

Agricultural Chemicals Outlook

Planting Seeds for Recovery

After exiting from Agrium in 2016, the M&M team has paid little attention to agricultural chemicals (or agrochem) – a sector plagued by mega-mergers that looked like an antitrust disaster waiting to happen. It seemed impossible a year ago that these mergers had any chance of receiving approval due to the near monopolies they looked to create. However, on September 1st, 2017, shares of DowDuPont Inc. (NYSE:DWDP)  the merged entity of Dow Chemical and DuPont began trading on the NYSE. Just four months later, shares of Nutrien (TSX:NTR), the merged entity of Potash Corp. and Agrium followed suit, essentially consolidating all of Canadian agrochem.

With these surprising developments in the agricultural chemicals market, the team sees fit to do a deep-dive on the sector and form a new outlook for the next few years. This will include:

- 1) History of the Canadian Agrochem Sector
- 2) 3-5 Year Global Agrochem and Potash Outlook
- 3) Investment merit  three investable agrochem names within QUIC's universe: Nutrien, DowDuPont, and Monsanto (NYSE:MON)

The information in this document is for EDUCATIONAL and NON-COMMERCIAL use only and is not intended to constitute specific legal, accounting, financial or tax advice for any individual. In no event will QUIC, its members or directors, or Queen's University be liable to you or anyone else for any loss or damages whatsoever (including direct, indirect, special, incidental, consequential, exemplary or punitive damages) resulting from the use of this document, or reliance on the information or content found within this document. The information may not be reproduced or republished in any part without the prior written consent of QUIC and Queen's University.

QUIC is not in the business of advising or holding themselves out as being in the business of advising. Many factors may affect the applicability of any statement or comment that appear in our documents to an individual's particular circumstances.

Metals & Mining

Eileen Smith

esmith@quiconline.com

Charan Arulmani

carulmani@quiconline.com

Inaara Panjwani

ipanjwani@quiconline.com

Bronwyn Ferris

bferris@quiconline.com

Table of Contents

History of the Canadian Agrochem Sector	
Agrium Inc. Overview	2
Potash Corp. Overview	3
Nutrien Merger Overview	4
Drivers of Consolidation	6
Global Industry Outlook of Potash	7
Current Investable Names	8
References	10

Agrium Inc. Overview

Until January 2nd, 2018, Agrium Incorporated (Agrium) was a Calgary-based producer, marketer and distributor of crop nutrients, crop protection products, seeds and merchandise products. Founded in 1931 as Cominco Fertilizers, Agrium grew to become a global competitive force in the agricultural chemicals and product industries.

At the time of the merger, Agrium was a major supplier of all three primary agriculture nutrients necessary for crop health and abundance: phosphorous, potassium and nitrogen. In addition to crop nutrients, a large portion of Agrium’s revenue was derived from its merchandising products, like fencing and feed supplements. The merchandising side of Agrium’s business offerings resulted in Agrium weathering the storm of low commodity prices better than many other agricultural fertilizer and nutrient companies. This is because many of Agrium’s competitors relied on a pure crop input, wholesaling strategy rather than a strategy which incorporated a direct merchandising element.

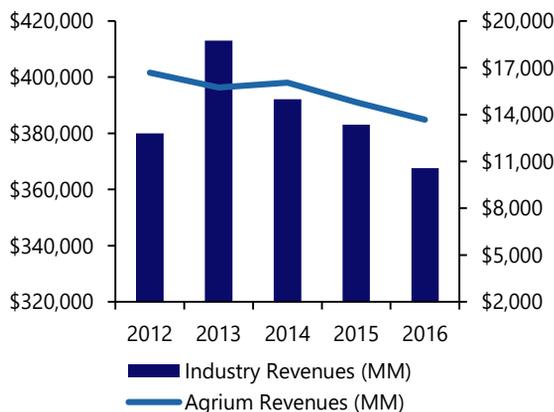
Agrium’s primary markets were the U.S., Canada, Australia, and South America. In the United States, Agrium directed business through a subsidiary, Crop

Production Services, which was headquartered in Colorado. Agrium operated both Wholesale and Retail Business Units. The Retail Business unit operated primarily in North America, South America, and Australia. It provided crop inputs and services directly to farmers. The Wholesale Unit operated primarily in North America, South America, and Europe, and marketed and distributed all major crop nutrients for agricultural customers. Agrium’s Retail Business Unit gave Agrium a competitive advantage, as it resulted in Agrium building one of the largest agricultural distribution networks in North America, with approximately 1,500 retail facilities and over 3,300 consultants. At the time of the acquisition, Agrium accounted for 19% of the U.S. farm retail market. With regards to production, Agrium operated production facilities in North and South America.

Agrium’s status as a market leader was in part, due to its focus on product quality. Agrium prioritized quality, as proven in its implementing a strategy of continuous improvement and best practices. As of FY2016, Agrium’s revenues were approximately \$13.7B. The company was quoted at a market capitalization of about \$10B.

EXHIBIT I

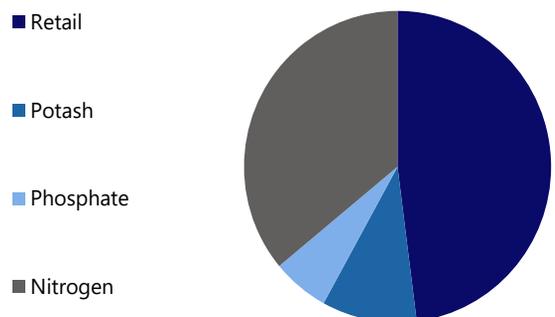
Global Fertilizers and Agricultural Chemicals Revenues Compared to Agrium Revenues



Sources: IBISWorld, Mergent Online

EXHIBIT II

Agrium Revenue Distribution By Segment



Source: Market Realist

Potash Corporation Overview

The Potash Corporation (PotashCorp) was a Saskatchewan-based fertilizer producer. PotashCorp produced each of the three primary crop nutrients: potassium, in the form of potash, phosphorous, in the form of phosphate, and nitrogen. PotashCorp's potassium operations included both the mining and production of potash, which was then used in fertilizer. PotashCorp's potash mines were located in Saskatchewan. PotashCorp was one of the lowest-cost potash producers in the world. With regard to nitrogen, PotashCorp produced both nitrogen fertilizers and nitrogen animal feed. As well, PotashCorp sold nitrogen products to be used in industrial products, such as ammonia, urea and nitric acid. PotashCorp's nitrogen production facilities were located in the United States and Trinidad. The company's phosphate operations included the manufacturing and sale of phosphate fertilizers, phosphate animal feed and industrial acid, which is used in food products and industrial processes. The majority of PotashCorp's phosphate operations occurred at facilities in North Carolina and Florida.

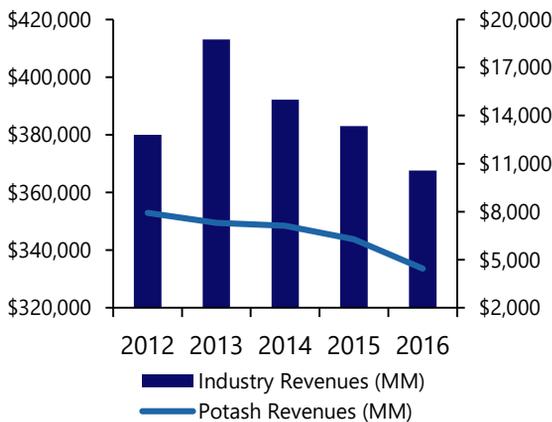
At the time of the merger, PotashCorp was the largest potash producer, controlling 20% of the world's potash capacity. As well, PotashCorp was one of the

global leaders in the production of nitrogen and phosphate. Unlike Agrium, PotashCorp's success was heavily dependent on commodity prices, as it had not diversified into alternative revenue streams like merchandise. As a result, Potash did not fare as well in the commodity price downturn that has plagued the industry in recent years. Now, however, potash prices have begun to rebound, due, primarily, to a significant increase in Chinese, Indian and Brazilian demand for the product. This provides a positive outlook for Nutrien, who will absorb the majority of PotashCorp's potash assets. However, future price outlook is uncertain as growing global capacity threatens a true price recovery, despite growing global demand.

As of FY2016, PotashCorp's revenues were approximately \$4.5B and they were quoted at a market capitalization of \$17.4B. PotashCorp was the subject of a takeover bid in 2015 by the Australian mining company, BHP Billiton. This takeover, which was ultimately denied by the Canadian government, citing that the foreign takeover did provide enough benefit for Canada.

EXHIBIT III

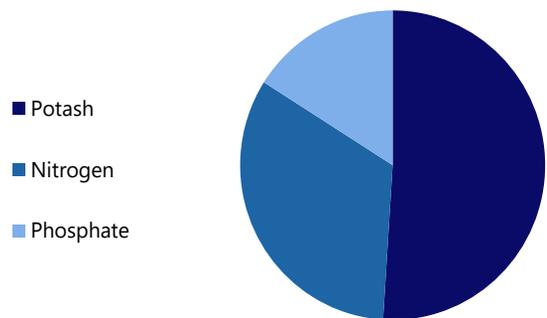
Global Fertilizers and Agricultural Chemicals Revenues Compared to PotashCorp Revenues



Sources: IBISWorld, Mergent Online

EXHIBIT IV

PotashCorp Revenue Distribution By Segment



Source: Market Realist

Nutrien Merger Overview

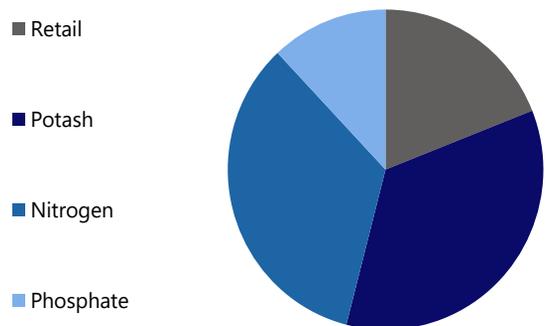
The merger of equals between Agrium and PotashCorp was first proposed in September, 2016 due to low fertilizer prices. The hope of both PotashCorp and Agrium was that merging would give them pricing power given these unfavourable conditions. As well, the joint entity would benefit from the strong distribution network of Agrium and the unparalleled potash capacity of PotashCorp. However, the merger of PotashCorp and Agrium was riddled with anti-trust concerns that delayed the merger from closing in mid-2017, as anticipated, to January, 1, 2018.

The first countries to approve the deal were Brazil and Russia, followed by Canada. All of these three countries approved the deal unconditionally. In the Canadian decision, which was announced in September, 2017, the Federal Competition Bureau concluded that “the proposed transaction is not likely to lead a substantial lessening or prevention of competition with respect to potash fertilizer, dry liquid or phosphate fertilizer or nitric acid.” While the public was concerned that this merger would reduce the pricing power of farmers and limit consumer choice, the fact that the companies derived the majority of their revenues from different offerings is one explanation as to why this merger was allowed to go through. While both companies produced the three key nutrients of plant life, nitrogen, phosphorous and potassium, Agrium was far less dependent on potash than PotashCorp. Only 10% of Agrium’s revenue was derived from potash, compared to PotashCorp’s 51%. As well, Agrium was more diversified due to its Retail Business Unit. While both Agrium and PotashCorp were juggernauts, their merger did not produce a monopoly nor reduced competition in a way that the Federal Competition Bureau deemed excessive. Rather, it created a larger and more diversified company which still faced competition. After the Federal Bureau issued a No Action Letter (unconditional approval) with regards to this merger, China and India became the next two countries to consider the implications of this proposal, with their approvals being announced in November, 2017 and October, 2017, respectively. China and India are among the world’s largest

customers of potash fertilizers, making their decision in this case imperative. China and India both approved the merger, however, unlike Brazil, Russia and Canada, both China and India imposed conditions on the merging companies. Both China and India required that Potash divest minority stakes in several potash producers, including: Sociedad Quimica Y Minera, a Chilean company, Israeli Chemicals, an Israeli company, and Arab Potash Company, a Jordanian company. These divestitures were ordered in an attempt to decrease Nutrien’s significant influence in the global potash market. The final approval which was needed before the merger could be completed was that of the United States. Like China and India, the United States approved the merger, subject to conditions. The United States ordered that Agrium divest two U.S. based facilities, a superphosphoric acid (SPA) facility in Idaho and a nitric acid facility in Ohio. The U.S. Federal Trade Commission deemed that without these divestitures, competition in the SPA and nitric acid markets would decrease substantially. This approval marked the true merger of Agrium and PotashCorp, which began trading as one on January 1, 2018 under

EXHIBIT V

Nutrien’s Anticipated Revenue Segmentation



Source: Market Realist

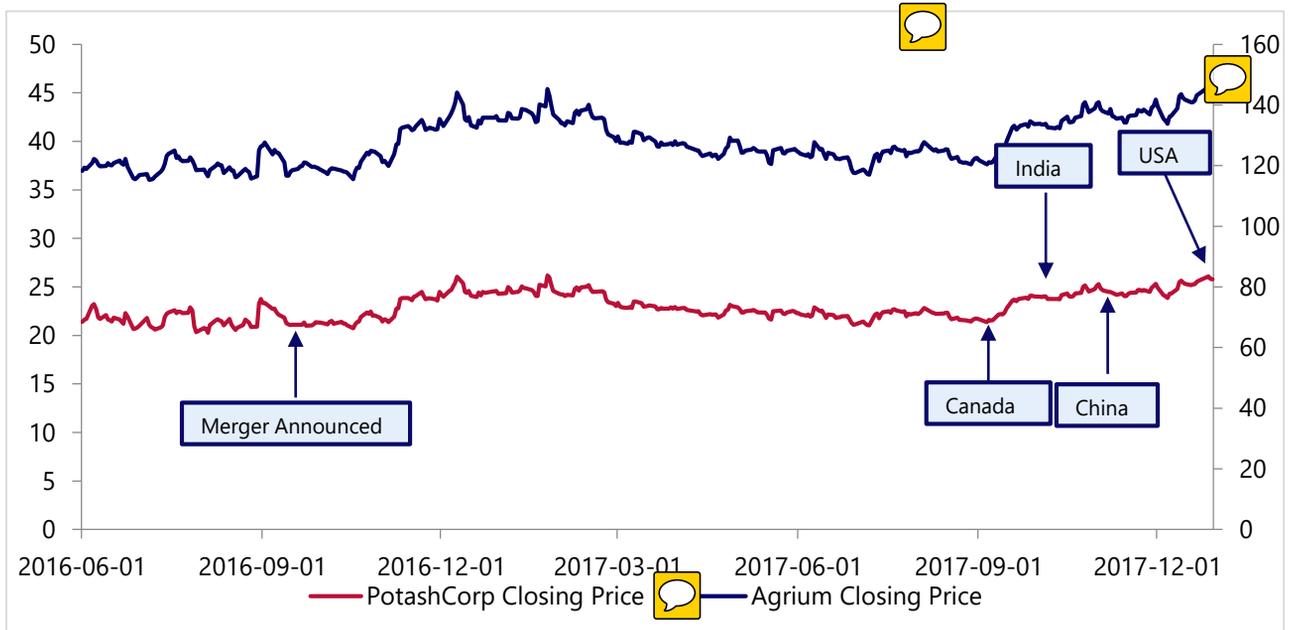
Nutrien Merger Overview

TSX:NTR. Nutrien is now Canada's third largest natural resource company, with an enterprise value of \$36B. As well, it is one of the world's largest NPK (nitrogen, phosphorous and potassium) producers. Nutrien has the world's the largest crop nutrient production portfolio, which it will be able to combine with Agrium's unparalleled distribution network. The new entity, Nutrien, is expected to realize \$500MM in synergies annually. While total synergies are expected to equal about 15% of the previous companies combined market capitalizations, Nutrien's \$50B market capitalization only represents a 7% increase from Agrium and PotashCorp's combined market capitalizations. This could indicate that shareholders are doubtful of Nutrien's ability to realize the total value of these synergies. Nutrien's CEO, formerly Agrium's CEO, Chuck Margo, has announced his intention to expand Nutrien's farm supply network and return cash to shareholders. Margo will face the task of effectively leveraging PotashCorp's extensive resource

capacity and Agrium's vast distribution network. PotashCorp's former CEO, Jochen Tilk will serve as Nutrien's Executive Chair. Both Agrium and PotashCorp's shareholders will receive shares of the new Nutrien. PotashCorp shareholders will receive 0.40 common shares of Nutrien for every PotashCorp share that they own. Agrium shareholders will receive 2.23 shares in Nutrien for every Agrium share that they own. At the end of the transaction, PotashCorp shareholders will own approximately 52% of Nutrien, leaving Agrium shareholders with 48%. The next obstacle in this merger saga is whether Nutrien can exercise enough pricing power to bring fertilizer prices back to a more favourable level as was originally intended, when the merger was announced.

EXHIBIT VI

Nutrien Merger Milestones Compared to Agrium and PotashCorp Stock Prices



Drivers of Agrochemical Consolidation

Consolidation in the chemicals space has been increasingly prominent since 2013 with especially significant M&A activity in the agricultural and fertilizers space. High level drivers of these deals have been a need to enhance revenue growth as well as favourable debt markets.

Agriculture and chemicals companies face a particularly unique situation. While global need for crop protection will increase in the long-run as the global square footage of arable land per capita declines, the market currently faces an oversupply of certain crops such as soy and corn, creating cost pressure for farmers.

A Glance at Potash

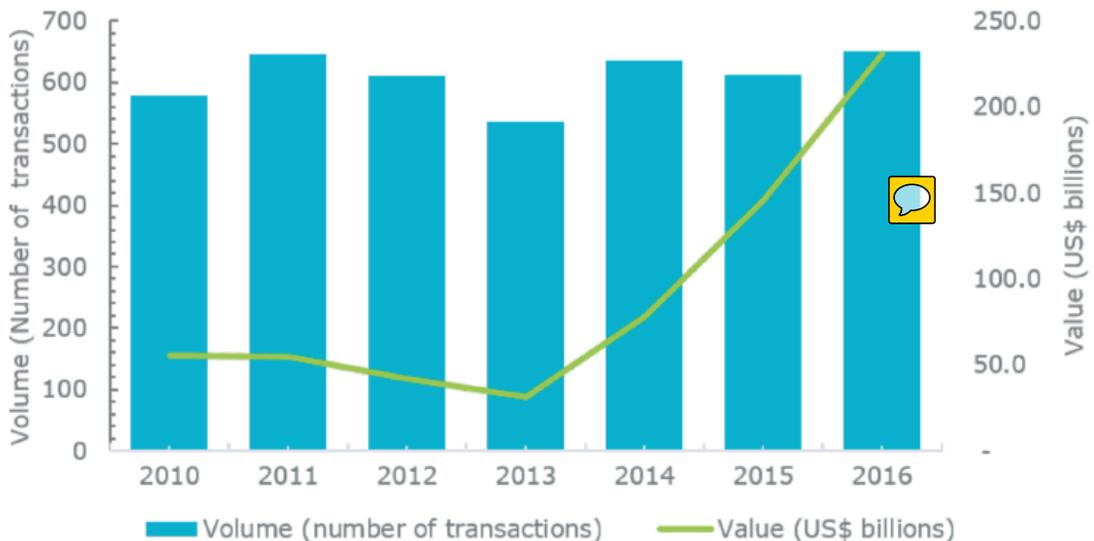
Crop nutrient potash prices have slumped over the

past decade and have fallen over 60% since 2012, reaching 8-year lows in 2017 as a result of low crop prices undermining farmers' spending power and excessive potash production capacity. This prolonged price slump has been a driver of consolidation and idle capacity among potash producers.

As a mature industry with an overcapacity problem, agrochemical companies face declining reinvestment needs. Excess capital can thus be available for debt reduction or investment through M&A. Acquisitions in this space typically allow for revenue diversification or enhanced R&D capabilities although capacity, market power, and cost reduction are also incentives.

EXHIBIT VII

Global Chemical Merger and Acquisition Activity (2010 to 2016)



Source: Deloitte Development LLC

Global Industry Outlook of Potash

Following a similar history to other major commodities, the commodities boom in the last decade has driven a present-day oversupply in potash as existing producers invested in capacity expansions and price strength encouraged greenfield projects.

The global potash supply and demand balance, calculated by the Food and Agriculture Organization of the United Nations as the global supply less fertilizer and non-fertilizer demand, has increased year over year since 2014. This oversupply is expected to expand further in 2018. Potash demand is forecasted to increase by 2.6% between 2014 and 2018, while the world potash supply is expected to increase by 4% in the same period.

Despite an increasing supply and demand gap between 2016 and 2018, Potash prices have risen

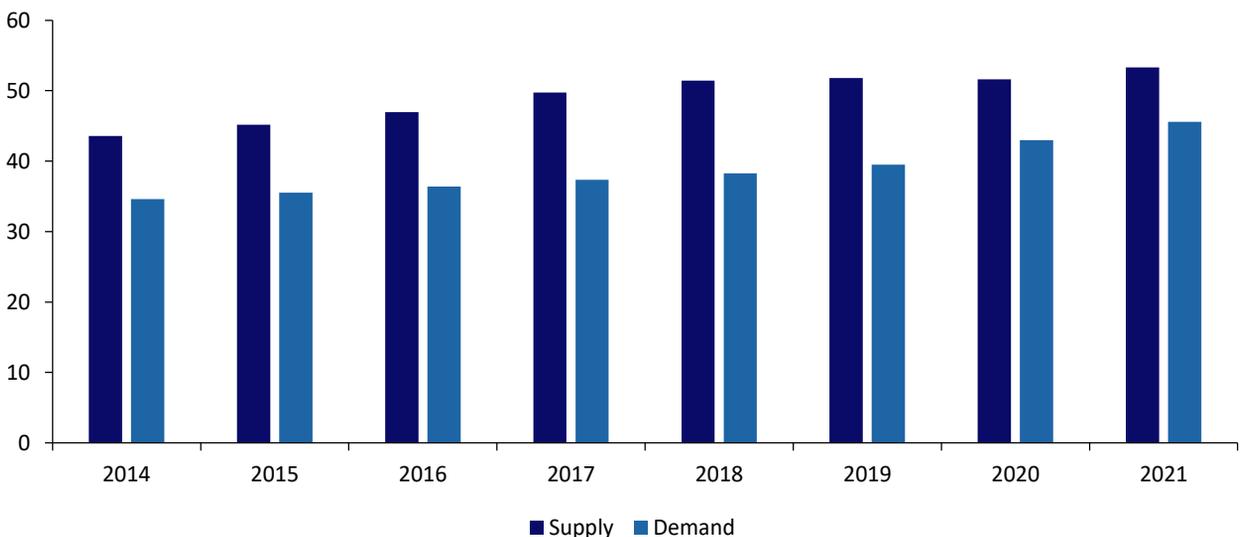
~25% since reaching record lows in August 2016. A near-term driver of this levelling of prices is demand from farmers replenishing their soil after record high harvests.

Moreover, the supply and demand gap is expected to narrow through to 2021, driven by increasing demand and a flattened supply. Consolidation may be a driver of tightened supply to once again raise prices although such action would be limited by regulatory bodies with the motive to keep food prices low.

Overall, while medium-term potash and agrochemical outlook remains neutral, long-term recovery is expected from the current cyclical trough.

EXHIBIT VII

Global Potash Supply and Demand Forecast in Millions of Metric Tons



Source: Statista

Current Investable Names

With the Nutrien and DowDuPont mergers completed, the already consolidated North American agricultural chemicals space is smaller than ever. Prior to the mergers, the investable universe included five names: Potash Corp. and Agrium in Canada and Dow Chemical, DuPont Inc., and Monsanto Inc. in the United States. Today, we have just three options to consider – now all very large players.

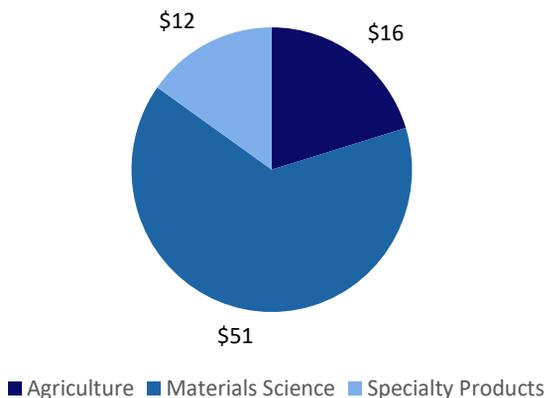
DowDuPont (NYSE:DWDP)

With the finalization of the merger of Dow Chemical and DuPont Inc., DowDuPont is the world’s largest chemical company in terms of sales. Although the company operates under a single name, DWDP plans to spin off into three independent business segments over the net 18-24 months: agriculture, materials science, and specialty products. Respectively, each segment has approximate revenue of \$16B, \$51B, and \$12B, indicating that the majority of its business is not agriculture, as with Monsanto or Nutrien, but materials chemicals and plastics.

Much like other mega-mergers, DowDuPont initially

EXHIBIT VIII

DowDuPont Business Segments (\$B USD)



Source(s): Reuters

faced scrutiny from the European Commission as the merger risked reducing competition in areas such as crop protection, seeds, and petrochemicals. As a result, the closing date for the merger was delayed multiple times, and the companies were eventually forced to divest a portion of DuPont’s crop protection business and Dow’s acid copolymers and ionomers business.

Despite these initial hiccups, the merger was conditionally approved in April, 2017. Shares opened at \$67.18 USD on the NYSE on September 1, 2017 and have performed quite well over the last four months, appreciating 13%. While analyst sentiment on the merged entity is mixed, it appears from initial analysis that expected synergies from the merger have been well accounted for in the current ~\$75 share price. From a macro perspective, potential risks of disappointing corn/soybean prices or integration issues appear to outweigh potential catalysts of faster-than-expected synergy capture.

At its current price, the M&M team is not considering moving into DWDP. For this to change, we would need to see better performance in terms of revenue and synergies from the speciality products spinoff – the segment of business that is most difficult to predict due to the apparent lack of cohesion of its contents.

Nutrien (TSX:NTR)

With the merger complete, Nutrien is now the world’s largest vertically integrated fertilizer company. The current market capitalization sits just 4% above the pre-merger market cap, making the name look relatively cheap when we consider expected synergies of 12%. Furthermore, the merger has allowed Agrium and Potash to respectively dispose of non-core assets in addition to deleveraging its balance sheet: two activities which look to improve the company’s overall balance sheet, freeing up cash for investment in downstream business segments. Analysts expect that Nutrien will use this cash to invest in growing retail and distribution in Brazil, where it has almost no presence.

Current Investable Names

While multiples are high or in-line with competitors in the agrochemicals space, synergies are not even close to fully priced in, meaning that a position in Nutrien could be attractive in the future. We hope to conduct analysis in three key areas to decide whether a buy would make sense in this fiscal year: (1) conduct a review of the expected synergies to determine what percentage we believe has yet to be priced in, (2) determine an outlook for potash prices, a potential catalyst, (3) competition and acquisition potential in the Brazilian market. Should the conclusions of this confirm our initial positive sentiment, we may look to replace some of our stake in maska Lithium (TSX:NMX) with Nutrien in order to ck in the upside it has generated over the past three months.

Monsanto Inc. (NYSE:MON)

The most familiar of the three to our team, QUIC held a ~\$3,000 stake in Monsanto until September, 2017. The decision to sell was threefold. First, the team has little confidence that another pending mega-merger between Bayer (DB:BAYN) and Monsanto will receive necessary regulatory approval. While mergers have clearly been viewed more favourably than expected in the past year, the increasingly consolidated market will make it more difficult for Bayer-Monsanto, especially considering that the companies filed *after* two other agrochem players, ChemChina and Syngenta,

announced their desire to merge. While this merger is expected to face antitrust regulations, farmers and environmentalists are also strongly concerned that it could further reduce crop-diversity, farmer purchasing power, and innovation. As Monsanto's share price includes upside from buyers and holders who expect the merger to receive approval, it is expected that the share price will fall if this is not the case.

Furthermore, Monsanto is  precarious financial position after taking on a significant amount of debt to finance a recent share repurchase and to enter the merger agreement with  Bayer. We see this as especially risky given the cyclicity of the agriculture business, since lower-than-expected corn seed demand could leave Monsanto in a difficult position unless the Bayer merger closes.

At present, the team is not looking to re-enter Monsanto as a result of merger uncertainty and financial position. For this to change, we would need to see material improvement in its liquidity position, which would likely only come on the heels of positive news with respect to the Bayer-Monsanto merger. That being said, if the merger is approved, we may end up in the same predicament as with DowDuPont where the market quickly fully prices in all synergies, leaving no potential for upside.

EXHIBIT IX

Comparable Companies Analysis

Valuation Statistics	Market	Enterprise	EV / EBITDA			Dividend	Price / Earnings		Net Debt/EBITDA	
	Cap (\$MM)	Value (\$MM)	LTM	2017E	2018E	Yield	2017E	2018E	2017E	2018E
Monsanto Company	\$53,194	\$58,274	14.1x	12.3x	11.8x	1.8%	21.1x	18.9x	1.1x	1.0x
DowDuPont Inc.	\$177,863	\$201,497	19.4x	12.9x	10.8x	-	23.7x	18.7x	1.4x	1.2x
Nutrien Ltd.	\$34,236	\$38,649	26.7x	nmf	nmf	0.8%	nmf	nmf	1.5x	1.2x
Bayer Aktiengesellschaft	\$105,662	\$111,231	8.3x	nmf	nmf	-	nmf	nmf	0.5x	0.4x
Mean	\$92,738	\$102,413	17.1x	12.6x	11.3x	1.3%	22.4x	18.8x	1.1x	0.9x
Median	\$79,428	\$84,752	16.8x	12.6x	11.3x	1.3%	22.4x	18.8x	1.2x	1.1x

Source(s): CapitalIQ

References

1. Google Images
2. HSBC Global Research
3. Seeking Alpha
4. RBC Capital Markets
5. Reuters
6. Market Realist
7. IBIS World
8. Capital IQ
9. Mergent Online
10. Bloomberg
11. Forbes
12. Financial Post
13. Food and Agriculture Organization of the United Nations
14. Statista
15. Argus Media
16. Deloitte