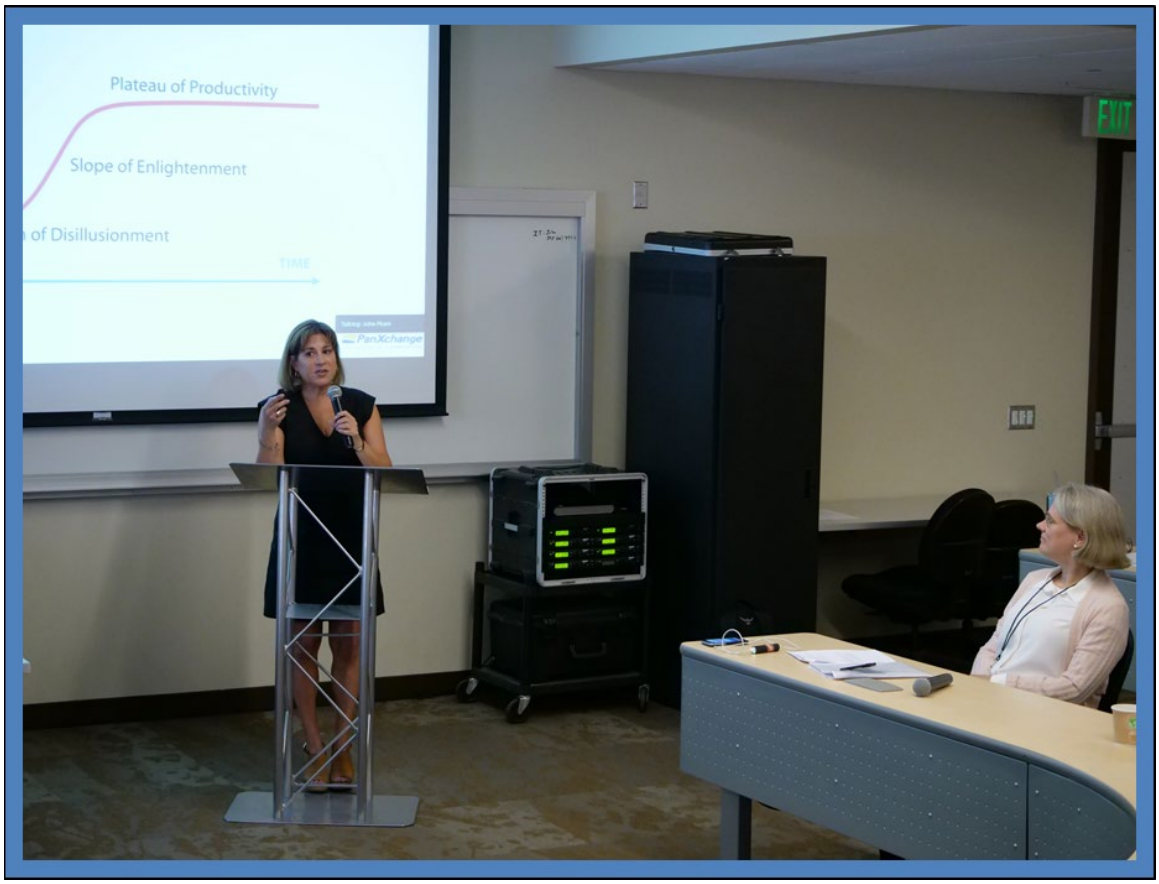


Ms. Julie Lerner, Chief Executive Officer, PanXchange, participated in the commodity industry panel during the JPMCC's 3rd Annual International Commodities Symposium, which was held at the University of Colorado Denver Business School in August 2019. The panel was moderated by the *GCARD*'s Contributing Editor, Hilary Till, who is in the right-hand-side of this photo.

Introduction

2019 will be remembered as a watershed year for physical commodities. The 120 million-ton U.S. proppant market felt the sting of oversupply, the nascent hemp industry opened up following its 2018 legalization and, in an unprecedented move, the "Big Six" agribusinesses formed a partnership to digitize the highly manual international grain trade. Despite these various commodity sectors cycling at different rates, there remains a common thread to the evolution of these - and all - physical markets.

Equities Take the Lead

Physical commodity markets, whether they be energy, metals, grains, hemp or others, are unified in one significant way: they lag behind their capital markets counterparts when it comes to technology. Commodity trading, especially in agricultural sectors, is still highly manual and almost totally reliant on paper processes for contracting, invoicing and payments. To give the reader an idea of the scope of the issue and the need for modernization and harmonization in the sector, a *Reuters* report revealed that 275 million emails are sent by commodity traders each year in order to process 11,000 ocean-bound shipments of grain (Plume, 2018).

On the flipside, the capital markets have embraced technology far more speedily. Nasdaq launched in February 1971, becoming the first electronic share market. From its beginnings as an electronic bulletin board, it is now the world's second-largest stock exchange by market capitalization of shares traded behind the New York Stock Exchange. In 1987 work began on the nascent Globex Trading System, which was developed by the Chicago Mercantile Exchange (CME). The first electronic future began trading on the system in 1992, making it the first international electronic trading system to allow off-hours trading in exchange contracts.

1991 saw the launch of online trading pioneer E*Trade. By 1994, its revenues had climbed to $11 million, becoming at the time the fastest-growing private company in the United States, and allowing anyone with access to a computer to trade stocks (Encyclopedia.com, 2019). Over the course of the next decade, investment firms began to spend on electronic trading technology, and traditional floor trading waned. Since the inception of Nasdaq, computer-based high frequency trading (HFT) has risen, as have the speeds with which trades can take place. At the beginning of the 2000s, HFT accounted for less than 10% of equity orders, but according to the NYSE this volume grew by around 164% between 2005 and 2009.

Physical Markets Playing Catch Up

For the commodities industry, modernization has occurred at a much more languid pace. It was not until 2015 that the CME announced plans to close the majority of its futures trading pits in New York and Chicago – the same year that open outcry futures trading fell to just one percent of the company's total futures volume (CME Group, 2015).

Even as late as the mid-2010s, oil traders were still using Yahoo Messenger as their main communication tool, something which had been an industry standard since the 1990s. The ultimate closure of the benchmark-compliant version in 2016 sent physical traders into a tailspin, and even today industry participants are still fishing in the dark for deal flow (Gloystein, 2016). Whether by phone, WhatsApp or text, they're still using suboptimal technology for price discovery.

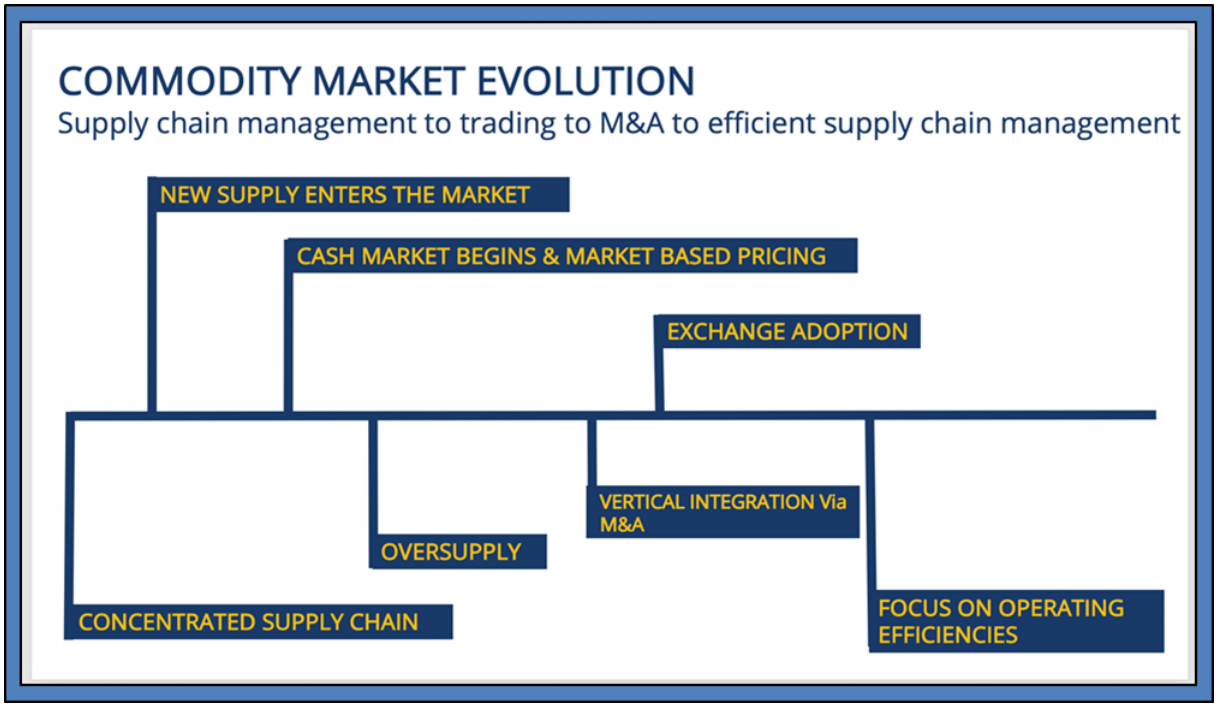
Adding to this issue is the lack of an agreed upon, satisfactory solution for end users who need to move physical supplies around the globe. Of great concern to many industry participants is the fact that the status quo process, in which a dozen different documents are stuffed into manila envelopes each time a vessel of grain is traded, is extremely challenging to move onto burgeoning technologies like blockchain.

And yet, more than a decade after its introduction to cryptocurrency markets, blockchain has yet to be fully adopted by any financial industry, which is arguably simpler for mass adoption than physical supply chains.

The Evolution of Nascent Markets

Another commonality of food, metals and energy markets is that in order for a physical item to go from being simple raw material to a full-fledged commodity, it must traverse seven key steps; see Figure 1. PanXchange's experience with nascent markets - both frac sand and hemp - illustrates the challenges of opacity and fragmentation as commodity markets mature.

Figure 1
Commodity Market Evolution



At the beginning of the cycle, when the supply chain is concentrated (step one), surety of that supply is the absolute biggest concern. Because of this, pricing initially tends to be dominated by a few players who are tied up in long-term contracts, but by the second stage of evolution, when new supply enters the market with the promise of healthy sales margins, new entrants are able to gain market share by offering competitive pricing and execution.

The current state of the industrial hemp sector is a good example of this transition.

The passage of the 2018 Farm Bill allowed for the entry of new suppliers marked by being geographically or technologically more competitive than the incumbents. This has resulted in supply pressures easing and conversations about price taking centerstage. This sector has also seen the rise of the cash market,

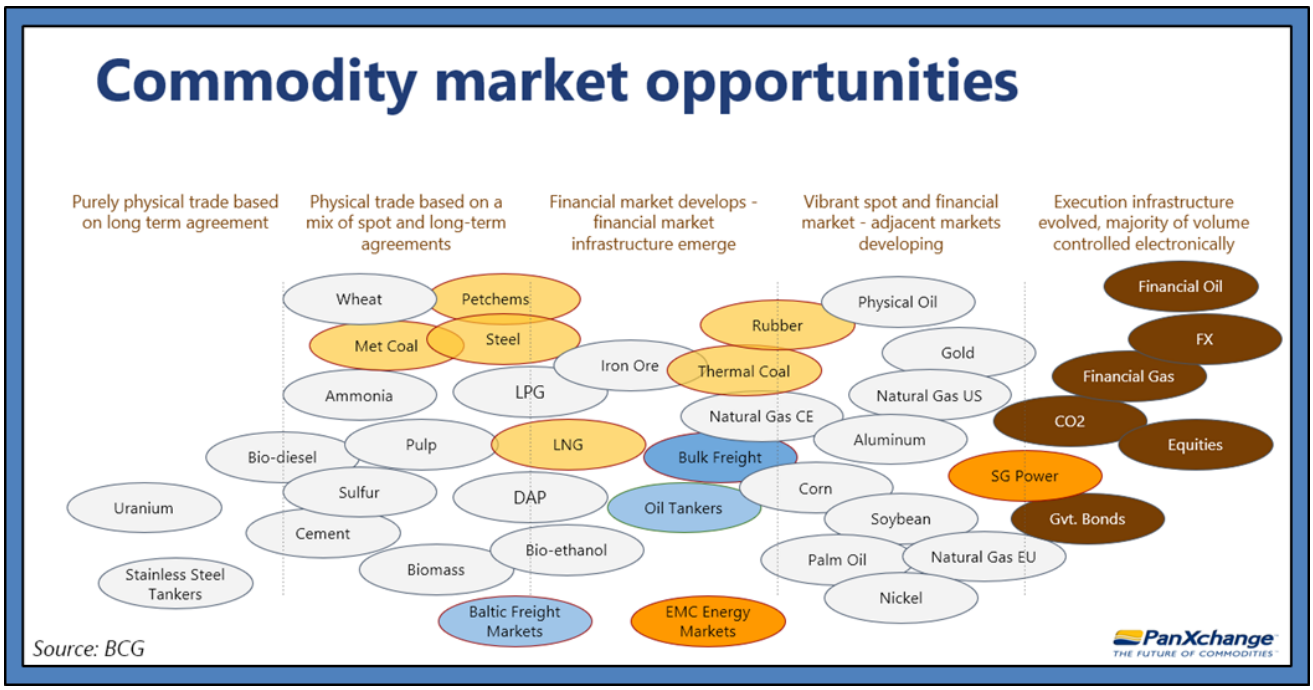
as well as market-based pricing which has allowed newer players to undercut more established players on price (stage three).

Why Benchmarks and Exchanges

As the pricing competition heats up, the creation of benchmarks often occurs to enable more efficient price hedging and allow for transparency and price discovery -- something which is also being seen in the nascent hemp sector. It is here that oversupply of the commodity (stage four of the cycle) becomes a very real possibility. Recent changes in the frac sand sector provide one example of this.

PanXchange launched its frac sand benchmarks[1] in Q4 2017, but two years later, the sector is now in the throes of oversupply (unlike other commodities, sand does not erode over time). The threat of oversupply is also becoming evident in the burgeoning hemp[2] market, as growers rushed into this market with promises of massive profits per acre. Unfortunately, these estimates seem to have been wildly overstated, based on retail prices of consumer-packaged goods of Cannabidiol (CBD) products which contain only a few milligrams of extracted hemp product. Despite these challenges, it is important to remember that the current state of both the hemp and frac sand markets remains a natural part of market evolution. Figure 2 offers a template of how trading in other commodity markets has evolved.

Figure 2



The fifth stage in commodity market evolution - and one that is being experienced in the frac sand sector - is the rise of vertical integration, often via M&A. It is here where larger players seek new profit

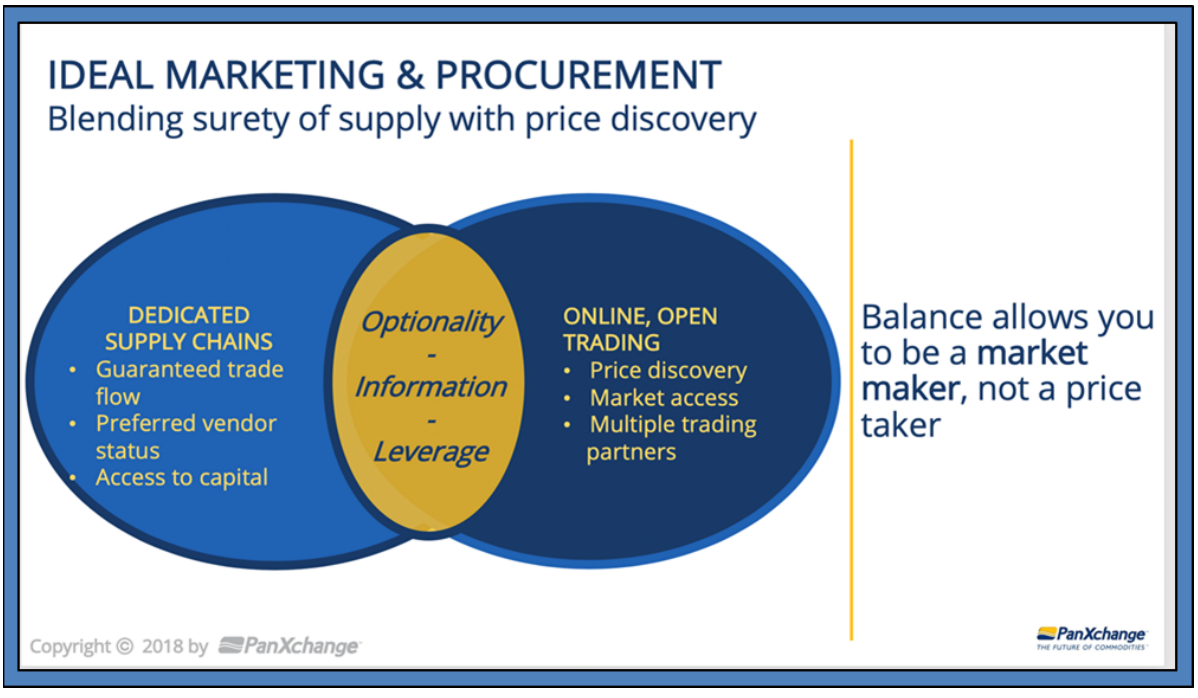
opportunities by scooping up smaller players challenged by oversupply (as in frac sand) or long-term market fluctuations, as will be covered below on "Profit Building in Mature Markets."

As commodity markets evolve, they reach the sixth stage: exchange adoption, something often seen as a "nirvana" for industry players, where they can finally price hedge their deal flow and outside investors can enter the market. What exchanges offer is a constantly available facility for buying and selling commodities, as well as a financial inventory holding. This is a key component of the maturation of commodity markets.

PanXchange was originally designed to seek a more efficient process for locating physical sugar supply and simultaneous demand opportunities, as the old system of relying on phone calls, texts and emails became antiquated. The market needed more negotiable deals, as well as a system that was easy and efficient for traders, anonymous and without clearing. Now, PanXchange aggregates the negotiation and trade of all types of physical commodities into one web-based platform, offering instant price discovery and market access for increased operating efficiency and profit opportunities. Note that physical commodity traders use PanXchange for the actual movement of commodity from origin to destination yet use the financial derivative as listed on a regulated exchange to hedge the price of that transaction.

However, expecting all commodities players to conduct all their trading activities solely on one cash market platform is unrealistic. A good trader will always have a healthy balance between the reliability of direct relationships and the opportunities and fluidity of the cash market, as seen in Figure 3.

Figure 3
Ideal Marketing and Procurement

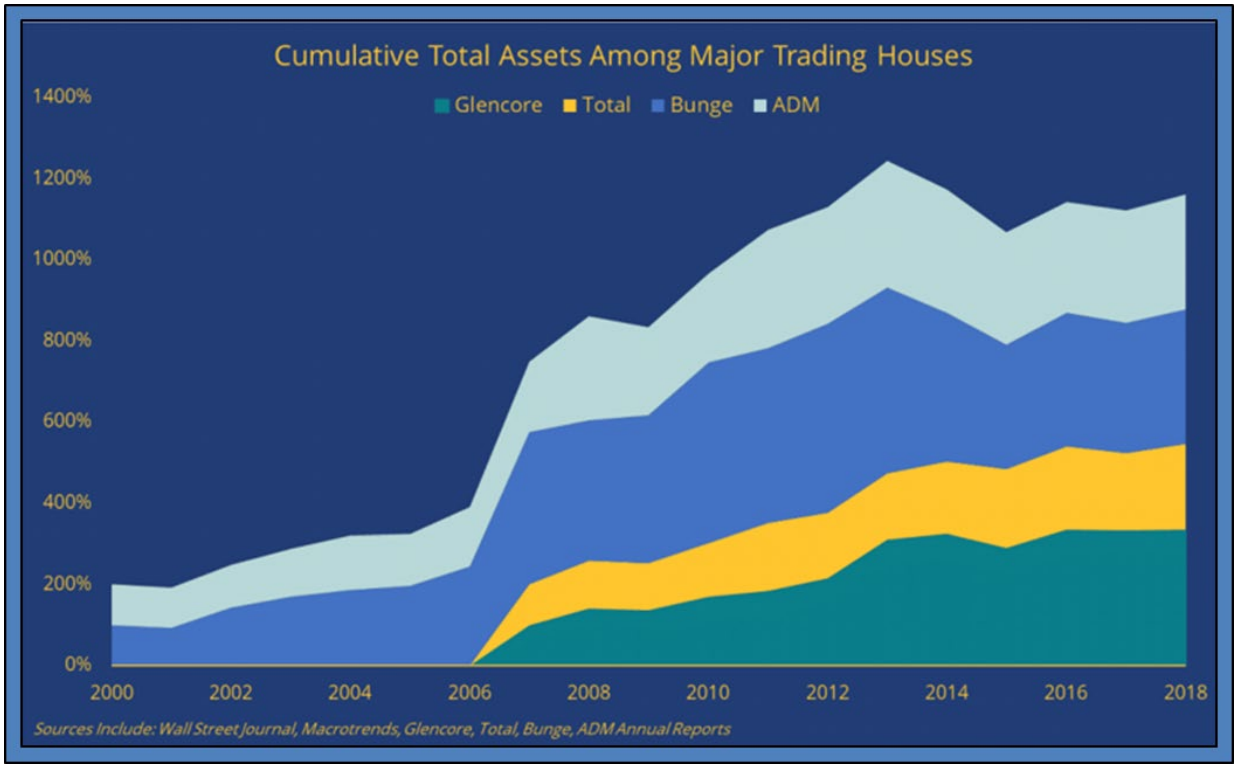


Profit Building in Mature Markets

More established physical commodity markets, like grain, have made their way through the six steps outlined above, and have also moved into the seventh and final stage: a focus on operating efficiencies. In the 2000s there was an unprecedented amount of vertical integration by the big commodity houses; however, as they made their way up and down the supply chain, they were struck by the question: where is there to go to increase profit margins?

Historical examples of vertical integration include moves made by American agribusiness company Bunge Limited. Bunge acquired Argentinian company La Plata Cereal in 2001, becoming dominant in that market. The company created Bunge Asia in 2002, acquired an Indian edible oils business in 2003 and Chinese offices in 2005.[3] Elsewhere, Archer Daniels Midland Company (ADM) bought a stake in Australian grain handler Graincorp in 2012 but sold its interest in 2016 after failing in its bid to wholly acquire the company (Plume, 2016). In 2013, Swiss commodities trader Glencore Agriculture completed its $66 billion deal for mining giant Xstrata, and that same year oil trading house Vitol announced its expansion into grain trading (Scott, 2013). Figure 3 shows the industry trend toward vertical integration and then subsequently, some divestitures.

Figure 3
Cumulative Total Assets Among Major Trading Houses



But since 2013, the global trading companies have faced new headwinds, with Dreyfus in 2016 opting to focus processing as profits fell to a 10-year low (Hume, 2016) and Bunge's chief saying in 2017 that there

was “nothing off-limits” in its cost-cutting drive. By 2018, the big trading houses were looking towards digitization as a way to shore up sliding margins - in mature markets, this is really the only solution. PanXchange believes that physical trade has to move in the direction of electronic adoption for both the negotiation of the trade and the (arguably more difficult) post-trade deal execution, as this is seemingly the only solution to increased profit margins today.

The Need for Modernization

In October 2018, (Cargill, 2018a) the world’s four largest agribusinesses - ADM, Bunge, Cargill Incorporated and Dreyfus - announced that they were working together to standardize and digitize international grain trades. In December, China's largest food and agriculture company, COFCO International, joined the group (Cargill, 2018b), followed by Glencore in September 2019 (Glencore, 2019).

The group wants to replace the current system, which is so reliant on paper contracts and invoices as well as manual payments and replace this with an automated electronic system - one which it plans to launch in the second half of 2020, pending regulatory approval. It is also launching a pilot that will cover international bulk shipments of soybeans from Brazil to China.

In a statement issued in 2019, the group said it was “initially looking at new technologies - such as blockchain and artificial intelligence - to create digital solutions to automate grain and oilseed post-trade execution processes, reducing costs needed to move agricultural and food products around the globe.” (Glencore, 2019).

While these companies are to be commended for endeavoring to support the physical commodity sector’s modernization efforts, blockchain is in and of itself not a panacea for the many issues associated with the harmonization of post-trade deal flow, and while pilots are nice, they are not a proof of concept.

Conclusion

We at PanXchange strongly believe that hemp and frac sand will continue to follow the seven-step maturation process. In mature markets such as the grain markets, operating efficiencies are clearly needed to increase profit margins. It’s encouraging to see the major trade houses banding together to address the topic, but unfortunately, blockchain isn’t the only answer. Before the successful rollout of distributed ledger technology, the industry must first take measured and meaningful steps to harmonize post-trade procedures and create interoperability of all back-office systems.

Endnotes

Ms. Lerner presented on this topic at the JPMCC's 3rd Annual International Commodities Symposium during the commodity industry panel on August 13, 2019, which was moderated by the *GCARD*'s Contributing Editor, Hilary Till. The symposium, in turn, was organized by Professor Jian Yang, Ph.D., CFA, the J.P. Morgan Endowed Chair and JPMCC Research Director at the University of Colorado Denver Business School.

1 https://panxchange.com/frac-sand/

2 https://panxchange.com/hemp-benchmarks/

3 See Bunge.com for history: https://www.bunge.com/who-we-are/our-history

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Author Biography

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Ms. Julie Lerner is the CEO and founder of PanXchange, Inc., a web-based trading and price discovery platform for physical commodities. PanXchange has the leading trading and benchmark pricing data in both the U.S. hemp market and the 120 million-ton specialty sand market for U.S. oil and gas extraction. Ms. Lerner has deep experience in regional and international agricultural and energy markets. She has worked for Cargill International, XL Financial and Sempra Energy Trading (electricity). Geographically, her area of expertise covers the U.S., Europe, Latin America and East Africa.

Ms. Lerner previously contributed to the Winter 2018 issue of the *GCARD*, providing a realist's perspective on blockchain for physical commodity markets.