



CVR Energy Inc., Analysis Report

Dec 2018

- Limited expenditures on CAPEX does not support sustainable growth in the long term
- Stagnant market outlook together with stressed Nitrogen fertilizer segment constrain the growth of the company
- Target share price of \$31, current trading price overvalued by 24%

Company: CVR Energy Inc., (NYSE:CVI)

Last trading price (\$): 38.25

Date of Price: 3 Dec 2018

Market Cap (mm): 3,794

Shares Out. (mm): 100.5

Dividend Yield %: 7.9

P/E: 8.36x

52 wk High/Low: 47.67/28.14

Price target (\$): 31.00

Uijung Choi

uijung.choi@yale.edu

Lan Yao, CPA

+1 (203) 890 8230

lan.yao@yale.edu

RECOMMENDATION

SELL

Price Information

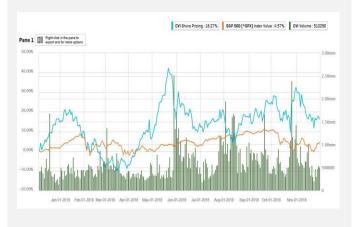






Table of Contents

Investment Analysis	3
1. Company at a glance	3
2. Nitrogen Business Acquisition Failure	3
3. Impacts On CAPEX	7
4. Operation Excellence	8
5. Major Competitor Stock Comparison	10
6. Company Financials	12
7. Company Valuation	14
8. Reference	18
Important Disclaimer	19

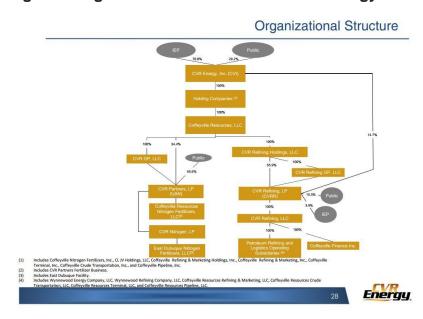


Investment Analysis

1. Company at a glance

CVR Energy Inc. has built a solid basis around refining and marketing high-value transportation fuels to retailers, railroads, and farm cooperatives and other refiners/marketers in Kansas, Oklahoma and Illinois. Located within 100 miles of Cushing, Oklahoma (a major crude oil trading and storage hub), the company's two oil refineries—in Coffeyville, Kansas (115k bpcd) and Wynnewood, Oklahoma (70k bpcd)—represent close to a quarter of the region's refining capacity. Through a limited partnership, the company also produces and distributes ammonia and ammonium nitrate to farmers in Illinois, Iowa, Kansas, Nebraska and Texas.

Figure 1 Organizational Structure of CVR Energy Inc.¹



The company reports two segments based on its two primary products— Petroleum and Nitrogen Fertilizer. Petroleum segment (accounts for 95% of net sales for nine months in 2018) produces gasoline, diesel fuel, jet fuel, natural gas liquids, asphalt petroleum refining and products, including petroleum coke. The Nitrogen Fertilizer produces segment and distributes nitrogen fertilizer products consumed primarily by farmers to improve the yield and

quality of their crops. The principal products are UAN and ammonia. The company's operations include two ammonia units (2,400 ton/day capacity) and two UAN units (4,400 ton/day).

2. Nitrogen Business Acquisition Failure

2-1. Leveraged acquisition of the fertilizer business

When the WTI oil price crashed from \$100 per barrel in 2014 to \$32 per barrel in 2016, the profitability of most refining companies plunged. As a diversification strategy to weather the storm in 2016, CVR Energy Inc. acquired a fertilizer (Nitrogen) plant, CVR Nitrogen.

¹ CVR Energy Inc.'s Investor Presentation November 2018, Page 28, CVR Energy Inc.



On April 1, 2016, CVR Partnership completed the East Dubuque Merger and acquired the East Dubuque Facility at a consideration of \$404.1 million. The primary reasons for the East Dubuque Merger were to expand the Partnership's geographical footprint, diversify its raw material feedstocks, widen its customer reach and increase its potential for a cash-flow generation.

To finance the acquisition, On April 1, 2016 CVR Partners entered into bridge facility of \$300.0 million senior term loan credit facility at an interest rate of 12.0% per annum. On June 10, 2016, the CVR Partners replace the \$300.0 million bridge facility as well as CVR Nitrogen's existing notes of \$320.0 million (interest rate 6.5%) with \$645.0 million 9.25% Senior Secured Notes due 2023 (the "2023 Notes"). The 2023 Notes was rated as speculation grade, with a Moody's rating of B2 and S&P rating B+. The cost of debt of the 2023 Notes was higher than the average yields of comparable corporate bonds on the issuance date 10 June 2016, which was 5.9% according to the yield curve for U.S. corporate bonds (yellow curve in Figure 2).

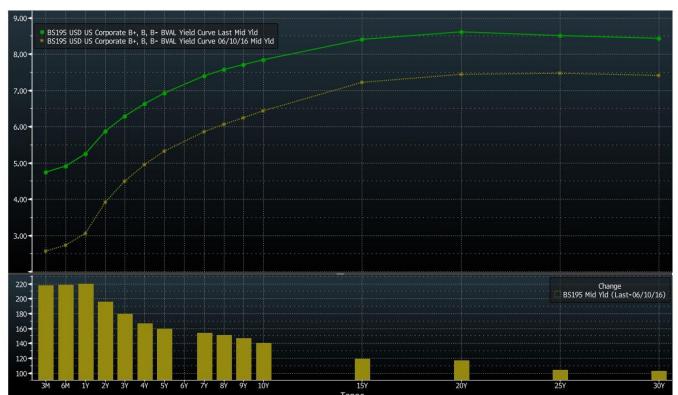


Figure 2 USD U.S. Corporate B+, B, B- BVAL yield curve, Bloomberg

The heavy cost of debt of the 2023 notes caused CVR Nitrogen incur net loss since 2016 (Figure 3). The leveraged acquisition put CVR Nitrogen under financial distress with a deteriorated leverage ratio and interest coverage ratio (Table 1). We don't agree with the management that this is a wise acquisition and we believe the loss-making fertilizer segment has negative effect on the valuation of the whole company.





Figure 3 CVR Partners profitability (USD Million)

CVR Partners, LP (NYSE:UAN)

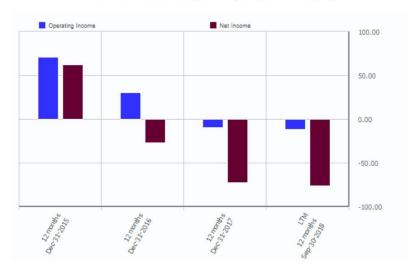


Table 1 CVR Partners leverage

				LTM 12 months
Ratio	2015	2016	2017	Sep-30-2018
LT Debt/Equity	32.4%	99.7%	113.8%	125.3%
EBITDA / Interest	14.5x	1.8x	1.0x	1.0x
Exp.				
Total Debt/EBITDA	1.3x	7.0x	9.7x	10.4x

2-2. Adverse Market outlook and Price Trends

Unlike Coffeyville plant which integrates the raw material supply by using pet coke produced in the crude oil refining plants adjacent to the fertilizer plant as feedstock, East Dubuque plant cannot take the advantage of producing feedstock internally because its feedstock is natural gas, though the management regards the location of East Dubuque as a significant strength. What make things worse is that the prices of fertilizer products have been dropping and the fertilizer market outlook is very stagnant. Figure 4 illustrates the locations of two fertilizer facilities. Figure 5 demonstrates the downward trends of two fertilizers price and Figure 6 shows the flat growth projection of the Nitrogen fertilizer market. In addition, we suspect the company tries to make illusions to readers regarding the market growth projection by grouping year 2020, 2025 and 2030 in a row on X-axis.



Figure 4. Fertilizer Plants Locations²

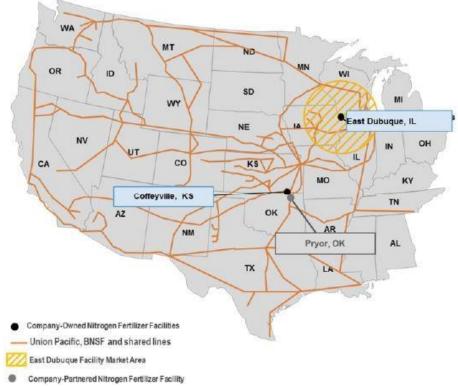
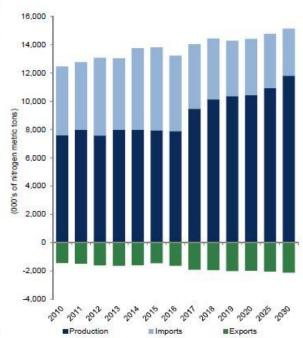


Figure 5. Fertilizer Price Trends³

\$700 40% Stocks to Use \$600 Ammonia Net Back Price UAN Net Back Price \$500 \$400 20% \$300 13% \$200 \$100 11/12 12/13 13/14 14/15 15/16 16/17 17/18 18/19E 19/20E

Figure 6. U.S. Fertilizer Consumption⁴



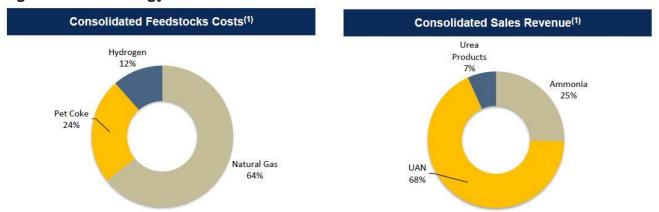
² CVR Energy Inc.'s Investor Presentation November 2018, Page 17, CVR Energy Inc.

³ CVR Energy Inc.'s Investor Presentation November 2018, Page 21, CVR Energy Inc.

⁴ CVR Energy Inc.'s Investor Presentation November 2018, Page 21, CVR Energy Inc.



Figure 7. CVR Energy Inc's Feedstock and Products in Fertilizer Sector⁵



Considering Figure 5, 6 and 7, we conclude the prospective fertilizer market will continuously be unfavorable to the company. Most feedstock for East Dubuque facility is NGL but CVR Energy Inc. does not produce them internally, adding nothing to the company's competitive advantage. UAN (68%) and Ammonia (25%) are produced in both Coffeyville plant and East Dubuque plant but the prices have been and are expected to be weak. The market growth is expected to be stagnated for the next 10 years. In addition, the company spent \$404 million at cost of 9.25% for the acquisition of East Dubuque facility thus has heavy finance cost at least until 2023. Therefore, we conclude the fertilizer business is adverse to stock valuation because we forecast it will keep making loss and undermines the profitability of the company.

3. Impacts On CAPEX

After the cash- consuming acquisition, the company cut in CAPEX about 50%. Figure 8 breaks down the composition of CAPEX. The composition of CAPEX, which was not commonly seen among oil & gas refiners, implies that the company does not plan to add sizable facilities for the upcoming years as it does not have sufficient cash and has to pay interests for the acquisition. Furthermore, their oil complex does not have a high percentage of coking facilities and their capacity of coking facilities is under industry average.

7

⁵ CVR Energy Inc.'s Investor Presentation November 2018, Page 8, CVR Energy Inc.



Figure 8. CVR Energy Inc. Capital Investment Structure⁶

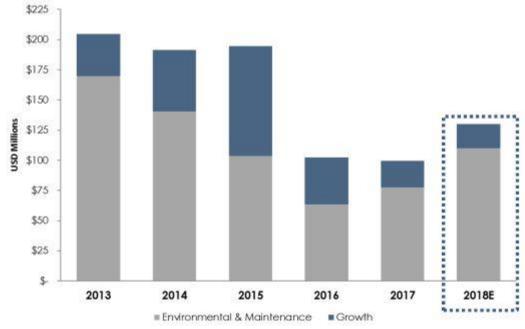


Figure 9. Canadian Oil Imports % of Capacity⁷
Figure 10. Coking % of Total Global Capacity by Refiner⁸



In the refining industry, capital expenditure goes up when oil price become strong in order to satisfy increase in production. However, CVR Energy Inc.'s CAPEX budget tends to be stagnant for the next few years. We believe a flat CAPEX budget will make the company less competitive in the future.

4. Operation Excellence

Having said that, the core segment of the company has been outperforming its major peers. The competency comes from strategic locations and good crude oil supply, mostly light and

⁶ CVR Energy Inc.'s Investor Presentation November 2018, Page 12, CVR Energy Inc.

⁷ J.P.Morgan Phillips 66 Report Oct. 30 2018; Phil Gresh, John M Royall and Nicholas J Lampman, Page 4, J.P. Morgan

⁸ J.P.Morgan Phillips 66 Report Oct. 30 2018; Phil Gresh, John M Royall and Nicholas J Lampman, Page 4, J.P. Morgan



sweet WTI. CVR Energy Inc. is a regional player and major pipelines come across its refineries, giving it logistic advantage. The following picture shows the details.

Control of Perina Midland

Marketing Network

Marketing Network

Marketing Network

Denver

Topels

Nanascity
Wichtas

Permian

Bisin

Midland

Marketing Network

Marketing Network

Marketing Network

Michaeling and Mitropol Ferliker

Viyossewood Referency

Major Canada Crub Ol Pipelines

CVI Crube oil Pipelines

Figure 11. CVR Energy Inc. Refining Supply & Marketing Network9

Also, as the company uses WTI extensively, the total product compositions are optimal to the U.S. market. The following figures show the total throughput and production.

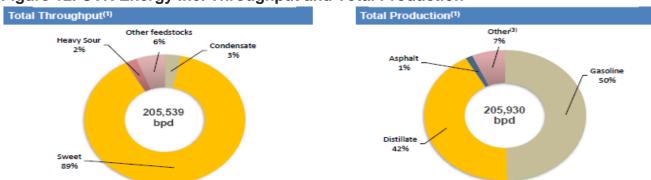


Figure 12. CVR Energy Inc. Throughput and Total Production¹⁰

Figure 12 shows that CVR Energy Inc. utilizes 89% of sweet oil as a feedstock. Though sweet oil lead to higher conversion rate because it is easier to process, CVR Energy Inc.'s high WTI dependence exposes the company to the volatility of WTI-Brent oil price difference. At present

⁹ CVR Energy Inc.'s Investor Presentation November 2018, Page 7, CVR Energy Inc.

¹⁰ CVR Energy Inc.'s Investor Presentation November 2018, Page 8, CVR Energy Inc.



WTI-Brent differential is \$8.8, a history high level. In case the WTI-Brent differential narrows, the profitability will go down. Such convergence of WTI and Brent happened in the past. We think that it is a risk facing the company. Our valuation is based on the positive scenario assuming the current wide WTI-Brent gap exists in the future and came up with a target share price lower than current trading share price. If in the future the WTI-Brent differential closes, the valuation of the company would further go down.

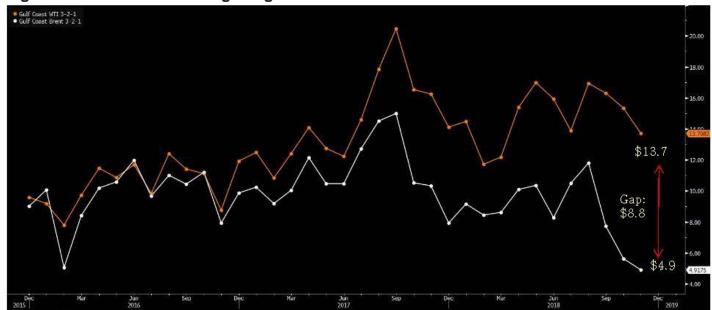


Figure 13. WTI-Brent Refining Margin Differences¹¹

5. Major Competitor Stock Comparison

Considering extensive analysis above, CVR Energy Inc. does not positively stand out compared to its peers. Figure 14 compares a group of companies of different size in the industry. CVR Energy Inc.'s Beta is higher than larger companies. In comparison to their book value, the company is overvalued.

The significant harmful factor for the long-term profitability of the company is high dividend yield of 7.84%, more than the double of other refining companies. Such a high dividend yield comes from its ownership structure. Carl lcahn, a well-known activist, holds 70.82% of the shares. He is well-known for restructuring, divesting the company, and maximizing shareholder's value. His investment philosophy is aligned with the reduction in CAPEX and a high dividend yield, which are positive for the short-term investment return, in the long run, it is not good for the unsustainable growth of the company. Hence, the current ownership structure and major shareholder investment style would be another risk factor in the long term.

-

¹¹ Bloomberg Data



Figure 14. Major competitor stock comparison as of Dec.4 2018¹²

CVR PBF			Valero			
Category	Energy Inc.	Energy	HollyFrontier	Energy	Phillips 66	
Symbol	NYSE:CVI	NYSE:PBF	NYSE:HFC	NYSE:VLO	NYSE:PSX	
Current Price	\$38.25	\$36.39	\$58.85	\$81.30	\$92.09	
Market Cap	\$3,794.02	\$4,637.31	\$10,824.34	\$33,902.21	\$43,124.44	
Beta	1.33	1.46	1.05	1.09	0.95	
Annual Revenue	\$5.99 billion	\$21.79 billion	\$14.25 billion	\$93.98 billion	\$104.62 billion	
Price / Sales	0.64	0.2	0.72	0.37	0.41	
Book Value	\$19.62 per share	\$26.26 per share	\$33.26 per share	\$52.78 per share	\$53.62 per share	
Net Income	\$234.40 million	\$415.51 million	\$805.39 million	\$4.07 billion	\$5.11 billion	
Forward P/E Ratio	8.33	6.98	7.31	8.72	9.71	
Return on Equity (ROE)	11.10%	8.17%	13.94%	11.90%	14.97%	
Return on Assets (ROA)	5.01%	3.02%	7.86%	7.86% 5.39%		
Dividend						
Annual Payout	\$3.00	\$1.20	\$1.32 \$3.20		\$3.20	
Dividend Yield	7.84%	3.30%	2.24%	1% 3.94%		
Employees	959	3165	3522	10015	14600	

11

¹² www.marketbeat.com



6. Company Financials¹³

6-1. Profitability

Consolidated Level (CVR Energy Inc.)

- Consolidated net income attributable to stockholders of \$207 m for the nine months in 2018 increased by 6-fold compared to \$34 m for the same period in 2017, contributed by improved refining margin and gains on derivatives instruments (\$75 m).
- Higher refining margins of \$14.50 compared to \$10.32 in 2017, benefitting from enlarging WTI-Brent differential.
- Net operating cash flows of \$519 m for 9 months in 2018, representing 1.5x increase from 2017.
- However, capital expenditures were not prioritized by the management. Only \$68 m was allocated to capital expenditure (\$80M in 2017) while \$232 m was distributed to shareholders.

Figure 15 Composition of movement in cash and cash equivalent

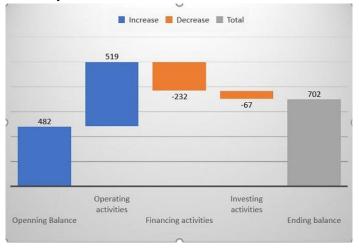


Table 2 Financial ratios of CVR Energy Inc.

Ratio	2015	2016	2017	LTM 12
				months
				Sep-30-
				2018
ROA %	6.8%	1.3%	1.7%	6.5%
ROE %	18.2%	0.5%	12.7%	27.4%

Nitrogen Fertilizer Segment (CVR Partners)

- Nitrogen Fertilizer manufacturing is a minor segment in terms of net sales, contributing only 4.70% of total net sales, but a large segment in terms of total assets, accounting for more than 30% of total consolidated assets.
- In other words, one third of consolidated total assets are performing badly generating ROA of -0.6% and ROE -14.1%. (Table 3)
- Sales kept stagnant for another period.
 Net loss of \$48 m mainly due to large interest expenses of the 2023 notes.
- Nitrogen Fertilizer segment constraints the growth of CVR Energy Inc.: 1-highly leveraged by expensive long-term debts; 2-stagnent sales due to planned and unplanned production outage; 3increasing costs/expenses; 4- large base generating half the assets as refining depreciation expenses segment but only produced negative returns.

¹³ All data from CVR Energy Inc. 10K, 10Q, UAN 2017 Annual report and 2016 Annual report



Figure 16. Net sales by segment

Net sales 9 months in 2018 (USD Million)

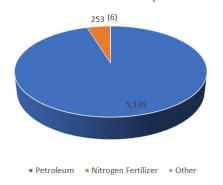


Figure 17. Total assets by segment

Total assets as at 30 Sep 2018 (USD Million)

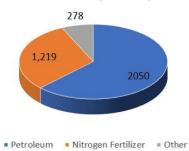


Figure 18. source of operating income



Figure 19. source of income before income tax

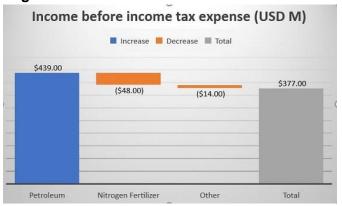


Table 3 Financial ratios of Nitrogen Fertilizer segment

Ratio	2015	2016	2017	LTM 12
				months
				Sep-30-
				2018
ROA %	8.0%	2.0%	(0.5%)	(0.6%)
ROE %	15.5%	(5.3%)	(12.4%)	(14.1%)

6-2. Solvency

 CVR Energy Inc. has medium leverage and displayed improved interest servicing ability.

Table 4 Financial ratios of consolidation level

Ratio	2015	2016	2017	LTM 12		
				months		
				Sep-30-		
				2018		
LT Debt/Equity	33.8%	68.0%	68.3%	62.6%		
EBITDA /	11.0x	3.2x	2.9x	5.9x		
Interest Exp.						
Total	1.3x	4.4x	3.6x	1.8x		
Debt/EBITDA						

 CVR Partners (Nitrogen fertilizer segment) is highly leveraged and has poor interest servicing ability

Table 5 Financial ratios of Nitrogen Fertilizer segment

•		9		
Ratio	2015	2016	2017	LTM 12
				months
				Sep-30-
				2018
LT Debt/Equity	32.4%	99.7%	113.8%	125.3%
EBITDA /	14.5x	1.8x	1.0x	1.0x
Interest Exp.				
Total	1.3x	7.0x	9.7x	10.4x
Debt/EBITDA				



7. Company Valuation

We have performed DCF valuation analysis to the Company's free cash flow and arrived at a target share price of \$30.91. Compared with closing price as at 3 Dec 2018 of \$38.25, we believe the stock of CVR Energy Inc. is overvalued by 24%.

Valuation assumptions

CVR Energy Inc. has two main segments: refining and Nitrogen fertilizer manufacturing. Each segment demonstrated different revenue patterns and growth outlook. Therefore, we established our valuation model by segment.

Refining segment refines crude oil and other feedstocks into petroleum products. The prices of the petroleum products track crude oil price closely. We use the crude oil growth as a proxy for the revenue growth rate. From 2019 towards 2023, according to World Bank forecast, crude oil price is expected to grow within the band of 6.77% to 6.88%. We chose the Word Bank forecast because its past forecast proved to be most accurate.

Nitrogen fertilizer manufacturing segment The principal product of the nitrogen fertilizer segment is nitrogen fertilizers, UAN and Ammonia sold on a wholesale basis in North America. In recent years, the sales of Nitrogen fertilizer were stagnant due to planned and unplanned production outage. According to IBIS World database, the US fertilizer industry is mature and expected to grow at a minimum rate ranging from 0.1% to 0.6%. We have adopted IBIS world database's expectation as the growth rate for Nitrogen Fertilizer segment.

CAPEX CVR Energy Inc. does not prioritize CAPEX in allocating cash flows. Since 2016, the CAPEX remained only half of the CAPEX level in 2015. Also, a large proportion of CAPEX is expected to be spent on environmental & maintenance. We regard the composition of CAPEX reflects the management's attitude of not pursuing future growth but to maintain the production status quo. Therefore, we assume the future CAPEX would remain on a stable percentage to total sales.

Perpetual growth rate is estimated at 1%, below the long-term US GDP growth rate forecast of 1.7% by Congress of the United States Congressional Budget Office. CVR Energy Inc. is operating in a mature industry so we expect its long-term growth should be lower than GDP growth. Perpetual growth rate and WACC are crucial parameters of the valuation model. Please refer to Appendix 1 for sensitivity analysis.





Figure 20 Company Valuation

		rigaro			Varaati					
Income Statement (mm, USD)		Historical	Period				Dr	ojection Period		
	2015	2016	2017	LTM 9/30/2018	Pro forma 2018	Year 1 2019	Year 2 2020	Year 3 2021	Year 4 2022	Year 5 2023
Sales	5,433	4,782	5,988	6,979	6,979	7,430	7,913	8,437	8,992	9,58
Refining	5,162	4,431	5,664	6,655	6,655	7,106	7,587	8,109	8,662	9,25
Ni Fertilizer and others	271	351	324	324	324	325	326	328	330	33
% growth	NA	-12.0%	25.2%	NA	16.5%	6.46%	6.50%	6.62%	6.58%	6.60
Cost of Goods Sold	4,775	4,389	5,482	6,242	6,242	6,654	7,094	7,572	8,077	8,61
Refining	4,622	4,153	5,249	6,004	6,004	6,410	6,844	7,315	7,814	8,34
Ni Fertilizer and others	153	237	234	239	239	244	250	257	263	26
Gross Profit	657	393	506	737	737	776	819	866	915	96
% margin	12.1%	8.2%	8.4%	10.6%	10.6%	10.4%	10.4%	10.3%	10.2%	10.1
Selling, General & Administrative	99	109	114	115	115	125	136	148	161	17
% sales	1.8%	2.3%	1.9%	1.7%	1.7%	1.7%	1.7%	1.8%	1.8%	1.8
Adjustments						-	-		-	-
EBITDA	558	284	392	622	622	651	683	718	754	79
% margin	10.3%	5.9%	6.5%	8.9%	8.9%	8.8%	8.6%	8.5%	8.4%	8.3
Depreciation and Amortization	164	193	214	214	214	228	243	259	276	29
Refining	130	129	133	135	135					
Ni Fertilizer and others	34	64	81	79	79	84	89	95	102	10
EBIT	394	91	178	408	408	340	351	364	377	39
% margin	7.3%	1.9%	3.0%		5.8%	4.6%	4.4%	4.3%	4.2%	4.19
Income Tax Expense NOPLAT	85 310	(20) 111	(217) 395	86 322	86 322	71 268	74 277	76 287	79 298	8 30
% margin	5.7%	2.3%	6.6%	4.6%	4.6%	3.6%	3.5%	3.4%	3.3%	3.2
Depreciation and Amortization	164 40	193 55	214 13	214	214	228 5	243 6	259 6	276 7	29
Changes in working capital Capex	40 219	133	13 119	153	153	163	o 173	185	7 197	21
Refining	195	102	100	130	130	138	147	157	167	17
Ni Fertilizer and others	195 24	30	19	23	23	24	26	28	30	3
Free Cash Flow	215	116	477	383	383	328	341	355	370	38
Terminal Value	213	110	4//	303	303	320	341	333	370	4,50
Discount Factor						0.91	0.83	0.76	0.69	0.6
PV FCF						299	284	270	257	3,10
NPV FCF				i	4,210	200	201	270	207	0, 10
WACC 9.55%				ļ	7,210					
Perpetual Growth Rate 1.0%										
Debt Benefits										
Debt Balance					-	1,166	1,166	1,188	688	4
Interest on Debt					-	92	92	94	54	
Tax Shield					-	19	19	20	11	
Terminal Value						40	10	45	0	
PV of tax shield NPV of tax shield					63	18	16	15	8	
Enterprise Value					4,272					
minus: Outstanding Debt					1,166					
Equity Value					3,106					
Outstanding shares (mm)					100.5					
Target Share price					30.91					
Current share price					38.25					
•										





Figure 21. CVR Energy Inc. Discount factor

		1
Risk Free rate	2.72%	Source: U.S. Department of Treasury
Risk Premium	6.05%	Source: Bloomberg
beta	1.3	Source: Bloomberg
Cost of equity	10.58%	
Cost of debt	7.92%	Source: CVR Energy Inc. 10K
D/D+E	38%	Source: CVR Energy Inc. 10Q
E/D+E	62%	Source: CVR Energy Inc. 10Q
Cost of Capital	9.55%	

- CAPM is used to determine the cost of equity
- US 1 Year treasury yield as at 3 Dec 2018 is taken as the risk-free rate¹⁴
- The cost of debt is calculated as the weighted average interest rate of bond/notes issued by CVR Energy Inc. Please refer to Appendix 2 for details.

16

 $^{^{14}\} https://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yield$



Appendix 1. Sensitivity Analysis

Sensitivity Analysis									
	WACC								
		8.55%	9.05%	9.55%	10.05%	10.55%			
	2.0%	41.71	37.95	34.68	31.81	29.28			
	1.5%	38.96	35.61	32.68	30.09	27.78			
PGR	1.0%	36.57	33.56	30.91	28.55	26.44			
	0.5%	34.47	31.75	29.34	27.17	25.23			
	0.25%	33.52	30.93	28.61	26.54	24.66			

Appendix 2 Weighted Average Cost of Debt

Debt Balance, Net of Current Maturities and Unamortized Issuan	ce Costs						
					Cost	of Weight	Weighted
					del	ot	Average Cost
(In millions)	Septembe	er 30, 2018	Dec	cember 31, 2017			of Debt
6.50% Senior Notes due 2022 (a)		\$500.00		\$500.00	6.50	6 42.88%	2.79%
9.25% Senior Secured Notes due 2023 (b)		645		645	9.259	6 55.32%	5.12%
6.50% Senior Notes due 2021		2		2	6.50	6 0.17%	0.01%
Capital lease obligations		43		45			
Total long-term debt, before debt issuance costs, discount and current							
portion of capital lease obligations		1,190		1,192			
Less:							
Unamortized debt issuance cost and debt discount		(\$22.00)		(\$26.00)			
Current portion of capital lease obligations		(\$2.00)		(\$2.00)			
Long-term debt, net of current portion		\$1,166.00		\$1,164.00			7.92%



8. Reference

- 1. CVR Energy Inc. SEC filing, 10K, 10Q, 8K
- 2. CVR Energy Inc. Investor Presentation November 2018
- 3. Marketbeat.com
- 4. J.P.Morgan Phillips 66 Report Oct. 30 2018; Phil Gresh, John M Royall and Nicholas J Lampman
- 5. The U.S. Energy Information Administration
- 6. IBIS World Database- Fertilizer industry in the U.S.
- 7. An Update to the Economic Outlook: 2018 to 2028, Congress of the United States Congressional Budget Office
- 8. Bloomberg



Important Disclaimer

Please read this document before reading this report.

This report has been written by MBA students at Yale's School of Management in partial fulfillment of their course requirements. *The report is a student and not a professional* report. It is intended solely to serve as an example of student work at Yale's School of Management. It is not intended as investment advice. It is based on publicly available information and may not be complete analyses of all relevant data.

If you use this report for any purpose, you do so at your own risk. YALE UNIVERSITY, YALE SCHOOL OF MANAGEMENT, AND YALE UNIVERSITY'S OFFICERS, FELLOWS, FACULTY, STAFF, AND STUDENTS MAKE NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, ABOUT THE ACCURACY OR SUITABILITY FOR ANY USE OF THESE REPORTS, AND EXPRESSLY DISCLAIM RESPONSIBILITY FOR ANY LOSS OR DAMAGE, DIRECT OR INDIRECT, CAUSED BY USE OF OR RELIANCE ON THESE REPORTS.