LSB Industries, Inc. (NYSE: LXU)

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GLOBAL VALUE RESEARCH COMPANY
A Division Of Global Value Investment Corp

RESEARCH REPORT **PRICE TARGET: $11.35**

2020 EXPECTATIONS TEMPERED BUT LONG-TERM OUTLOOK REMAINS POSITIVE

This report should be read in conjunction with GVRC's comprehensive report, dated 8/15/2019 and LSB Industries, Inc.'s regulatory filings with the U.S. Securities and Exchange Commission.

Summary of Recent Developments

LSB Industries, Inc. ("LSB") reported financial results for the quarter ended December 31, 2019 (FQ4 2019) reflecting continued weak product pricing and low production attributable to both planned turnaround activity and unplanned downtime. Depressed product pricing that characterized much of 2019 extended through the end of the year as a late corn harvest led to an abbreviated fall fertilizer application. 59 days of downtime between two of LSB's facilities further contributed to weak financial results (including 43 days for a planned turnaround at LSB's facility in Pryor, Oklahoma). However, the company reported progress in commercial efforts in its industrial and mining segments and forecasted meaningfully improved FY 2020 production volumes.

Unseasonably cold and wet weather in many corn-producing regions during the first half of 2019 led to delayed crop planting and weak fertilizer demand, resulting in depressed prices and oversupply. Crop harvests also occurred later in the year than usual, abbreviating the fall fertilizer application period and exacerbating oversupply and weak pricing. While a strong spring planting season and robust fertilizer demand is expected, subdued product pricing will likely persist well into 2020.

During LSB's February 25, 2020 earnings call, CEO Mark Behrman reported that the company was recently awarded a new contract to provide a customer with "additional significant low density ammonium nitrate volume annually for three years" and that the company was in the final stages of negotiation for "significant new industrial business beginning in 2021." Global Value Research Company (GVRC) has previously noted such opportunities and believes that further sales growth is likely in industrial and mining products.

GVRC has long held that LSB's long-term financial results will be driven by strong operational reliability. In FY 2019, LSB's plants operated at an average on-stream rate of 91%, an improvement over average annual on-stream rates of 80% in FY 2016, 85% in FY 2017, and 89% in FY 2018. Management is targeting an average on-stream rate of 94% in FY 2020, which GVRC believes is reasonable considering the substantial improve-

Stock Information

Current Price:	$1.78
52-Week Range:	$1.64-$7.43
Avg Daily Volume:	199,030
Dividend Yield:	-
Shares Out (MM):	29.3
Float %:	82.5%
Market Cap (MM):	$52.2
Total Debt (MM):	$459.0
Cash (MM):	$22.8
Enterprise Value (MM):	$734.3

Financial Metrics

TTM Revenue (MM):	$365.1
TTM EBITDA (Adj., MM):	$69.2
EV/EBITDA:	10.6x
Tangible BV/Share:	$7.66
P/TBV:	0.23x

Company Description

LSB Industries, Inc. engages in the manufacture, marketing, and sale of chemical products for use in agriculture, mining, and industrial markets. It owns and operates three chemical manufacturing facilities, located in El Dorado, Arkansas; Cherokee, Alabama; and Pryor, Oklahoma; and operates a chemical manufacturing facility in Baytown, Texas on behalf of Covestro AG. The company's products include anhydrous ammonia, urea ammonium nitrate solutions, and high-density ammonium nitrate for agricultural applications; anhydrous ammonia, nitric acid commercial blends, concentrated nitric acid, mixed acid, diesel exhaust fluid, and sulfuric acid for industrial applications; and ammonium nitrate solutions, ammonium nitrate-ammonia solutions, and low-density ammonium nitrate for mining applications. The majority of the company's sales are conducted in North America. LSB Industries, Inc. was founded by Jack Golsen in 1968 and is headquartered in Oklahoma City, Oklahoma.

PLEASE SEE ANALYST CERTIFICATION AND IMPORTANT DISCLOSURES ON PAGE 15.

Figure 1: five-year performance chart. Source: FactSet; data as of 3/10/2020.

ments to physical plants and operational procedures made over the past several years. Furthermore, LSB has no scheduled plant turnarounds in FY 2020, which will enable high production volumes; the company's FY 2020 sales volume outlook confirms this.

While GVRC's long-term outlook is positive, weak product pricing in FY 2020 will likely offset higher production volumes. LSB's profitability profile is highly sensitive to price inputs; because product pricing can fluctuate in unpredictable ways, forecasting earnings is difficult. GVRC's estimates are based on reasonably conservative price inputs, but modest differences between forecasted and realized prices may cause full-year results to differ substantially. More relevant long-term indicators include on-stream rates and gross profit margin. Particular attention should be paid to LSB's capital structure; a weak price environment might push the company's efforts to refinance its debt and/or preferred stock into 2021. It should also be noted that LSB is pursuing more than $100 million in damages against the contractor overseeing the 2016 construction of the ammonia plant at its facility in El Dorado, Arkansas – a favorable outcome could be an unexpected boon for the company's capital structure.

Considering that FY 2020 earnings will likely not reflect mid-cycle pricing, a valuation based on GVRC's estimated FY 2020 EBITDA of $84.9 million is inconsistent with the long-term earnings profile of the business. Analysis of LSB's financial characteristics in a normalized pricing environment suggests EBITDA of around $120 million is reasonable; this only accounts for pricing normalization and ignores opportunities for commercial growth as they cannot reliably be quantified. Therefore, GVRC revises its target price to $11.35, representing 9.0x normalized mid-cycle EBITDA of $120 million.

Financial Assessment

LSB manufactures and sells chemical products for use in agriculture, industrial, and mining markets. The company owns and operates three production facilities in El Dorado, Arkansas ("El Dorado Facility"); Cherokee, Alabama ("Cherokee Facility"); and Pryor, Oklahoma ("Pryor Facility"); and operates a non-owned production facility in Baytown, Texas ("Baytown Facility"). The majority of LSB's products are ammonia-based chemicals, including anhydrous ammonia, urea ammonium nitrate solutions (UAN), high-density ammonium nitrate prills (HDAN), low-density ammonium nitrate (LDAN), and nitric acid.

Balance Sheet

Note: On January 1, 2019, the company adopted ASC 842, an accounting method modification that requires the reporting of operating lease right-of-use assets and corresponding operating lease liabilities. ASC 842 is applied only to periods ending after the adoption date. Therefore, stated assets and liabilities in comparative periods may not be apt reference points for equivalent results in the current period.

As of FQ4 2019, LSB's current assets were $130.9 million, which consisted of $22.8 million of cash and cash equivalents, $39.9 million of trade accounts receivable, and $68.1 million of inventory, supplies, and other short-term assets. FQ4 2019 current assets were lower than FQ3 2019 current assets of $157.2 million and FQ4 2018 assets of $166.4 million. FQ4 2019 long-term assets of $957.6 million consisted principally of $936.5 million of net property, plant, and equipment. Operating lease assets, a new balance sheet item pursuant to ASC 842, were $15.3 million and pertained primarily to LSB's railcar leases.

Current liabilities were $103.3 million, which consisted of $58.5 million in accounts payable, $25.5 million in accrued and other liabilities, and $19.3 million in borrowings. FQ4 2019 current liabilities were roughly equivalent to FQ3 2019 current liabilities of $103.1 million and lower than FQ4 2018 current liabilities of $125.8 million. Non-current liabilities of $737.9 million included $449.6 million of long-term debt, $234.9 million of redeemable preferred stock, and $53.3 million of other liabilities. Pursuant to ASC 842, LSB recorded $15.5 million of operating lease liabilities ($4.1 million under current liabilities and $11.4 million under long-term liabilities), which are not included FQ4 2018 figures.

Current liabilities compared favorably to current assets (current ratio of 1.27). LSB has a revolving credit facility in place with a limit of $75.0 million, which is used to fund short-term working capital requirements. As of FQ4 2019, there was no balance drawn against this facility, and availability, based on eligible collateral, was approximately $42.1 million. Between cash and availability on its revolving credit facility, LSB had approximately $64.9 million in liquidity. GVRC does not anticipate near-term liquidity issues.

Capitalization

As of FQ4 2019, LSB's capitalization included 29.3 million shares of common stock (with 2.2 million potentially dilutive shares), $469.0 million of debt ($9.9 million of short-term financing, $9.4 million of current portion of long-term debt, and $449.6 million of long-term debt), and four issues of preferred stock.

LSB's long-term debt is presented below. This consists primarily of $435 million of Senior Secured Notes due May 2023, which carry a 9.625% coupon ("Senior Secured Notes due 2023"). During FQ2 2019, LSB undertook a $35 million tack-on offering to the original issuance of $400 million, which occurred in FQ2 2018. This tack-on offering was intended to fund approximately $15 million to $20 million of capital improvement projects that are expected to add incremental EBTIDA of between $6 million and $7 million by 2021. The remainder of the proceed were designated for general corporate purposes.

	Interest Rate	*Outstanding (thousands)*
Working Capital Revolver Loan	5.250%*	-
Senior Secured Notes due 2023	9.625%	$435,000
Secured Promissory Note due 2021	5.250%	$4,746
Secured Promissory Note due 2023	6.030%	$12,705
Senior Financing due 2023	8.320%	$13,476
Secured Loan Agreement**	8.760%	$5,219
Other		$159
Unamortized Discount and Debt Issuance Costs		($12,261)
		$459,044

*Interest rate as of September 30, 2019. Working Capital Revolver Loan accrues interest at LIBOR plus 1.50% to 1.75% or prime plus 0.50% to 0.75% and matures on February 26, 2024.

**The Secured Loan Agreement was entered into in 2019 with an affiliate of LSB Funding, LLC to fund the replacement of a sulfuric acid converter at the El Dorado Facility. This will be replaced by a term loan in 2020.

LSB carries several issues of preferred stock. The amounts outstanding under the company's Series B 12% cumulative, convertible preferred stock ("Series B Preferred") and Series D 6% cumulative, convertible preferred stock ("Series D Preferred") are $2.0 million and $1.0 million, respectively. Both issues are wholly owned by LSB's founder, Jack Golsen, his immediate family, and entities controlled by the family. Since late 2015, dividend payments have accumulated rather than been paid in cash. Together, the annual dividend on the Series B Preferred and Series D Preferred is 10% of the aggregate par value of $3.0 million. As of FQ4 2019, accumulated dividends on these two issues were $1.3 million. Neither the Series B Preferred nor the Series D Preferred is redeemable at the preference of the holder.

As of FQ4 2019, 139,768 shares of Series E 14% cumulative, redeemable preferred stock ("Series E Preferred") were outstanding, with participation rights equal to 303,646 shares of common stock (these participation rights do not entitle the holder to voting rights). LSB carried a liability of $234.9 million related to the Series E Preferred. The participation rights, which are bifurcated from the Series E Preferred for accounting purposes and recorded as a separate liability, were carried at $1.1 million. Since issuance, dividends on the Series E Preferred have accumulated rather than been paid in cash; The aggregate liquidation preference of the Series E Preferred as of FQ4 2019 was $242.8 million. The Series E Preferred is redeemable by the holder beginning in October 2023. LSB, at its option, may redeem the Series E Preferred at any time at a redemption price per share equal to liquidation value. Alternatively, with certain consents, LSB can redeem the Series E Preferred via the issuance of common stock equal in value to the liquidation preference of shares being redeemed.

The one issued and outstanding share of Series F redeemable preferred stock ("Series F Preferred") has no par value and an aggregate liquidation preference of $100. It entitles the holder to a number of votes equal to 456,225 shares of common stock. Eldridge Industries, through its subsidiary, Security Benefit Corporation (collectively, "Security Benefit"), holds all the issued and outstanding Series E Preferred and Series F Preferred. Security Benefit is also the largest holder of common stock and a debt holder. The investment firm's position in LSB's common stock is reported under the name LSB Funding LLC.

LSB's Senior Secured Notes due 2023 are callable by the company beginning on May 1, 2020 at $107.219 (decreasing to $103.609 on May 1, 2021 and $100.00 on May 1, 2022). GVRC expects that LSB will consider refinancing these notes and/or the Series E Preferred beginning in May 2020, subject to the terms of financing and transaction costs. Considering improvements in operational reliability and generally improved earnings since mid-2018, GVRC expects the cost of new capital will be attractive relative to that of the Senior Secured Notes due 2023 and Series E Preferred, particularly if the company's credit rating is upgraded prior to a refinancing transaction.

LSB is currently involved in litigation against Leidos Constructors, LLC concerning cost overruns in the expansion of the ammonia plant at the El Dorado Facility from 2013 to 2016. LSB is seeking more than $100 million in damages as compensation for breach of contract, fraud, gross negligence, professional negligence, and negligence. The case is styled *Global Industrial, Inc. d/b/a Global Turnaround vs. Leidos Constructors, LLC et al.* and the case ID is 70CV-16-76; the case docket is available through the State of Arkansas's Administrative Office of the Courts CourtConnect Website. A favorable outcome could catalyze the transformation of LSB's capital structure.

Income Statement

In FQ4 2019, LSB generated $73.9 million in revenue (compared to $94.7 million in FQ4 2018): $32.9 million from the agriculture segment, $34.1 million from the industrial segment, and $7.0 million from the mining segment. Revenue was impacted by both plant downtime and lower product selling prices. During FQ4 2019, the Pryor Facility experienced 43 days of downtime to complete scheduled maintenance work, although this work extended 15 days longer than originally planned. Additionally, the company opted to take El Dorado Facility out of service for 16 days in order to perform adjustments on the ammonia reactor to improve production volumes. As a result, production volumes in FQ4 2019 decreased for most of LSB's primary products compared to FQ4 2018. FQ4 2019 product pricing was also comparatively weak; information is presented in the table on the following page.

Agriculture Segment	FQ4 2018	FQ4 2019	% Change
Product Volumes			
Ammonia	19,070	17,071	-10.5%
UAN	103,618	64,298	-37.9%
HDAN	46,650	58,603	25.6%
Selling Prices			
Ammonia	$316	$253	-19.9%
UAN	$180	$161	-10.6%
HDAN	$240	$201	-16.3%

Industrial and Mining Segments	FQ4 2018	FQ4 2019	% Change
Product Volumes	67,919	64,868	-4.5%
Ammonia	35,870	29,594	-17.5%
Nitric Acid	42,277	29,015	-31.4%
LDAN/HDAN/AN Solution			
Tampa Ammonia Index	$345	$255	-26.0%

FQ4 2019 gross profit was -$12.3 million (-16.6% gross margin), compared to FQ4 2018 gross profit of $12.4 million (13.1% gross margin). Adjusted gross profit, which excludes depreciation and turnaround expenses, was $9.8 million in FQ4 2019, compared to $29.3 million in FQ4 2018. The sensitivity of LSB's agriculture segment to product pricing is highlighted by segment adjusted gross margin, although the challenging price environment has caused margins to erode in the industrial and mining segments as well. GVRC expects gross margin and adjusted gross margin expansion in FY 2020 as LSB has no scheduled facility downtime, resulting in enhanced fixed cost absorption.

	Adjusted Gross Profit		Adjusted Gross Margin	
	FQ4 2018	FQ4 2019	FQ4 2018	FQ4 2019
Agriculture Segment	$8.5	-$0.5	20.7%	-1.5%
Industrial and Mining Segments	$20.8	$10.3	38.6%	25.1%

Selling, general, and administrative expenses were $9.5 million in FQ4 2019. While somewhat consistent with recent levels, FQ4 2019 selling, general, and administrative expenses include approximately $3.8 million of legal fees related to pending litigation against Leidos Constructors, LLC. Management expects approximately $5 million of legal fees in the first half of 2020, which will be included in selling, general, and administrative expenses. Absent these costs, selling, general, and administrative expenses would run between $6 million and $7 million quarterly – a meaningful improvement from historical levels.

FQ4 2019 operating income was -$31.3 million (compared to -$2.5 million in FQ4 2018) and net income was -$27.7 million (compared to -$13.0 million in FQ4 2018).

LSB's depreciation expense of roughly $17 million is commensurate with the company's substantial capital assets. Interest expense in FQ4 2019 of $12.1 million should decline slightly throughout 2020 as certain debt amortizes and LSB's 8.76% secured loan agreement is replaced with financing on terms that GVRC expects will be slightly more favorable.

Because LSB's agriculture business is seasonal, the spring (April through June) and fall (October through November) periods are expected to produce stronger results than the summer and winter seasons. This corresponds to fertilizer applications: anhydrous ammonia is applied to soil shortly after fall crop harvests conclude and prior to spring planting to replenish nutrients; UAN is applied to crops shortly after spring planting. Historically, financial results are strongest in the second quarter, followed by the first, fourth, and third quarters. The company's industrial and mining segments are significantly less seasonal. In addition to seasonality, short-term fluctuations in revenue and profitability are affected by cyclicality (affecting both product pricing and demand) and temporarily decreased production capacity due to planned maintenance and plant turnarounds. Unfavorable weather patterns in 2019 caused inventories of agricultural fertilizer products to burgeon, resulting in depressed prices throughout 2019 and continuing into 2020. However, product price forecasts beyond mid-year are exceptionally uncertain and subject to factors such as the effects of weather patterns on crop planting and fertilizer requirements.

Cash Flow

In FQ4 2019, LSB generated cash from operations of -$38.9 million, which included net income of -$27.7 million, depreciation and amortization of $16.8 million, deferred income taxes of -$15.1 million, prepayment of insurance premiums of -$10.4 million, and a payment of accrued interest of -$10.3 million. Cash from investing was -$15.6 million, which was substantially all capital expenditures. Cash from financing was $10.4 million, representing net proceeds from short-term financing (associated with prepaid insurance premiums) of $9.3 million and net proceeds from long-term debt of $1.4 million (borrowings under the secured loan agreement less regular debt service payments).

FY 2019 capital expenditures were $36.1 million. Management's FY 2020 capital expenditure guidance of $25 million to $30 million includes maintenance capital expenditures of about $20 million and $5 million to $10 million for margin enhancement projects (discussed below). GVRC believes that maintenance capital expenditures have stabilized and $20 million annually is a reasonable forward expectation. The margin enhancement projects identified by management should enable new sales contracts in the industrial and mining segments; management alluded to such potential contracts on the company's February 25, 2020 earnings call.

Depreciation vs. Capital Expenditures

LSB's depreciation expense is around $17 million per quarter, or about $68 million annually. Historic capital expenditures of $30 million to $35 million annually and forward capital expenditure expectations of $25 million to $30 million annually fall far short of depreciation. Although this relationship might suggest degradation of the capability of LSB's production assets, GVRC believes that LSB's level of capital expenditures is appropriate to operate the business and even realize modest physical asset improvements over time, while recognizing that infrequent large capital outlays are likely necessary to a business such as that of LSB in the very long term. GVRC suspects that meaningful expansion is more likely to be undertaken by acquisition than by new plant construction, although incremental downstream product capacity additions are possible. In FQ2 2019, LSB began identifying several capital projects aimed at enhancing margins; about $15 million will be allocated to such projects through FY 2020.

Plant Operations

Efficient operation of LSB's physical plant assets is critical to the company's financial performance. To assess operational reliability, LSB reports on-stream rates, which measure the percent of time that the ammonia reactor at a plant operates. Because ammonia is the precursor for nearly every other product produced, this is a critical measure of plant performance. On-stream rates do not consider planned downtime for scheduled repairs, modifications, or turnarounds (a comprehensive planned maintenance event that occurs every two to three years, depending on plant condition), but account for unplanned downtime for unscheduled repairs.

In FQ4 2019, LSB began reporting an average company-wide on-stream rate rather than on-stream rates by facility. This is consistent with industry practices and GVRC believes it reflects investors' expectations that facilities run consistently and reliably. LSB has invested heavily in improving the operational reliability of its plants by undertaking extensive physical improvements, engaging consultants to accelerate the creation and implementation of a comprehensive preventative maintenance program, hiring qualified and experienced plant-level management, and improving employee training on procedures and workflows. As LSB points out in its FQ4 2019 investor presentation, the annual average on-stream rate has steadily improved from 80% in FY 2016 to 91% in FY 2019. The company is targeting an average on-stream rate of 94% in FY 2020, which GVRC believes is achievable.

Noteworthy observations about operations at LSB's owned facilities are as follows:

- Beginning in FQ3 2019 and continuing into FQ4 2019, the Pryor Facility underwent a 67-day turnaround. This was the most extensive turnaround in the facility's history and built upon several engineering assessments and incremental improvements completed during unplanned downtime at the facility over the past few quarters. During the turnaround, a new urea reactor was installed, which will increase the reliability and production capacity for UAN at the Pryor Facility.
- The ammonia reactor at the El Dorado Facility was voluntarily taken out of service for 16 days in FQ4 2019 to make minor improvements meant to increase capacity. The timing of the decision was sensible considering the depressed pricing environment during the period.

- A new sulfuric acid converter was installed at the El Dorado Facility in FQ4 2019, which will increase sulfuric acid production capacity by about 20,000 tons annually. Management expects to sell out this additional capacity in FY 2020.
- There are no turnarounds scheduled in FY 2020. The Pryor Facility is on a two-year turnaround schedule with the next turnaround expected in FY 2021, after which the facility will be transitioned to a three-year turnaround schedule. The Cherokee Facility is on a three-year turnaround schedule; the last turnaround occurred in FQ3 2018 and the next is expected in FY 2021. The El Dorado Facility is on a three-year turnaround schedule; the last turnaround occurred in FQ3 2019 and the next is expected in FY 2022.

LSB operates a facility in Baytown, Texas that is owned by Covestro AG. The plant produces nitric acid using ammonia feedstock delivered via pipeline. LSB has operated the Baytown Facility since 1998 and is currently in its third long-term operating contract with Covestro. LSB's management believes the relationship with Covestro is strong. GVRC observes that LSB has operated this plant at high on-stream rates and to the satisfaction of the owner for approximately two decades and has no reason to believe that this relationship will change in the foreseeable future. In October 2018, Covestro announced an expansion at the Baytown Facility to increase production of methylene diphenyl diisocyanate, which requires nitric acid to synthesize. GVRC expects LSB will benefit from this expansion.

Planned Margin Enhancement Projects

During FQ2 2019, LSB undertook a $35 million tack-on offering to the Senior Secured Notes due 2023. The company has begun approximately $15 million of margin enhancement projects that will be completed by the end of FY 2020. These projects include product loading and unloading improvements, constructing additional storage capacity to allow for higher production levels year-round and additional opportunistic in-season selling, and capital to facilitate guest plants on LSB's properties. On the company's February 25, 2020 earnings call, CEO Mark Behrman described a new contract with a mining customer for the production of significant additional LDAN volumes and suggested that additional commercial opportunities in the industrial segment were in the final stages of negotiation. GVRC believes that these contracts may be material enough to warrant an 8-K filing upon finalization.

Market Analysis

Agriculture Market

Sales of agricultural products make up between 40% and 60% of LSB's quarterly revenue, depending on the period. Agriculture sales are highly seasonal, with demand peaking in the spring (April through June) and fall (October through November) seasons. In FQ4 2019, 44.5% of LSB's revenue was attributable to the agriculture segment. Because fertilizer use is dependent on crop selection, soil conditions, weather patterns, and other environmental factors, almost all agriculture sales are based on spot pricing, which is driven by relatively short-term supply and demand. Unseasonably cold and wet weather in many corn-producing regions during the first half of 2019 led to delayed crop planting and weak fertilizer demand, resulting in depressed prices and oversupply. A late 2019 harvest caused an abbreviated fall application season, further depressing demand.

The poor corn harvest in fall 2019 has caused corn prices to rise considerably. As such, many industry sources expect a spike in planted acres for the 2020/2021 crop year (the corn crop planted in spring 2020 and harvested in fall 2020). Because spring fertilizer application is largely dependent on weather conditions, it is too early to gauge the robustness of demand. However, strong demand is unlikely to offset depressed pricing in the short term, and GVRC expects pricing weakness to continue through early 2020.

Recent trends in selling prices and sales volume are presented below.

	FQ3 2018	FQ4 2018	FQ1 2019	FQ2 2019	FQ3 2019	FQ4 2019
UAN	$156	$180	$213	$198	$163	$161
HDAN	$234	$240	$232	$248	$ 263	$ 201
Ammonia	$285	$316	$357	$357	$ 252	$ 253

Source: Reported gross average selling prices (price per ton) are sourced from the appropriate period's 8-K issued in conjunction with that period's earnings announcement. Average selling prices represent net back prices, which are calculated as sales less freight expenses divided by product sales volume in tons.

	FQ3 2018	FQ4 2018	FQ1 2019	FQ2 2019	FQ3 2019	FQ4 2019
UAN	83,898	103,618	94,577	95,183	105,847	64,298
HDAN	51,944	46,650	59,845	127,124	32,248	58,603
Ammonia	17,564	19,070	19,205	28,228	19,420	17,071
Other Agricultural Products	4,394	2,023	3,328	10,377	3,434	2,516

Source: Product volumes (tons sold) are sourced from the appropriate period's 8-K issued in conjunction with that period's earnings announcement.

Industrial and Mining Markets

Sales of industrial and mining products exhibit minimal seasonality, although quarterly results can be affected by the timing of orders and product price fluctuations. In FQ4 2019, 46.1% and 9.4% of LSB's revenue was attributable to the industrial and mining segments, respectively. Historically, industrial and mining product pricing has been determined by long-term contracts with pricing based on the Tampa Ammonia Index, providing stability of earnings and foresight into production and distribution requirements. Due to an oversupply of ammonia throughout 2019, the Tampa Ammonia Index remained depressed in FQ4 2019, averaging $255 per metric ton (versus $221 per metric ton in FQ3 2019 and $345 per metric ton in FQ4 2018).

Because industrial and mining products are sold under cost-plus arrangements, sales volumes are the most appropriate proxy for revenue. To a certain extent, production can be shifted between products to opportunistically capitalize on price movements. Product sales volumes (tons sold) are presented below.

	FQ3 2018	FQ4 2018	FQ1 2019	FQ2 2019	FQ3 2019	FQ4 2019
Industrial Products						
Ammonia	61,308	67,919	74,834	78,697	56,854	64,868
Nitric Acid*	21,388	35,870	22,375	22,271	25,304	29,594
Other Industrial Products	6,721	7,552	8,274	8,948	8,046	9,839
Mining Products						
LDAN/HDAN/AN Solution	34,852	42,277	36,615	47,000	39,305	29,015

*Excluding Baytown Facility
Source: Product volumes (tons sold) are sourced from the appropriate period's 8-K issued in conjunction with that period's earnings announcement.

Consistent with management's recent comments, GVRC expects significant medium-term growth of LSB's industrial and mining product volumes.

Management Assessment

On January 16, 2020, LSB announced the retirement of COO John Diesch and the hiring of John Burns to succeed him in the role. Mr. Diesch joined LSB in August 2016 and was instrumental in overhauling the company's plant operations and hiring experienced and qualified plant operations personnel. Mr. Burns was hired from Koch Industries, where he had been employed since 1993 in various roles. Notably, from 2007 to 2014, he served as the Vice President of North American Nitrogen Operations, overseeing Koch's five nitrogen chemical manufacturing facilities and implementing maintenance and turnaround processes to enhance plant reliability. Most recently, Mr. Burns served as the Performance Innovation and Improvement Director at Flint Hills Resources, a subsidiary of Koch. GVRC believes he is qualified to build upon LSB's substantial progress in operational reliability.

On February 7, 2020, Jack Golson informed the company that he would not seek reelection at LSB's 2020 annual general meeting, when his term as a director expires. Mr. Golson has been a director for 52 years. On March 10, 2020, LSB nominated Steven Packebush to stand for election to the board of directors at the 2020 annual general meeting to replace Mr. Golson. Mr. Packebush is the founder of Elevar Resources, LLC, which provides consulting and capital solutions for companies in agriculture and energy markets. He also spent over 30 years at Koch Industries, Inc. and serves on the board of directors of EuroChem Group AG.

Also on March 10, 2020, LSB announced the appointment of Diana Peninger to the board of directors effective March 5, 2020. Ms. Peninger is the CEO of Geneva Lake Partners, an advisory firm focusing on strategic business planning, increasing sales, improving profitability, and operational efficiency. She has more than 30 years of experience in the global chemical sector.

CEO Mark Behrman and CFO Cheryl Maguire both have several years of tenure with the company and have effectively guided LSB through a multi-year transitional period with a focus on efficient and reliable operation of the company's physical plants and enabling the company's workforce through enhanced training initiatives. GVRC believes LSB's executive officers are capable of driving continued improvement. At both the corporate level and plant level, several additional personnel have joined LSB over the past few years, contributing to operational reliability and efficiencies in areas such as procurement and logistics.

LSB's 10 largest shareholders are presented in the table below. Security Benefit is the largest holder of LSB's common stock (the owner of record is LSB Funding LLC), the holder of all of the issued and outstanding Series E Preferred and Series F Preferred, and a significant holder of the Senior Secured Notes due 2023. In aggregate, Security Benefit controls 15.4% of the total common stock voting power, which includes votes to which they are entitled through ownership of the Series F Preferred. GVRC perceives Security Benefit to be a rational and well-capitalized investment group and is encouraged by its continued ownership and financial flexibility. Security Benefit is the counterparty to LSB's senior promissory note due 2023 and the senior loan agreement that recently funded the replacement of the sulfuric acid converter at the El Dorado Facility. GVRC believes LSB's relationship with Security Benefit is excellent.

Shareholders (from recent 13D, 13F, 13G, or proxy filings):	
LSB Funding LLC	14.1%
BlackRock Fund Advisors	11.2%
Dimensional Fund Advisors LP	6.6%
Robotti & Co. Advisors LLC	5.8%
Jack Golsen	5.8%
Tontine Associates LLC	5.2%
Goldman Sachs & Co. LLC	4.2%
The Vanguard Group, Inc.	4.1%
Mark Behrman	3.2%
Dan Greenwell	2.1%
Top 10 Holders	**62.3%**

On February 28, 2020, Vice President of Financial Reporting Harold Rieker purchased 5,000 shares of LSB's common stock in an open market transaction. On March 6, 2020, Director Lynn White purchased 10,810 shares of LSB's common stock in an open market transaction. Each transaction represented a meaningful increase in equity ownership of the respective insider; GVRC believes that few actions speak as loudly as insider purchases.

Competitive Positioning Update

LSB operates in a highly competitive industry against many other larger chemical companies with substantial resources. Because ammonia and many of the derivative products produced by LSB are commodities, competition is based primarily on price. Pricing of delivered ammonia products is a function of proximity to the end customer and access to reasonable means of transportation. CF Industries Holdings, Inc., CVR Partners LP, Dyno Nobel, Koch Industries, Inc., Nutrien Ltd., and Yara International ASA are notable competitors.

Most ammonia plants, including all three of LSB's owned ammonia plants, use natural gas feedstock to produce ammonia; ammonia then serves as the precursor to numerous ammonia-based products. As such, natural gas pricing is an important determinant of the economics of ammonia production. LSB's access to inexpensive natural gas feedstock is a particularly notable competitive advantage. At the El Dorado Facility and Cherokee Facility, natural gas feedstock pricing is approximated by Henry Hub spot pricing plus $0.10 to $0.15 per MMBtu of transportation costs. However, at the Pryor Facility, LSB purchases natural gas feedstock at a substantial discount to Henry Hub pricing; this discount can approach 30%.

End-market pricing of ammonia products is typically inclusive of the cost of transportation to those markets. Therefore, access to shipping by truck, rail, barge, or pipeline and proximity to end customers are advantageous. LSB's three plants are strategically located in the South-Central United States, with ready access to corn-producing regions via road or rail. The El Dorado Facility is also connected to an ammonia pipeline, providing efficient access to a distribution network. Finally, the El Dorado Facility, which produces the bulk of the company's industrial and mining products, offers direct rail access to important mining markets in the western United States.

In late 2019, Magellan Midstream Partners LP completed decommissioning of its ammonia pipeline system, which stretched from northern Texas and Oklahoma through Kansas, Missouri, Iowa, and into southern Minnesota. LSB distributes ammonia into markets within these geographies and has faced increased competition resulting from the disruption in distribution. GVRC expects distribution of ammonia in these markets to normalize over time but notes the short-term downward price pressure resulting from the shutdown.

Several large foreign producers compete for domestic business, but because end-market pricing is typically inclusive of shipping costs, domestic production remains competitive relative to foreign production, and almost all ammonia produced in the United States is consumed domestically. However, recent imports of UAN have caused downward pressure on UAN prices.

For most products, LSB's market share is small enough that it can sell substantially everything it produces. In recent years, LSB has added storage capacity at its facilities in order to opportunistically time product sales during periods of strong pricing. Planned capital projects include additional storage capacity.

Weak demand for agricultural fertilizers in 2019 has resulted in excess inventories and depressed prices going into 2020. LSB forecasts meaningfully improved production in 2020 as a result of facility improvements made over the past several years coupled with the absence of planned downtime at all of its facilities during 2020. Higher production volumes are unlikely to completely offset weaker prices in FQ1 2020 compared to FQ1 2019, and GVRC expects prices to remain depressed into FQ2 2020. Pricing for agricultural products in the second half of 2020 will depend largely on application conditions in the first half of the year, which are heavily dependent on weather.

LSB's management has made positive comments about sales contracts in the industrial and mining segments. GVRC has noted commercial opportunities in these relatively less seasonal segments and believes LSB has capacity for substantial production growth. However, in the short-term, the Tampa Ammonia Index remains depressed, eroding segment revenues (although gross margins are less variable as contracts are structured as cost-plus arrangements). GVRC views the long-term trends in LSB's industrial and mining segments as positive and expects robust future sales growth.

Although LSB's end market diversification sets it apart from its agriculturally oriented peers, LSB's cyclical agriculture segment is an important part of the overall business. The primary demand indicator for LSB's agricultural products is acres of corn planted in the United States each season, due to (a) the sheer number of acres planted relative to other nitrogen-intensive crops, (b) the relatively high nitrogen demand of the crop, and (c) LSB's proximity to corn-producing regions. In February 2020, the *USDA Agricultural Projections to 2029* report predicted that 94.5 million acres of corn would be planted in spring 2020 (2020/21 crop year). GVRC expects strong spring 2020 fertilizer applications, weather permitting. Distortions in corn markets resulting from a weak 2020 crop (fall 2019 harvest) could bode well for fertilizer demand for years to come.

Valuation Analysis

For much of its existence, LSB operated as a diversified holding company for a collection of manufacturing and industrial entities. This confounds historic results of the company's chemical operations. The last significant non-chemical holding, a subsidiary that manufactured climate control solutions, was divested in mid-2016. Certain ownership interests in natural gas-producing properties were divested in mid-2017 and a small industrial machinery and components business was sold in late 2017. LSB's operational and financial characteristics are now clear, but historical data are of limited analytical value.

LSB's industrial and mining segments have historically constituted more than 50% of its revenue. Because the company's relationships with industrial and mining customers typically involve long-term contracts structured as cost-plus arrangements, GVRC believes that growth in these segments is less dependent on product pricing than it is on achieving additional commercial penetration and higher production rates. LSB's agriculture segment typically involves sales based on variable spot market pricing; therefore, revenue and gross margin vary significantly. Financial results in the agricultural segment are largely dependent on selling prices, production volumes, and efficiency.

Given LSB's operational history, GVRC has previously relied on tangible book value (TBV) as a valuation metric while noting that a discernable and sustainable recovery in earnings would render and earnings-base valuation preferable. Earnings forecasts are inherently susceptible to error due to future uncertainties; exogenous events could affect markets for LSB's products or the performance LSB's facilities. In the past, unforeseen developments materially affected financial results. Recognizing this, in consideration of recent operational performance, GVRC has transitioned to an EBITDA-based valuation, while noting that LSB's TBV remains important in considering a margin of safety.

Earning Analysis

While LSB's recent financial results have begun to demonstrate the earnings power of the business, the results of the company's multi-year operational turnaround will likely not be fully appreciated until late FY 2020 (although earnings are very sensitive to product pricing, which is expected to remain depressed into FY 2020). GVRC believes that the earnings projections presented below, which are informed by consideration of market dynamics, assumptions about product pricing, and discussions with management, are reasonable.

GVRC notes that LSB has no turnarounds planned for 2020. Assuming on-stream rates commensurate with the company's stated expectations and considering physical plant improvements and turnarounds completed recently, GVRC expects meaningfully improved production volumes in FY 2020. However, GVRC does not expect that FY 2020 earnings will be representative of the mid-cycle or normalized earnings power of the business. Calculation of LSB's adjusted EBITDA is highly sensitive to product pricing. While product pricing increases are possible as the year progresses, GVRC suspects that muted pricing will persist through at least the first half of the year.

	FQ1 2020	FQ2 2020	FQ3 2020	FQ4 2020	2020
Agriculture Revenue	$41.1	$66.8	$42.2	$49.8	$199.9
Industrial and Mining Revenue	$47.5	$52.1	$45.2	$48.9	$193.7
Total Revenue	$88.6	$119.0	$87.4	$98.7	$393.6
SG&A	$11.5	$9.5	$7.5	$7.5	$36.0
Operating Income	$(5.1)	$15.4	$(4.7)	$1.9	$7.5
Net Income	$(13.1)	$2.7	$(12.8)	$(7.6)	$(30.8)
Net Income Attributable to Common Stockholders	$(21.9)	$(6.4)	$(22.1)	$(17.3)	$(67.8)
EPS	$(0.78)	$(0.23)	$(0.79)	$(0.62)	$(2.42)
Adjusted EBITDA	$16.8	$35.3	$13.1	$19.6	$84.9

LSB's publicly traded peer companies have traded at EBITDA multiples that range from around 6.0x to about 15.0x over the past five years, and currently trade at an average EV/EBITDA multiple of around 7.5x (although as of December 31, 2019, the average EV/EBITDA multiple was about 9.0x). While LSB bears many similarities to its peer group and is subject to the same external market forces as its competitors, GVRC notes key differences, including LSB's relatively small size compared to many of its peers, its diversification of end markets for ammonia products, and its concentration on ammonia products versus a larger portfolio of agricultural fertilizer products. GVRC also notes that execution risk has been a significant market concern that has only recently assuaged as LSB demonstrates operational reliability. For these reasons, GVRC believes that 8.0x to 10.0x represents a fair EBITDA multiple for LSB. Using a midpoint EBITDA multiple of 9.0x, the following equity value is implied using both GVRC's forecasted FY 2020 EBITDA and GVRC's estimate of a normalized mid-cycle EBITDA of $120 million.

	2020	*Normalized*
EBITDA	$84.9	$120
EBITDA Multiple	9.0x	9.0x
Enterprise Value	$763.7	$1,080.0
Net Debt	$448.7	$448.7
Series E Preferred (Liquidation Value)	$271.1	$271.1
Other Preferred Stock	$3.0	$3.0
Common Equity Value	$40.9	$357.2
Shares Outstanding (Fully Diluted)	31.5	31.5
Value/Share	$1.30	$11.35

Tangible Book Value Analysis

LSB currently trades at 0.23x its TBV of approximately $7.66 per share (fully diluted). During the 12 quarters ended FQ2 2015 (prior to the sale of its climate control subsidiary), the company traded at an average of 3.01x TBV. Since FQ2 2015, the company has traded at an average of 0.66x TBV.

The nature of LSB's operations requires regular capital expenditures to maintain and grow the business, while infrequent large capital expenditures are expected in the very long term in the form of new facility construction. Partially due to cost overruns during the construction of the El Dorado Facility (LSB's most recent plant construction, completed in early 2016), LSB's depreciation expense is now outsized compared to the ongoing capital requirements of the business. This has resulted in persistent net losses, eroding shareholders' equity and TBV, which are now $247.3 million and $241.5 million, respectively. While GVRC believes the earnings power of the business may be sufficient to periodically result in neutral or slightly positive net income, substantial growth in TBV per share is not anticipated in the near term.

GVRC believes that a price target range of 1.0x to 1.5x TBV is appropriate when considering a valuation based on TBV. Using a midpoint of 1.25x TBV, a valuation of $9.58 is implied. Considering recent improvements in operational reliability and favorable outlooks for LSB's markets, GVRC believes this modest premium to TBV is justified, if not conservative. However, GVRC views a valuation based on TBV as secondary to an earnings-based valuation, which is more appropriate given LSB's improved operational characteristics.

LSB's management has long held that industry consolidation would be beneficial for many smaller companies which, like LSB, operate only a few plants. While there are considerations specific to each transaction, such as plant design, end market access, and ownerships structure, GVRC anticipates consolidation will occur within the next few years, absent significant market disruption. Considering LSB's experience in improving physical plant facilities and plant operations, GVRC views LSB as a logical consolidator. However, it is worth noting that the net replacement value of LSB's assets, which is likely more than $35 per share, suggests the company would command a substantial premium to the current price of the common stock in a sale.

Valuation

LSB has a *raison d'etre* due to the longstanding demand for ammonia-based chemical products in numerous agricultural, industrial, and mining applications. Access to both inexpensive natural gas feedstock and important end markets provides the company with a competitive edge over many domestic and nearly all international competitors.

The margin of safety in an investment in LSB lies in its current price relative to the value of its assets. LSB trades at a discount to both TBV per share ($7.66) and a TBV-based valuation using a multiple of 1.25x ($9.58), which GVRC views as a reasonable baseline in any consideration of valuation. The company's assets are difficult to replace, necessary for the synthesis of ammonia and ammonia-based products, and would likely command substantial value in a private transaction. Considering the replacement value of these assets, GVRC views the sale of the company to a competitor at a price providing sufficient downside protection to shareholders as a worst-case scenario.

Over the past few years, LSB has focused intensely on improving its operations. While the currently depressed pricing environment has muted EBTIDA expectations for FY 2020, the company has controlled its expenses and optimized its production, positioning it to weather the current depressed price environment and capitalize as pricing recovers. Steadily improving on-stream rates provide evidence of operational progress, a trend that GVRC expects to continue.

GVRC employs an EBITDA-based valuation of the enterprise. GVRC's target price of $11.35 per share is approximately 9.0x estimated normalized adjusted EBITDA of about $120 million. This price target represents a downward revision of GVRC's FQ3 2019 target price of $12.85, which was based on 9.0x estimated FY 2020 EBITDA of $119.1 million; higher FY 2020 net debt assumptions also affected GVRC's valuation calculation. GVRC believes that 1.25x TBV, or $9.58 per share, is a reasonable valuation baseline should unforeseen circumstances impair LSB's earnings outlook, but does not anticipate such circumstances. Continued operational reliability is paramount to the realization of expected earnings, and the materialization of additional commercial opportunities could substantially improve LSB's financial outlook. If financial results improve, LSB will likely also benefit from access to less expensive capital and the potential for inorganic growth.

Risks, Catalysts and Expectations

GVRC's comprehensive report dated August 15, 2019 provides a complete list of assessed risks to LSB's business. The following risks are particularly noteworthy:

- The end markets for LSB's products may be affected by decreased demand or unfavorable prices. Most of LSB's products are commodities and are priced as such. Product pricing is almost entirely out of LSB's control. The effects of depressed product pricing were seen in the second half of FY 2019 and are expected to continue through at least the first half of FY 2020. While gross margin generally fluctuates less than revenue due to the variable costs associated with production, fixed costs remain a significant component of cost of sales.
- LSB's leverage is significant, and in a disorderly disposal of assets or distressed sale of the business, equity value may be partially or completely impaired. The company's Senior Secured Notes due 2023 carry an interest rate of 9.625%, which comprises the bulk of the company's quarterly interest expense of approximately $12.1 million. The Series E Preferred carries a dividend rate of 14%, and dividends are assessed against both principal and accrued and unpaid dividends. GVRC believes that a refinancing transaction before mid-2021 is a distinct possibility, but the terms of a refinancing transaction may not be favorable. While liquidity is not an imminent concern, overleverage will become an issue if not addressed in a timely manner.

While several obvious catalysts exist, GVRC believes that the most meaningful source of stock price appreciation will be improved earnings stemming from consistent and reliable plant operations. LSB has no planned turnarounds in FY 2020; uninterrupted operation will highlight the potential for the business to generate a significant amount of cash. While strong product demand and improved pricing will accelerate earnings, LSB can be profitable in a wide range of market conditions. Several commercial opportunities could result in higher production capacity utilization within a relatively short period of time. Additionally, management expects $6 million to $7 million in incremental EBITDA by the end of FY 2020 from margin enhancement projects that are currently underway.

GVRC expects that consistent operational reliability and robust product demand will drive LSB's earnings in the short-term. In the medium-term, a stronger price environment will be a meaningful tailwind, and marginal EBITDA should come from planned capital investments and continued commercial efforts. In the long-term, revenue should grow and margins should expand as a result of enhanced operational reliability, which will allow a revamp of the capital structure that is accretive to shareholders. Eventually, GVRC expects LSB to consider inorganic growth opportunities enabled by stable cash flow and balance sheet flexibility. As progress towards these goals becomes clear, shares will command a substantially higher valuation.

LSB trades at an 84% discount to GVRC's target price of $11.35. GVRC believes this discount to intrinsic value presents a compelling case for investment and an attractive entry point for patient, opportunistic investors.

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GVRC receives an annual non-contingent flat fee ranging from $25,000 to $75,000 from the Company for the publication of an initial report covering the Company, three quarterly updates, and any interim reports deemed necessary by GVRC. To mitigate the conflict of interest created by the Company compensating GVRC preparing the reports, GVRC requires its fee to be fully paid in advance of the publication of its initial report. GVRC has implemented policies and procedures to promote the objectivity of its analysts. GVRC does not rely on revenues from any single company, including the Company, engaging the firm for its research services. GVRC also prohibits companies from compensating it with stock-based or other forms of variable compensation and only accepts cash (or cash equivalents) for its services. Although GVRC and GVIC employees may own positions in the securities of companies covered by the firm, GVIC has implemented strict procedures that prohibit employees from trading securities, including options, directly related to the subjects of its reports within ten days before and three days after their publication.