

Diversified Machinery

Recommendation	HOLD
Target (today's value)	\$83
Current Price	\$139.98
52 week range	\$79.88 - \$147.10

Cummins

Share Data	
Ticker:	CMI
Market Cap. (Billion):	\$23,523
Inside Ownership	2.7%
Inst. Ownership	84.2%
Beta	1.2
Dividend Yield	3.00%
Payout Ratio	57.0%
Cons. Long-Term Growth Rate	1.7%

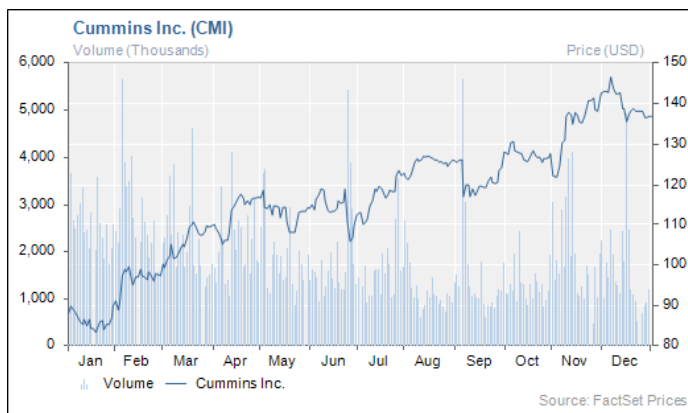
	'14	'15	'16E	'17E	'18E
Sales (billions)					
Year	\$19.2	\$19.1	\$17.4	\$17.1	\$17.9
Gr %		-0.6%	-8.9%	-1.6%	4.2%
Cons	-	-	\$17.3	\$17.0	\$17.8
EPS					
Year	\$9.04	\$7.86	\$6.39	\$6.53	\$7.11
Gr %		-13.1%	-18.6%	2.2%	8.8%
Cons	-	-	\$8.09	\$7.92	\$9.17

Ratio	'14	'15	'16E	'17E	'18E
ROE (%)	21.6%	18.5%	18.5%	19.1%	18%
Industry	20.6%	18.7%	18.7%	17.3%	16.2%
NPM (%)	8.6%	7.3%	7.3%	7.8%	7.7%
Industry	5.6%	5.1%	5.1%	4.4%	5.5%
A. T/O	1.26	1.24	1.24	1.15	1.11
ROA (%)	10.8%	9.1%	9.1%	8.9%	8.5%
Industry	4.9%	4.5%	4.5%	4.2%	5.0%

Valuation	'15	'16E	'17E	'18E
P/E	10.2	19.5	16.9	17.4
Industry	11.6	27.3	19.0	40.1
P/S	0.87	1.32	1.33	1.36
P/B	2.2	3.5	3.2	3.1
P/CF	8.4	10.8	13.0	11.9
EV/EBITDA	13.1	7.6	12.1	12.8

Performance	Stock	Industry
1 Month	-3.6%	8.7%
3 Month	6.6%	23.8%
YTD	55.3%	14.9%
52-week	53.3%	14.8%
3-year	-2.3%	12.3%

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Summary: I recommend a hold rating with a target of \$83. Although CMI has an opportunity to improve efficiency and increase margins, declining demand and high restructuring costs are problematic. This uncertainty seriously offsets my optimism that CMI can improve in upcoming years. The stock is fairly valued based on relative and DCF analysis.

Key Drivers:

- **International:** CMI non-U.S. sales have declined. The increase in U.S. percent of sales lowers currency and geopolitical risks, helping to maintain consistent net income results.
- **Construction Markets:** Over 50% of CMI's Engine segment sales come from global construction markets. Lower demand has caused the firm to restructure and cut cost to improve profit margin and maintain EPS.
- **Oil and Gas Markets:** 71% of CMI's Engine and Component segment sales are to oil and gas customers. Which have been suffering from depressed prices.
- **Company Restructuring:** CMI spent \$90 million on restructuring costs in 2015. Restructuring actions are expected to provide a net benefit of \$160 million; so far CMI has seen no returns.

Valuation: Using a relative valuation approach, Cummins appears to be over-valued in comparison to competitors and the industrial production segment. Due to an ability to fine tune long-term forecasts, DCF analysis provides the best way to value the stock. A combination of the approaches suggests that Cummins is fairly overvalued, as the stock's value is about \$83 and the shares trade at \$139.98.

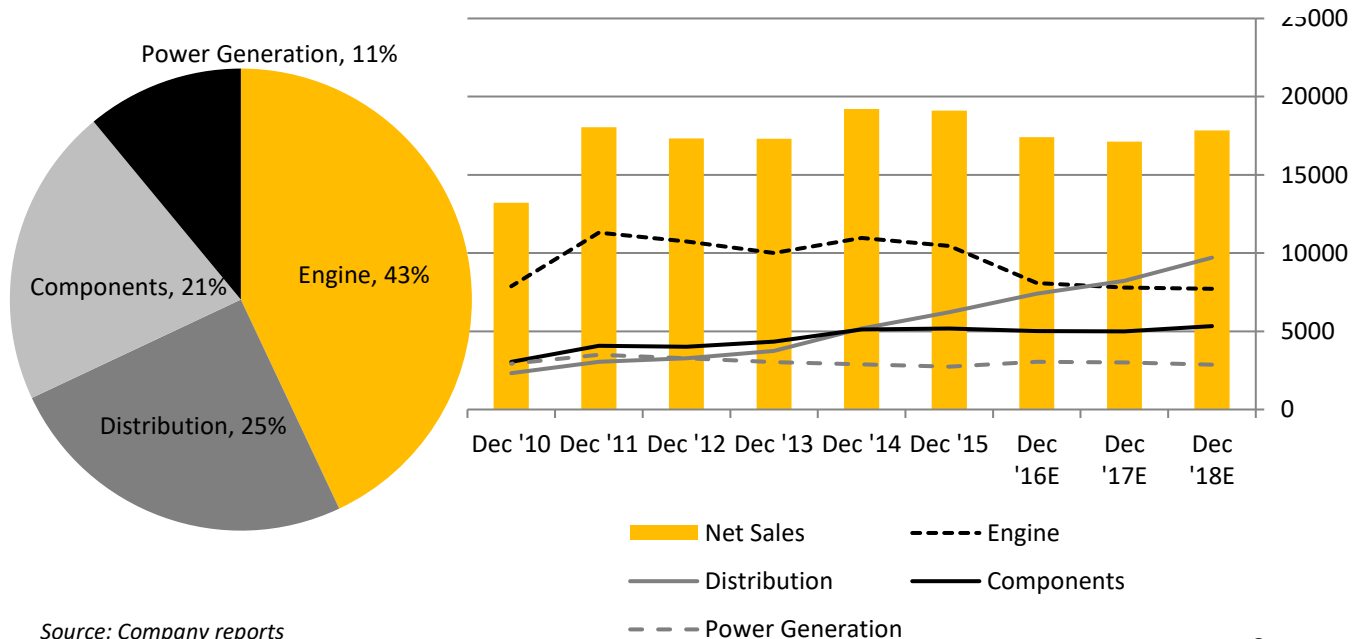
Risks: Threats to the business include low market demand, restructuring implications, low demand in the North American truck industry, and a decrease in research and development.

Company Overview

Cummins Inc. (CMI) functions as a diesel engine manufacturing company. It provides designing, manufacturing, distributing, and servicing of diesel and natural gas engines as well as engine related technologies including fuel systems, controls, air handling, filtration, emission solutions, and electrical power generation systems. CMI serves customers consisting of original equipment manufacturers and distributors worldwide through both company owned and independent distributor locations. The company organizes into four segments:

- **Engine:** manufactures a line up of diesel and natural gas-powered engines for on and off highway use marked under both the Cummins brand name and pertinent customer brand names. CMI engines power heavy- and medium-duty truck, bus, recreational vehicle, light-duty automotive, agricultural, construction, mining, marine, oil and gas, rail, and governmental equipment. The Engine Segment accounted for 43% of the company's net sales in 2015 and shrunk in sales by 4.9% from 2014 to 2015.
- **Distribution:** consists of 17 company-owned distributor and 10 joint ventures throughout 90 countries and territories in 233 locations where personnel sell and distribute Cummins-branded products, related services, and broader solutions including maintenance contracts, engineering services, and customized products. The Distribution Segment accounted for 25% of the company's net sales in 2015 and increased in sales 27.5% and 16.9% from 2013 to 2014 and 2014 to 2015, respectively.
- **Components:** consists of four business segments that supply products that complement its Engine Segment: Filtration, Turbo Technologies, Emission Solutions, and Fuel Systems. The Components Segment accounted for 21% of the company's net sales in 2015 and grew 1% in sales from 2014 to 2015.
- **Power Generation:** consists of Commercial Products and Projects, Consumer and Power Electronics and Generator Technologies. This segment participates and has leadership in a wide variety of markets including mining, marine, oil & gas, rail, defense, commercial & industrial, data centers, telecom, healthcare, and individual consumers. The Power Generation Segment accounted for 11% of the company's net sales in 2015 and shrunk in sales by 0.6% from 2014 to 2015.

Figures 1 and 2: Revenue Sources for CMI, year-end 2015 (left) and Revenue history since 2010



Source: Company reports

Business/Industry Drivers

Though multiple factors may contribute to Cummins future earnings, the following are the most important business drivers:

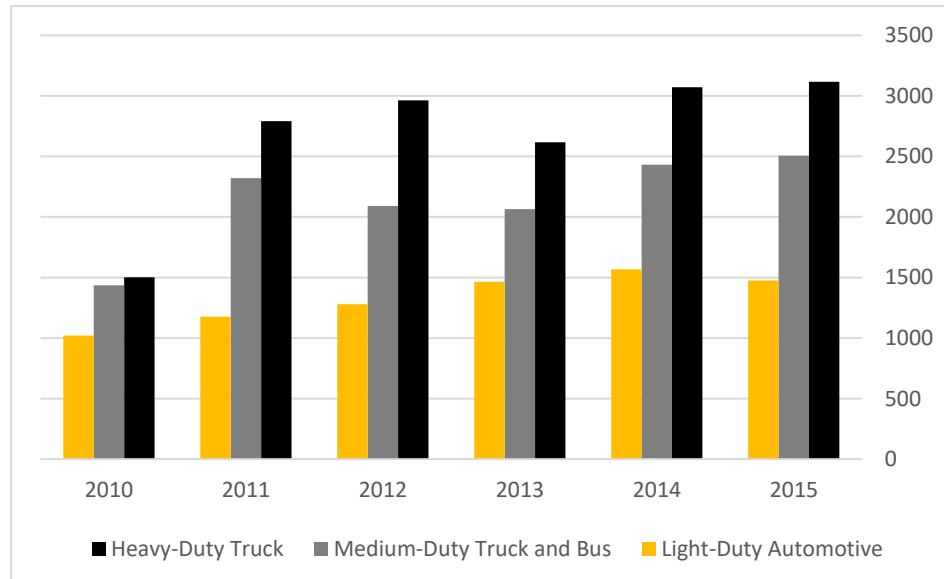
- 1) Construction
- 2) International
- 3) Oil and Gas Markets
- 4) PACCAR Sales
- 5) Company Restructuring
- 6) Research and Development

Construction

Heavy- and medium-duty truck and bus sales accounted for 54% of CMI's total Engine Segment sales in 2015. These sales are affected by several factors. Recently, lower global demand in construction markets has contributed to a decrease in industrial engine sales in North American and International markets. The company also experienced low growth of heavy-duty truck and medium-duty truck and bus sales since 2011. This contrasts to better growth in light-duty automotive sales over the past five years, which is consistent with the improvement in auto sales.

CMI has experienced slow growth in Engine Segment Sales.

Figure 3: Engine Segment Sales by Market

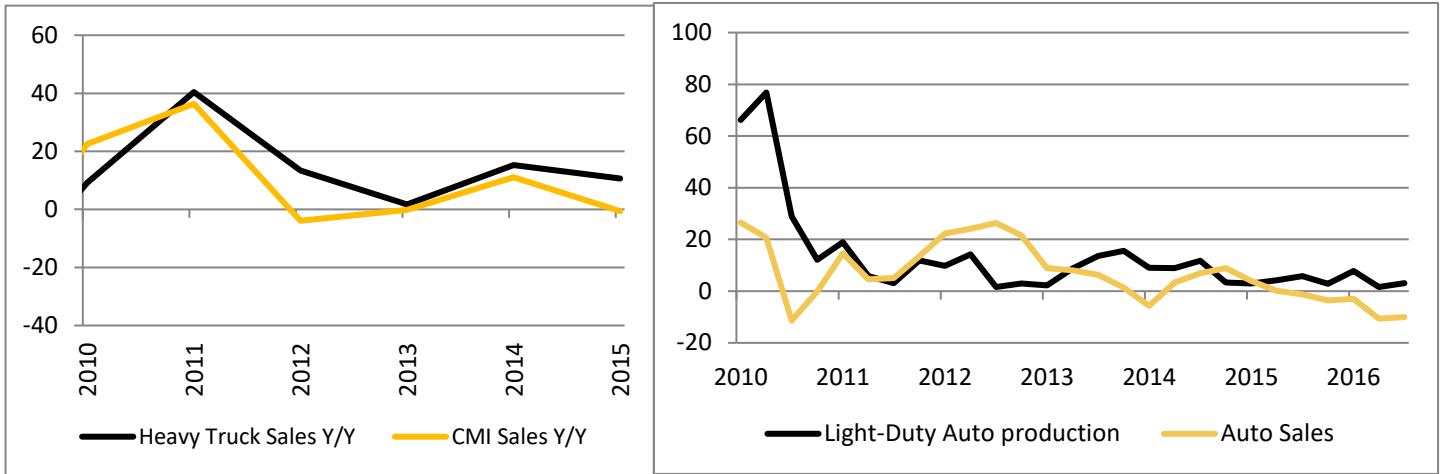


Source: Company Reports

Engine shipments fell 27% in North America, Europe, and China.

Heavy- and medium-duty trucks are used primarily for construction. CMI's 2015 engine shipments fell 27% in North America, Europe, and China. The company's success is largely dependent on its ability to restructure in correspondence to the decrease in demand.

Figures 4 and 5: % change in Sales, CMI vs. United States Heavy Truck (Left) and Light-Duty Auto Production vs. Auto Sales



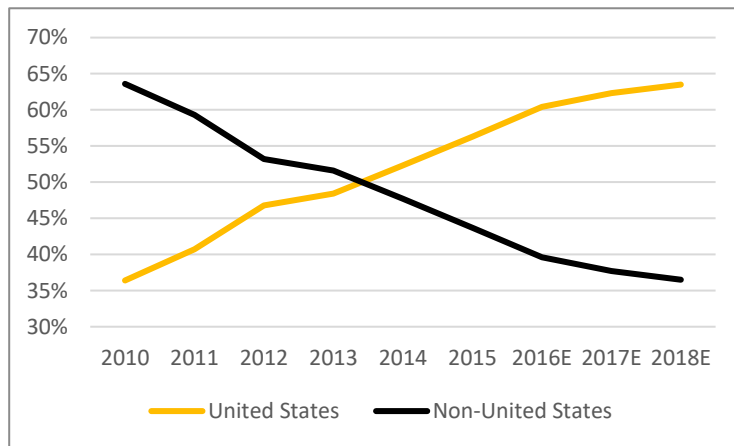
Source: FactSet

International

United States percentage of Sales continues to increase as international declines

CMI’s U.S. versus non-U.S. percentage of sales has shifted. In 2010, 64% of sales were obtained outside of the U.S., by 2015, non-U.S. sales accounted for 44%. While this may limit opportunity, it also lowers currency and geopolitical risks; over the past three years, the U.S. dollar has risen and emerging markets have been weak. In 2015, international revenues declined by 11 percent due to low sale in Brazil and Europe caused by declines in on-highway market demand, construction, and commercial marine market.

Figure 6: % of CMI Sales, United States vs. Non-United States



Source: Company Reports

The large shift in sales relates to the closure of a German plant as well as weak international market demand and the impact of a stronger U.S. dollar on foreign currency fluctuations of 4%. Currency impacts were present with the Euro, Brazilian real, Australian dollar, Canadian dollar, British pound and Indian rupee.

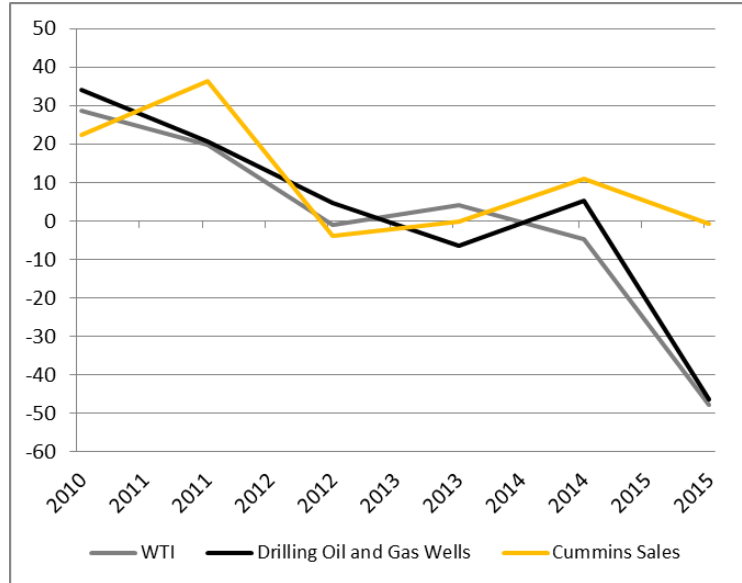
An increase in U.S. sales, of 7% in 2015 was driven by greater demand in North American on-highway markets and consolidation of North American distributors. Distribution segment sales increased \$1.5 billion since 2013 to \$5.2 billion. It is expected to rise 11-19% in 2016-18.

Demand for oil and gas markets is weak due to low crude oil prices.

Oil and Gas Markets

Oil and gas customers contribute to CMI's Engine and Components Segments (71% of revenues). They purchase CMI's range of diesel and natural gas powered engines and over 8,300 filtration products.

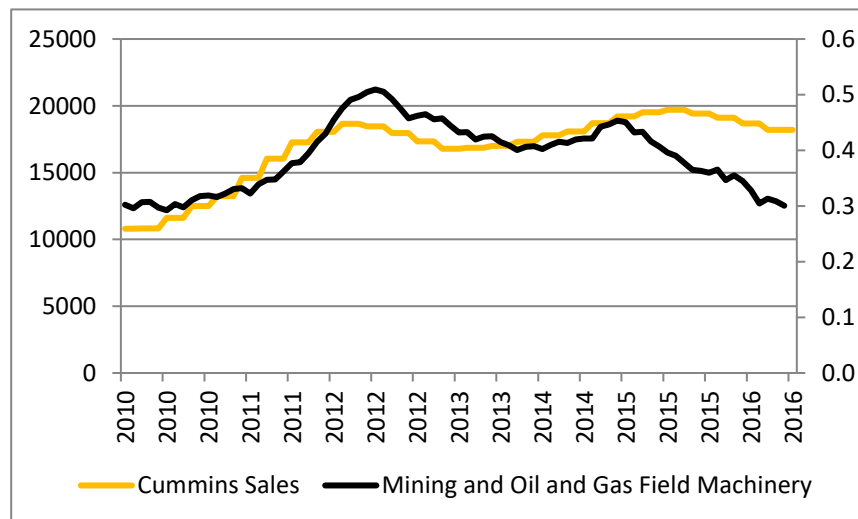
Figure 7: CMI Sales vs. WTI vs. Drilling Oil and Gas Wells



Source: FactSet

Demand for oil and gas markets is weak as a result of low crude oil prices. Prices remain low after rebounding from trough levels. The charts below show that CMI's sales are highly dependent in the oil market and industrial production.

Figure 8: CMI Sales vs. Mining and Oil and Gas Field Machinery



Source: FactSet

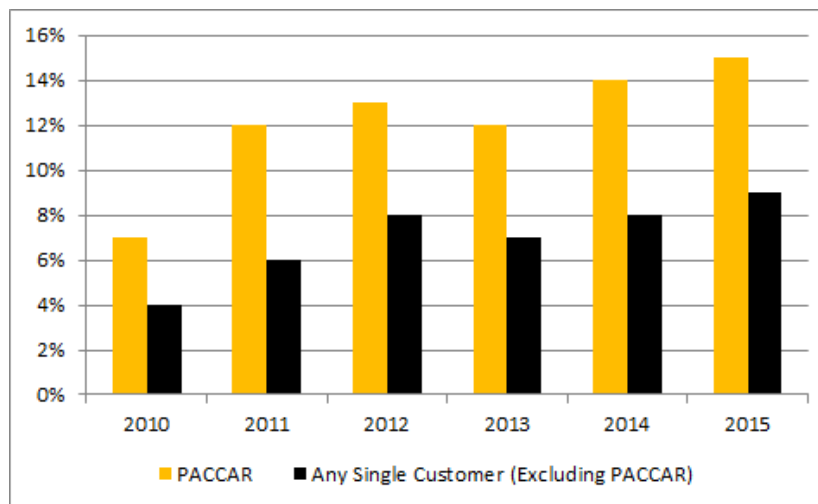
PACCAR Sales

In 2015, PACCAR accounted for 15% of CMI's sales.

PACCAR has been Cummins largest customer for over five years, growing from over 10% of CMI's sales in 2011 to 15% in 2015. PACCAR designs and manufactures light-, medium- and heavy-duty trucks powered by an assortment of CMI's engines. The firm also takes part in its own designing and manufacturing of diesel engines and truck components. PACCAR distributes products globally in more than 100 companies from almost 2,000 locations. The firm is currently focused on expanding into Asia; half of its revenues and profits are generated from outside the U.S.

Cummins maintains long-term supply agreements with PACCAR for one mid-range and two heavy-duty engines. These agreements supply PACCAR with specific engines for particular vehicle models. The success of CMI's operations and financial position relies largely on both maintaining this key customer and based on PACCAR's success.

Figure 9: % of CMI Sales, PACCAR vs. any single customer (excluding PACCAR)

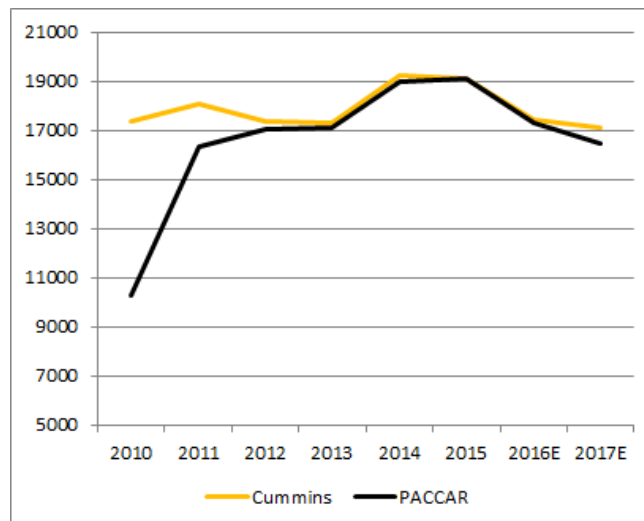


Source: PACCAR Company Reports

PACCAR saw revenues decline 670 million in its trade and parts division in 2016 vs. 2015.

PACCAR's 2016 net sales and revenues for its trucks and parts amounted to \$15.8 billion, compared to \$17.9 billion in 2015. The decrease resulted from lower demand in truck markets. The firm saw a decrease in truck sales of \$2.0 billion, compared to \$55 million drop in parts, from 2015 to 2016.

Figure 10: Total Revenue, CMI vs. PACCAR



Source: FactSet

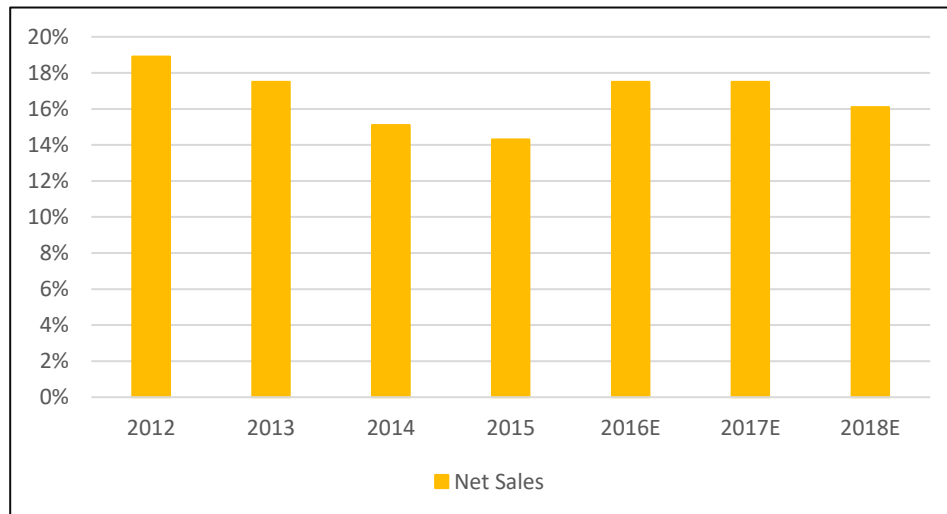
Company Restructuring

CMI recognized 90 million in restructuring and other charges in 2015.

Cummins announced and began the execution of restructuring in the fourth quarter of 2015 as a reaction to declining demand during the second half of 2015. The company plans to release 1,900 employees, 3.5% of the total 55,000 worldwide. The firm expects to benefit expected realized savings of \$160 million, 40% under realized cost of sales, 40% in selling, general and administrative expenses, and 20% in research, development and engineering expenses. \$160 million in savings equals 0.9% of predicted 2017 sales causing a 0.5 increase in EPS. CMI has decreased its workforce by 1,700 as of December 31, 2015 and completed the majority of the remaining 200 in April 2016. Although sales declined in 2015, a focus on cost has led to a higher gross margin.

Currently, the company has not realized any net expense reduction from their restructuring measures. Although, I do expect EBIT margins to rise from 8.3% in 2015 (8.6% in 2014) to 9.0% in 2018. They have accounted for \$90 million in restructuring actions and other charges, \$26 million in the Engine Segment, \$23 million in the Distribution Segment, \$13 million in their Components Segment, \$19 million in the Power Generations Segment, and \$9 million under Non-segmented. The Power Generation Segment accounted for 21% of Cummins total restructuring costs but makes up only 11% of CMI's net sales and 7% of its earnings before income and tax. The division's large portion of restructuring costs was mainly due to the closure of a plant in Germany. In total, the Power Generation Segment's headcount reduced by 250 employees. Most of the termination costs were paid in 2015. This segment has been continually declining as a percent of sales so this exit is just continuing the current trend.

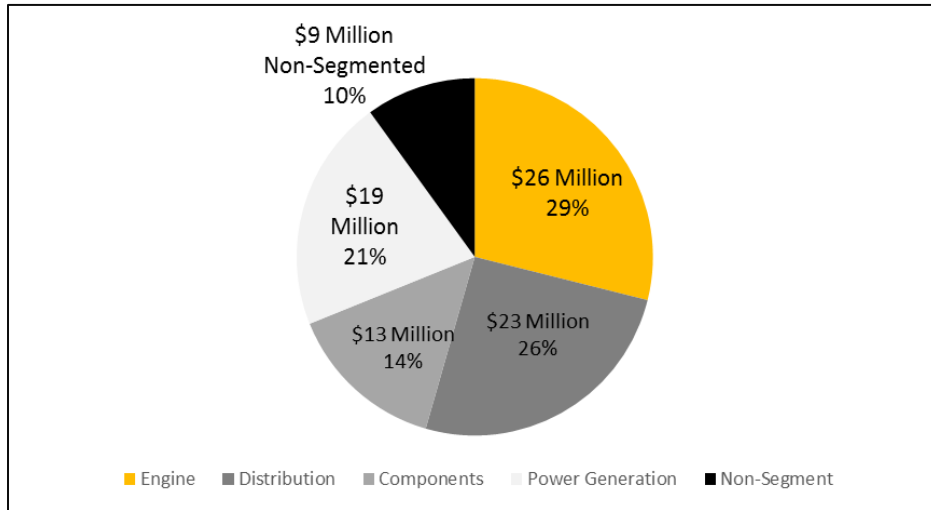
Figure 11: Power Generation Segment % of Net Sales compared to EBIT



Source: Company Reports

The restructuring could present difficulties as management continues to adjust to market demand. CMI could also accrue unexpected costs and experience delays with restructuring benefits which would negatively affect predicted savings. Restructuring may result in negative publicity and a loss of investor trust as well as missed opportunities in emerging markets.

Figure 12: Comparison of Restructuring Actions and Other Charges by Segment



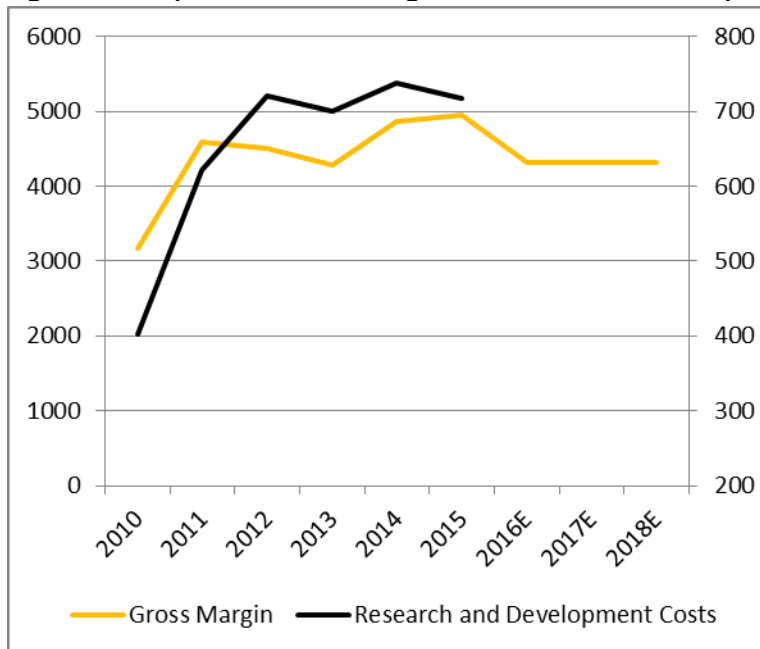
Source: Company Reports

Research and Development

CMI decreased research and development cost by \$19 million from 2015 to 2016.

Research and development focuses on product improvements, innovations, and maintaining environmental standards. This greatly improves the value and longevity of products as standards continually change. Cummins dedicated \$718 million to research, development, and engineering expenses in 2015, down from the \$737 million they expensed in 2014. CMI will continue to invest in future critical technologies and products as well as its ability to maintain future emission requirements. The restructuring of the Power Generation Segment accounted for \$4 million of the \$19 million decrease and pertains to the 1,900 workman decrease in workman for CMI. The firm’s research and development budget has typically coincided with profits, which implies that the firm is not necessarily forward looking and research and development is considered discretionary in nature. Although, research and development is nearly equivalent to net profit margin so it is an important item and the \$19 cut is small.

Figure 13: Comparison of Gross Margin and Research and Development Costs



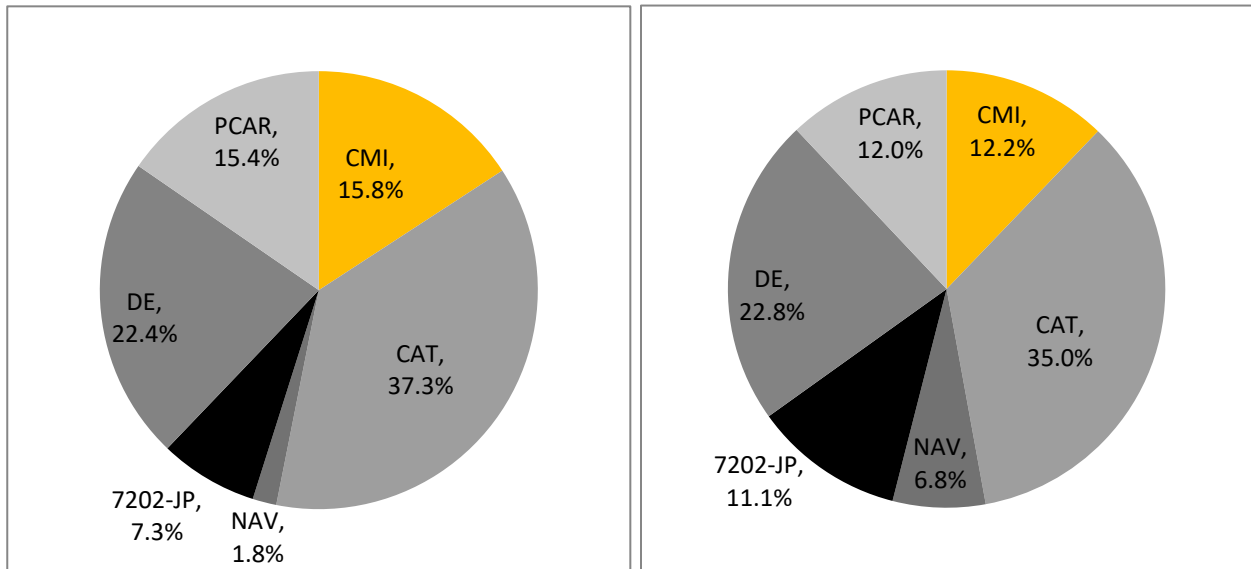
Source: Company Reports

Competitor Analysis

Industrial production is a highly specialized industry. There are many barriers to entry, requiring a large amount of capital, advanced and improving technology, and many environmental standards to meet. It is important that these firms maintain a strong brand name, invest in research and development, and maintain all environmental and industrial standards. Companies can gain a sustained competitive advantage by producing technologically advanced products and building brand name and loyalty. Consumers are loyal to their brands, but can often double as a competitor to a firm. It is important for companies to produce high quality components at reasonable prices or their customers may decide to manufacture their own components.

CMI's main competitors are Caterpillar Inc. (CAT), Deere & Company (DE), PACCAR Inc. (PCAR), Isuzu Motors (7202-JP), and Navistar International Corporation (NAV). These competitors, along with others, consist of independent engine manufacturers and OEMs which produce their own engines and components for their products. Comparing CMI's percentage of total market capitalization against percentage of sales, the firm maintains the largest difference at 3.4%, which reflects its above average net profit margin (figure 26).

Figures 14 & 15: Comparison of CMI comps by market cap (left) and sales



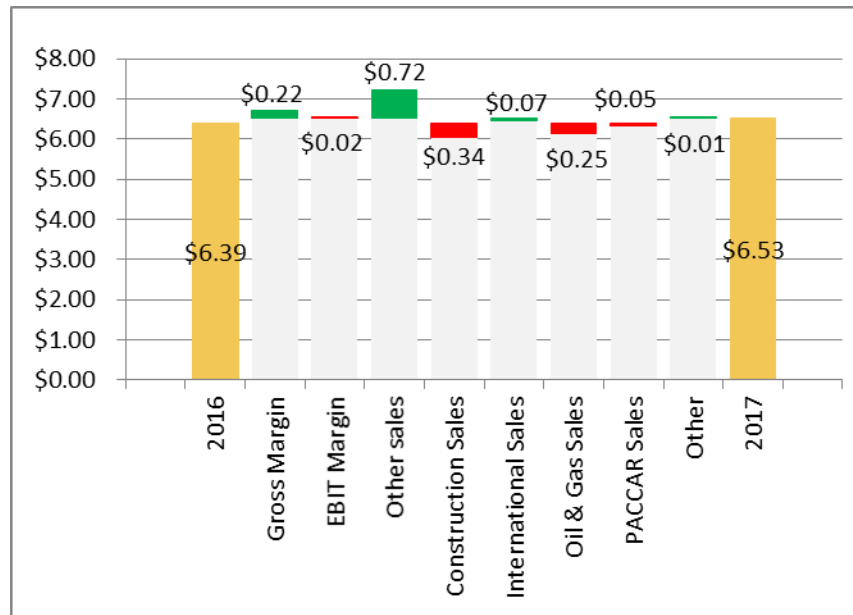
Source: Company Reports

Financial Analysis

I anticipate EPS to grow to \$6.53 in FY2017. Overall, declining sales took away \$0.08 from EPS. Declining revenues in the Engine and Components segments due to weak demand in construction and oil and gas markets will decrease EPS by \$0.34 and \$0.25, respectively. A decrease in PACCAR sales should reduce EPS by \$0.05. This is almost offset by other sales (\$0.72) which are rising due to greater demand in North American markets and consolidation. Restructuring efforts are boosting margins and adding \$0.20 net (\$0.22 through gross margin and higher SG&A/sales costing \$0.02). Other impacts on EPS net to \$0.01. This includes changes in the tax rate, other income, interest expense, and share buybacks. Buybacks added 0.28 to EPS.

\$6.53 anticipated EPS growth

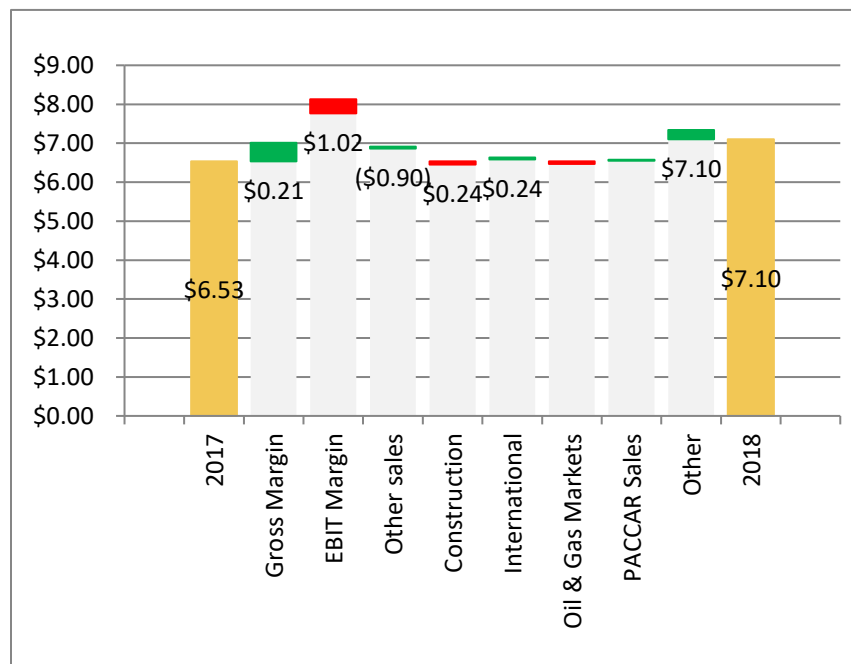
Figure 16: CMI Drivers effect on EPS, 2016 to 2017



Source: Company Reports, individual computations

I expect 2018 EPS to increase \$0.58 to \$7.11. Overall, declining sales took away \$0.07 from EPS. Declining revenues in the Engine and Components segments due to weak demand in construction and oil and gas markets will decrease EPS by \$0.08 and \$0.06, respectively. A upturn in PACCAR sales should increase EPS by \$0.05. This is offset by other sales (\$0.05) which are rising due to greater demand in North American markets and consolidation. Restructuring efforts taper in boosting margins, adding \$0.12 net (\$0.48 through gross margin and higher SG&A/sales costing \$0.36). Other impacts on EPS net to \$0.24. This includes changes in the tax rate, other income, interest expense, and share buybacks.

Figure 17: CMI Drivers effect on EPS 2017 to 2018



Source: Company Reports, individual computations

I am less optimistic than the consensus estimates for 2017, I predict lower EPS driven primarily by CMI's restructuring attempts; I predict the firm will see delayed results and not as much improvement as consensus.

Figure 18: EPS and YoY growth estimates

	FY 2017E	FY 2018E
Revenue - Estimate	\$17,129	\$17,847
YoY Growth	-2%	4%
EPS - Estimate	6.53	7.11
YoY Growth	-24%	8%
EPS - Consensus	7.89	8.96
YoY Growth	-3%	12%

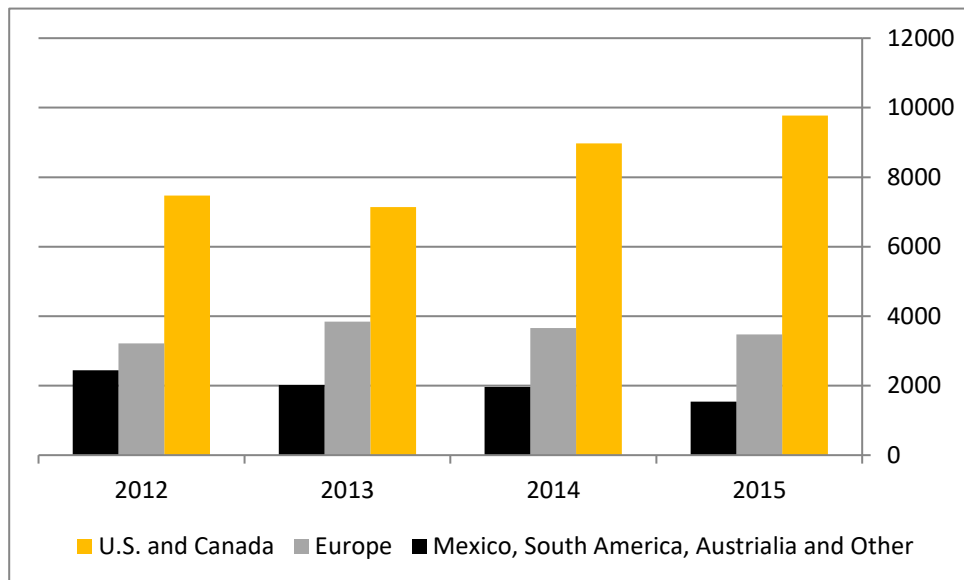
Source: Factset, IMCP

Revenues

CMI revenue has declined after a recent peak in 2014. I expect the trend to continue in 2016 and 2017 before rising modestly in 2018. This is driven by lower demand in construction, oil and gas, and international markets, decreasing Engine, Distribution, and Power Generation segment sales. The decline in revenue will be offset by restructuring efforts, mainly benefiting Power Generation through cost decrease and higher focused sales. Research and development cost cutting will produce an initial benefit to net income in 2016 and 2017; however, the company will see a decrease in sales growth in years beyond 2018 due to poor investment in future technologies.

Weak international demand and foreign currency fluctuation prompted CMI's restructuring efforts and could result in missed opportunities; however, PACCAR, CMI's largest customer, has seen an increase in U.S. and Canada Truck sales over the past four years, which made up 77% of its total revenues in 2014 and 2015. PACCAR's heavy focus on its truck segment may offset CMI's missed foreign opportunities and lower research and development related opportunities.

Figure 19: PACCAR Truck sales by geographical region

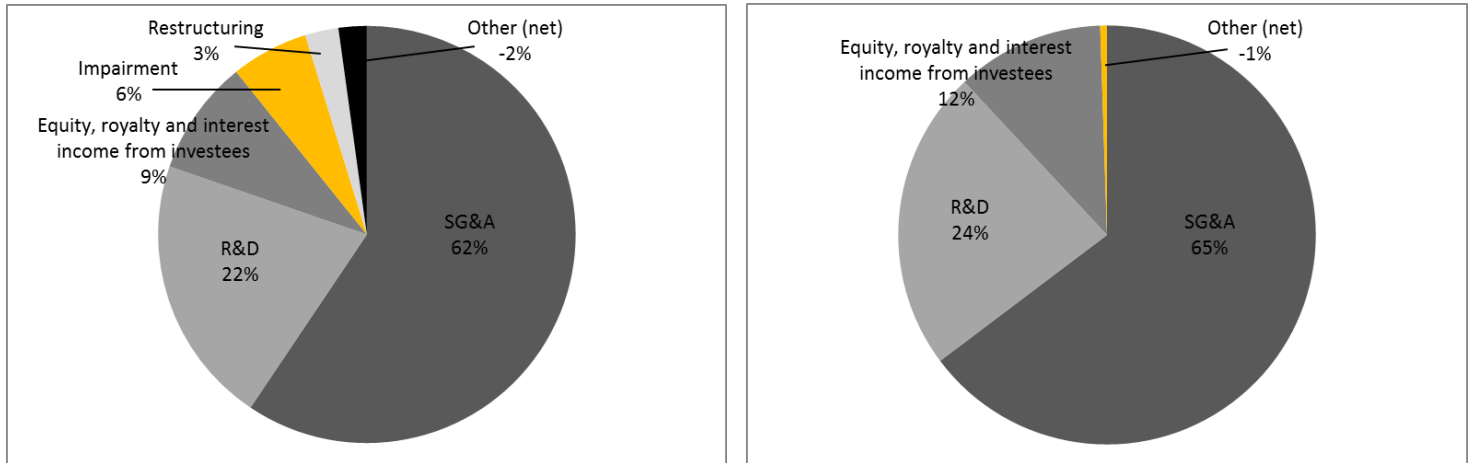


Source: Company Reports

Operating Income and Margins

CMI saw a 13% decrease in operating income from 2014 to 2015 due to \$90 million in restructuring actions and a \$211 million impairment charge of light-duty diesel assets. Light-duty automotive sales have remained constant over the past three years; however, CMI experienced multiple customer delays and cancellations of its light-duty diesel engine programs. This resulted in low growth and the necessity of restructuring which increased operating expenses, slightly offset by research and development cost reduction.

Figures 20 & 21: Composition of 2015 (right) and 2014 operating expenses



Source: Company Reports

Operating income should increase as restructuring actions begin paying off, I predict this will occur in late 2017 and throughout 2018 (EBIT margin rises from 8.3% to 9.0%), but the firm could see a more immediate increase in operating income should CMI reduce research and development more rapidly than I expect.

Figure 22: Select financial data

	2014	2015	2016E	2017E	2018E
Sales	19,221	19,110	17,410	17,129	17,847
<i>Growth</i>	11.1%	-0.6%	-8.9%	-1.6%	4.2%
Direct costs	14,360	14,163	13,092	12,813	13,046
Gross Margin	4,861	4,947	4,318	4,317	4,801
SG&A, R&D, and other	3,202	3,366	2,850	2,809	3,195
EBIT	1,659	1,581	1,468	1,507	1,606
<i>Margin</i>	8.6%	8.3%	8.4%	8.8%	9.0%
Tax Rate	47.7%	37.4%	45.0%	45.0%	45.0%
NOPAT	867	989	807	829	883
<i>Margin</i>	4.5%	5.2%	4.6%	4.8%	5.0%

Source: Factset, Company Reports

Return on Equity

ROE has declined over the past three years; however, ROE should see improvement tied to better asset utilization efficiency and lower interest as a percent of sales. The company will also see greater financial leverage as asset growth is negative and the firm reduces equity through stock buybacks. CMI will decrease assets due to low market demand.

Figure 23: ROE breakdown

5-stage DuPoint	2013	2014	2015	2016E	2017E	2018E
Operating Margin	8.1%	8.6%	8.3%	8.4%	8.8%	9.0%
Asset Turnover	126.9%	126.1%	123.7%	117.4%	121.1%	133.9%
Interest Burden	92.9%	88.1%	93.8%	91.8%	92.4%	93.3%
Tax Burden	114.2%	112.9%	94.3%	85.7%	81.5%	78.4%
ROA	10.9%	10.8%	9.1%	7.8%	8.0%	8.8%
Equity Multiplier	183.8%	191.0%	195.0%	198.5%	206.4%	219.5%
ROE	20.0%	20.7%	17.7%	15.4%	16.6%	19.3%

Source: Factset, Company Reports, IMCP

Free Cash Flow

CMI's free cash flow has been extremely volatile over the past several years. 2015 shows an increase in FCF due to a drop in net working capital and lower NFA investment. I forecast a dip and then consistent growth in NOPAT over the next few years. Low networking capital and NFA growth will boost FCF. CMI repurchases shares through the 2012 repurchase program and continues to do so through identical plans set in 2014, 2015, and 2016. Share buybacks are expected to use up all FCF in 2017-18.

Figure 24: Free cash flows

Free Cash Flow							
	2012	2013	2014	2015	2016E	2017E	2018E
NOPAT	\$943	\$827	\$867	\$989	\$807	\$829	\$883
<i>Growth</i>		-12.3%	4.8%	14.1%	-18.4%	2.7%	6.6%
NWC*	2,431	2,439	2,726	2,357	1,915	1,833	1,963
Net fixed assets	5,381	6,089	6,709	7,187	8,291	8,565	7,759
Total net operating capital*	\$7,812	\$8,528	\$9,435	\$9,544	\$10,206	\$10,398	\$9,723
<i>Growth</i>		9.2%	10.6%	1.2%	6.9%	1.9%	-6.5%
- Change in NWC*		8	287	(369)	(442)	(82)	130
- Change in NFA		708	620	478	1,104	274	(805)
FCFF*		\$111	(\$40)	\$880	146	\$637	\$1,558
<i>Growth</i>			-136.0%	-2297.9%	-83.5%	337.9%	144.6%
- After-tax interest expense	51	59	103	61	66	63	59
FCFE**		\$52	(\$143)	\$819	\$79	\$575	\$1,499
<i>Growth</i>			-375.0%	-672.7%	-90.4%	627.1%	160.9%

* NWC excludes cash
** No adjustment is made for debt

Source: Factset, Company Reports

Valuation

CMI was valued using multiples and 3-stage discounting cash flow model. Based on earnings multiples, the stock is over valued compared is worth \$117. Price to book valuation yielded a price of \$128. A detailed DCF analysis values CMI drastically lower, at \$84. I give this value higher importance

because it includes assumptions that reflect Cummin’s market adaptations. As a result of these valuations, I value the stock at \$95.

Trading History

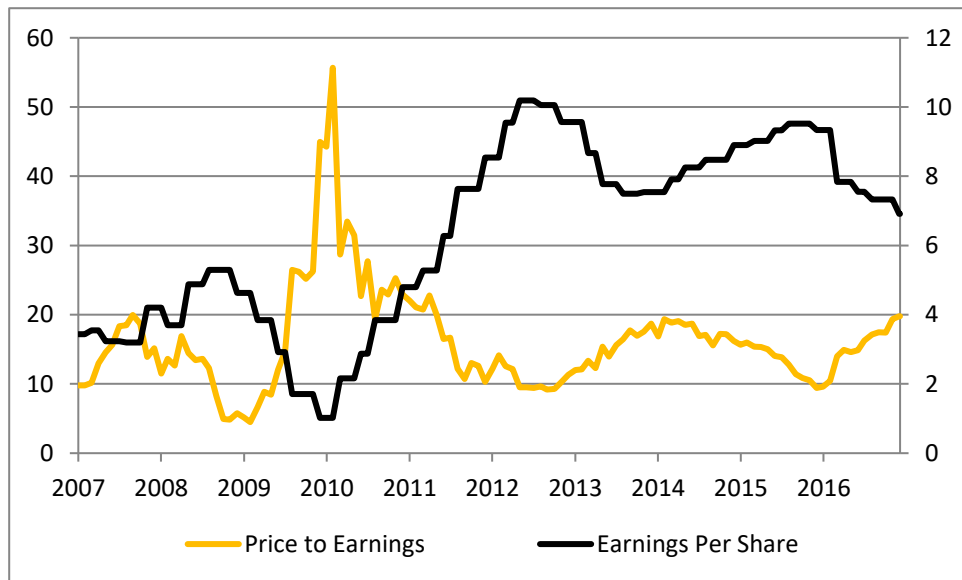
CMI is trading slightly higher than in the previous four years relative to past P/E ratios. This is a result of a decline in earnings per share and a possitive future construction market outlook. CMI’s current LTM P/E is at 19.9 compared to a five year average of 14.8. I expect P/E to surpass the five year average and remain high until earnings rebound.

Assuming the firm maintains a 19.93 LTM P/E at the end of 2017, it should trade at \$130.14 by the end of the year.

- Price = P/E x EPS = 16.5 x \$6.53 = \$107.75

Discounting \$107.75 back to today at a 11.51% cost of equity (explained in Discounted Cash Flow section) yields a price of \$116.71.

Figure 25: CMI P/E and EPS LTM



Source: Factset

Relative Valuation

Cummins is currently trading at a P/E that is average to its peers, with a P/E TTM of 20.2 compared to the average of 20.0. Investors must have faith in the restructuring plans. The entire group trades above the S&P 500’s P/E, so the market expects an economic rebound for this cyclical industry. CMI’s P/S and P/B ratios are slightly above average of the group, this is a reflection of CMI’s higher than average ROE and net margin compared to competitors.

Figure 26: CMI comparable companies

Ticker	Name	Current Price	Market Value	Price Change						Earnings Growth						LT Debt/ S&P			LTM Dividend		
				1 day	1 Mo	3 Mo	6 Mo	52 Wk	YTD	LTG	NTM	2015	2016	2017	2018	Pst 5yr	Beta	Equity	Rating	Yield	Payout
CMI	CUMMINS INC	\$139.79	\$22,998	2.3	(2.2)	9.3	23.8	58.8	2.3	1.7	14.6%	-11.4%	0.1%	-11.4%	-2.6%	8.2%	1.14	23.0%	B+	2.93%	57.0%
CAT	CATERPILLAR INC	\$93.99	\$54,991	1.3	(1.2)	6.5	22.9	38.3	1.3	3.3	71.9%	-29.7%	-27.0%	-29.7%	-5.2%	-3.6%	1.49	151.0%	A-	3.32%	175.0%
NAV	NAVISTAR INTERNATIONAL CORP	\$31.84	\$2,563	1.5	3.5	37.8	162.7	260.2	1.5	0.0	-111.6%	-48.0%	-70.0%	-48.0%	-118.5%	-171.8%	2.58	-75.4%	C	0.00%	
7202-JP	ISUZU MOTORS	\$12.55	\$10,583	0.0	8.1	24.1	16.2	12.7	0.0	8.0	-8.9%	-0.9%	-13.4%	-0.9%	-7.8%	17.8%	1.34	25.3%		2.16%	25.8%
DE	DEERE & CO	\$104.05	\$32,651	1.0	2.5	21.9	28.6	36.4	1.0	9.5	-6.7%	-16.6%	-33.1%	-16.6%	-7.1%	-6.2%	0.70	364.4%	B+	2.33%	49.9%
PCAR	PACCAR INC	\$65.32	\$22,399	2.2	3.5	11.1	26.0	37.8	2.2	8.5	114.4%	-13.5%	18.1%	-13.5%	-10.5%	29.3%	1.36	122.2%	B+	1.50%	58.5%
Average			\$24,364	1.4	2.4	18.5	46.7	74.0	1.4	5.2	12.3%	-20.0%	-20.9%	-20.0%	-25.3%	-21.1%	1.44	101.8%		2.04%	73.3%
Median			\$22,699	1.4	3.0	16.5	24.9	38.1	1.4	5.7	4.0%	-15.1%	-20.2%	-15.1%	-7.4%	2.3%	1.35	73.8%		2.24%	57.0%
SPX	S&P 500 INDEX	\$2,258		0.8	3.0	4.5	7.4	10.5	0.8		#REF!	1.0%	0.6%	11.9%							

Ticker	Website	2016		P/E							2016			EV/		P/CF		Sales Growth			Book Equity
		ROE	P/B	2014	2015	2016	TTM	NTM	2017	2017E	NPM	P/S	OM	ROIC	EBIT	Current	5-yr	NTM	STM	Pst 5yr	
CMI	http://www.cummins.com	22.2%	3.39	15.3	15.3	17.3	20.2	17.6	17.3	17.7	7.9%	1.20	10.5%	15.3%	7.6	11.4	10.5	-4.8%	2.8%	7.6%	\$41.20
CAT	http://www.Caterpillar.com	17.4%	3.51	14.8	14.8	28.8	53.4	31.1	28.8	30.4	5.8%	1.17	10.3%	5.0%	16.0	11.2	7.5	-5.4%	1.8%	2.0%	\$26.74
NAV	http://www.navistar.com	3.5%	-0.49	-4.2	-4.2	-26.8	-26.8	231.5	-26.8	144.7	-1.8%	0.25	3.1%	5.0%	23.3	6.8	12.7	-1.3%	5.5%	-10.3%	-\$64.95
7202-JP	http://www.isuzu.co.jp	14.6%	1.58	9.4	9.4	10.9	11.4	12.5	10.9	11.8	6.2%	0.68	8.2%	12.5%	6.3	7.2	6.2	6.0%	6.0%	6.4%	\$7.93
DE	http://www.deere.com	27.9%	5.02	12.1	12.1	21.6	21.6	23.2	21.6	23.3	7.0%	1.27	10.8%	5.0%	20.6	9.0	8.0	-12.9%	1.5%	-3.7%	\$20.71
PCAR	http://www.paccar.com	22.7%	3.28	17.1	17.1	16.7	39.8	18.6	16.7	18.7	8.1%	1.17	12.0%	14.5%	9.6	14.9	8.8	-11.2%	7.9%	13.2%	\$19.90
Average		18.0%	2.72	10.7	10.7	11.4	20.0	55.7	11.4	41.1	5.5%	0.96	9.2%	9.5%	13.9	10.1	9.0	-5.0%	4.2%	2.5%	
Median		19.8%	3.34	13.4	13.4	17.0	20.9	20.9	17.0	21.0	6.6%	1.17	10.4%	8.7%	12.8	10.1	8.4	-5.1%	4.2%	4.2%	
spx	S&P 500 INDEX			19.3	19.1				19.0	17.0											

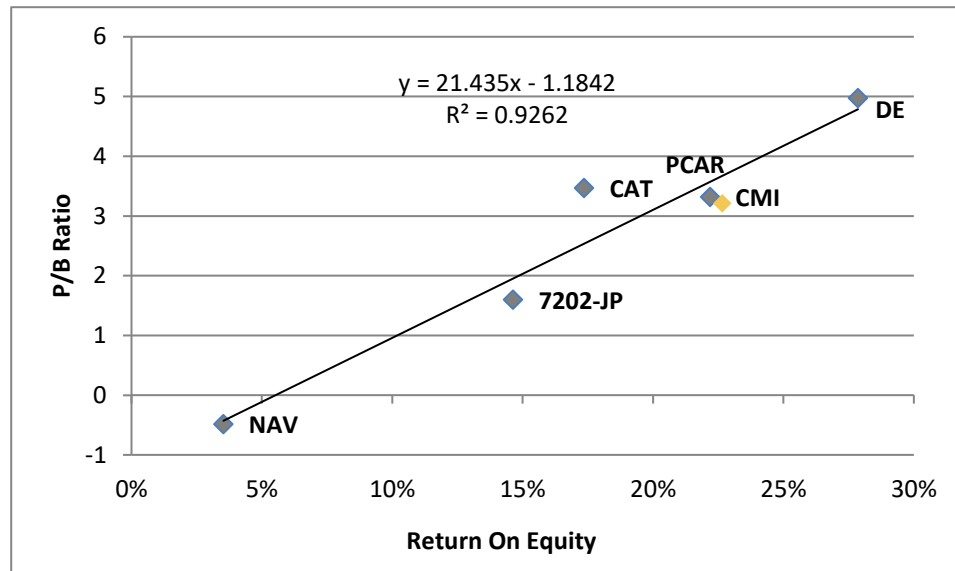
Source: Factset, IMCP

A more thorough analysis of P/B and ROE is shown below. The calculated R-squared of the regression indicates that over 92% of a sampled firm's P/B is explained by its 2016 ROE. CMI has a near median P/B and ROE, and according to this measure is slightly undervalued.

- Estimated P/B = Estimated 2016 ROE (22.2%) x 21.435 – 1.1842 = 3.57
- Target Price = Estimated P/B (3.39) x 2016E BVPS (41.2) = \$139.67

Discounting back to the present at a 11.51% cost of equity leads to a target price of \$128.29 using this metric.

Figure 27: P/B vs ROE



Source: Factset, IMCP

For a final comparison, I created a composite ranking of several valuation and fundamental metrics. Since the variables have different scales, each was converted to a percentile before calculating the composite score. 10% weighted to long term growth rate and 2016 NTM Earnings Growth coupled with a 60% weighting of 2016 ROE and 20% weighting of NPM was used for the fundamental

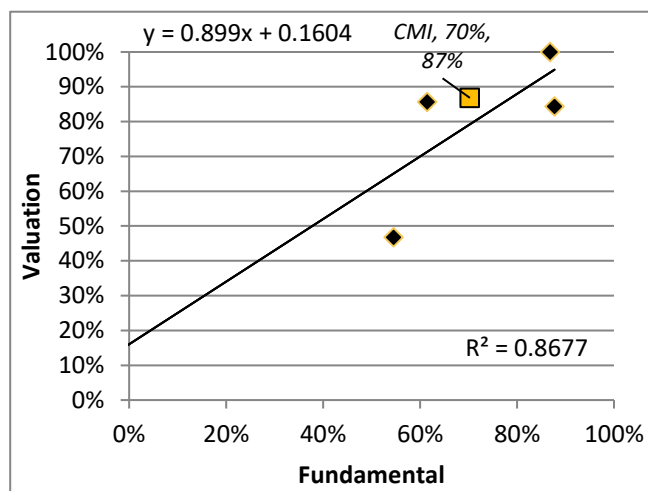
composite. This was compared to 30% weight for P/B and 70% weight for P/S for the value composite. The regression line had an R-squared of 0.87. One can see that CMI is above the line, so it is expensive based on its fundamentals and competitors.

Figure 28: Composite valuation, % of max

Ticker	Name	Fundamental Factors				Value Factors	
		10%	10%	60%	20%	30%	70%
		Earnings Growth		2016			
		LTG	NTM	ROE	NPM	P/B	P/S
CMI	CUMMINS INC	18%	13%	80%	97%	68%	95%
CAT	CATERPILLAR INC	35%	63%	62%	71%	70%	92%
NAV	NAVISTAR INTERNATIONAL CORP	0%	-97%	13%	-22%	-10%	20%
7202-JP	ISUZU MOTORS	84%	-8%	53%	77%	32%	53%
DE	DEERE & CO	100%	-6%	100%	87%	100%	100%
PCAR	PACCAR INC	89%	100%	81%	100%	65%	93%

Source: Factset,

Figure 29: Composite relative valuation



Source: Factset,

Discounted Cash Flow Analysis

A three stage discounted cash flow model was also used to value CMI.

For the purpose of this analysis, the company’s cost of equity was calculated to be 11.51% using the Capital Asset Pricing Model. The underlying assumptions used in calculating this rate are as follows:

- The risk free rate, as represented by the ten year Treasury bond yield, is 2.45%.
- An estimated beta of 1.2 was utilized since the company has higher risk than the market. As seen in figure 25, its earnings are very volatile.
- A long term market rate of return of 10% was assumed, since historically, the market has generated an annual return of about 10%.

Given the above assumptions, the cost of equity is 11.51% (2.45 + 1.2 (10.0 – 2.45)).

Stage One - The model’s first stage simply discounts fiscal years 2017 and 2018 free cash flow to equity (FCFE). These per share cash flows are forecasted to be \$3.52 and \$9.65, respectively.

Discounting these cash flows, using the cost of equity calculated above, results in a value of \$10.92 per share. Thus, stage one of this discounted cash flow analysis contributes \$10.92 to value.

Stage Two - Stage two of the model focuses on fiscal years 2019 to 2023. During this period, FCFE is calculated based on revenue growth, NOPAT margin and capital growth assumptions. The resulting cash flows are then discounted using the company's 11.51% cost of equity. I assume 5% sales growth in 2019, rising to 7% through 2021, and then normalized to 5% in 2023. The ratio of NWC to sales and NFA turnover will remain at 2018 levels. Also, the NOPAT margin is expected to match 2018. Finally, after-tax interest is expected to rise 2.1% per year as the result of modest increases in borrowing.

Figure 30: FCFE and discounted FCFE

	2017	2018	2019	2020	2021	2022
FCFE	\$ 3.52	\$ 9.65	\$ 2.49	\$ 2.07	\$ 1.59	\$ 2.59
Discounted FCFE	\$ 3.16	\$ 7.76	\$ 1.80	\$ 1.34	\$ 0.92	\$ 1.35

Source: IMCP

Added together, these discounted cash flows total \$7.14

Stage Three – Net income for the years 2019 – 2023 is calculated based upon the same margin and growth assumptions used to determine FCFE in stage two. EPS is expected to grow from \$6.53 in 2017 to \$8.47 in 2021.

Figure 31: EPS estimates

	2017	2018	2019	2020	2021	2022	2023
EPS	\$ 6.53	\$ 7.11	\$ 5.69	\$ 6.22	\$ 6.94	\$ 7.75	\$ 8.47

Source: IMCP

Stage three of the model requires an assumption regarding the company's terminal price-to-earnings ratio. 8.47 in EPS is considered a "normal" EPS so it must be multiplied by a "normal" P/E to determine the terminal value. For this, I am assuming a P/E of 16.5, which is about the five year average and below the S&P 500's current P/E.

Given the assumed terminal earnings per share of \$8.47 and a price to earnings ratio of 16.5, a terminal value of \$139.81 per share is calculated. Using the 11.51% cost of equity, this number is discounted back to a present value of \$65.21.

Total Present Value – given the above assumptions and utilizing a three stage discounted cash flow model, an intrinsic value of \$83.27 is calculated (\$10.92 + \$7.14 + \$65.21). Given CMI's current price of \$139.81, this model indicates that the stock is highly overvalued.

Scenario Analysis

CMI's valuation is based on many metrics and reactions to industry and stock drivers. With this evaluation I predict a P/E of 16.5, a beta equaling 1.2, and as a result, a value of \$83.27. This is based on normalized EPS from 2018 to 2023.

In a bullish scenario CMI's P/E would rise to 22, a high of the past few years. Beta would equal market risk at 1, a very optimistic but reasonable outlook considering the company's various attempts to flex with demand. These estimates, coupled with higher sales growth rate, would result in a value of \$119.64.

In a bearish scenario CMI's P/E could shrink to as low as 10, predicted based on average historical lows. Beta would equal 1.4, up 0.2 from the base. These changes, along with a sales growth matching 2018 estimates, would result in a value of \$53.27.

Business Risks

Although Cummins has potential for growth, there are several reasons why I find the stock currently overvalued and at risk of a declining EPS.

Decrease in Research and Development:

CMI decreased its research and development costs in 2015 in an attempt to increase net income; however, this could negatively effect future growth.

Continued Low Market Demand:

Cummin's experienced low sales growth due to a decline in market demand. As a result the company had to write off \$60 million in loss contingencies and decided to discontinue its light-duty automotive engine production. The firm could miss an opportunity if light-duty automotive markets recover.

Restructuring Challenges:

The firm began restructuring in 2015, incurring \$90 million in restructuring expenses with no realized gain. Restructuring could present future cost obstacles that would further raise operating expenses. The company could fail to gain the expected \$160 million due to unpredictable market demand and varying direct benefit of restructuring on earnings.

Low Demand in North American Truck Industry:

CMI began consolidation efforts to its U.S. plants and its U.S. percent of sales has risen 20% since 2010. This increased focus on U.S. sales could lead to missed global expansion opportunities, relating in particular to China and Europe's increasing construction markets.

Appendix 1: Sales Forecasts by Segment and Region

Sales forecasts (in millions)							
	2012	2013	2014	2015	2016E	2017E	2018E
Sales	17,334	\$17,301	\$19,221	\$19,110	\$17,410	\$17,129	\$17,847
<i>Growth</i>		-0.2%	11.1%	-0.6%	-8.9%	-1.6%	4.2%
Engine	10,733	10,013	10,962	10,449	8,077	7,794	7,716
<i>Growth</i>		-6.7%	9.5%	-4.7%	-22.7%	-3.5%	-1.0%
<i>% of sales</i>	61.9%	57.9%	57.0%	54.7%	46.4%	45.5%	43.2%
Distribution	3,277	3,749	5,174	6,229	7,413	8,228	9,709
<i>Growth</i>		14.4%	38.0%	20.4%	19.0%	11.0%	18.0%
<i>% of sales</i>	18.9%	21.7%	26.9%	32.6%	42.6%	2.0%	54.4%
Components	4,012	4,342	5,118	5,172	5,017	4,992	5,331
<i>Growth</i>		8.2%	17.9%	1.1%	-3.0%	-0.5%	6.8%
<i>% of sales</i>	23.1%	25.1%	26.6%	27.1%	28.8%	29.1%	6.0%
Power Generation	3,268	3,031	2,896	2,740	3,041	3,002	2,872
<i>Growth</i>		-7.3%	-4.5%	-5.4%	11.0%	-1.3%	-4.3%
<i>% of sales</i>	18.9%	17.5%	15.1%	14.3%	17.5%	17.5%	16.1%
Intersegment elir	(3,956)	(3,834)	(4,929)	(5,480)	(6,138)	(6,886)	(7,782)
<i>Growth</i>		-3.1%	28.6%	11.2%	12.0%	12.2%	13.0%
<i>% of sales</i>	-22.8%	-22.2%	-25.6%	-28.7%	-35.3%	-40.2%	-43.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
United States	8,107	8,382	10,058	10,757	10,516	10,667	11,340
<i>Growth</i>		3.4%	20.0%	6.9%	-2.2%	1.4%	6.3%
<i>% of sales</i>	46.8%	48.4%	52.3%	56.3%	60.4%	62.3%	63.5%
China	1,056	1,194	1,446	1,928	2,289	3,011	4,070
<i>Growth</i>		13.1%	21.1%	33.3%	18.7%	31.5%	35.2%
<i>% of sales</i>	6.1%	6.9%	7.5%	10.1%	12.6%	14.9%	16.9%
All Other	8,171	7,725	7,717	6,425	4,701	3,911	3,491
<i>Growth</i>		-5.5%	-0.1%	-16.7%	-26.8%	-16.8%	-10.7%
<i>% of sales</i>	47.1%	44.7%	40.1%	33.6%	27.0%	22.8%	19.6%

Source: Company Reports

Appendix 2: Income Statement

Income Statement								
	2011	2012	2013	2014	2015	2016E	2017E	2018E
Revenue	18048	17334	17301	19221	19110	17410	17129	17129
Cost of goods sold	13459	12826	13021	14360	14163	13092	12813	12813
Gross profit	4589	4508	4280	4861	4947	4318	4317	4317
Operating expenses								
Selling, general & administrative	1837	1900	1817	2095	2092	2850	2809	2809
Research, development and engineering expense	629	728	713	754	735			
Equity, royalty and interest income	416	384	361	370	315			
Impairment of light-duty diesel assets	0	0			211			
Restructuring actions and other charges	0	0			90			
Other operating expense, net	142	-10	-10	-17	-77			
Earnings before interest & tax	1565	1506	1399	1659	1581	1468	1507	1507
Interest income	34	25	27	23	24			
Interest expense	44	32	41	64	65	121	114	114
Other income, net	24	0	32	110	9			
Earnings before tax	1463	1449	1299	1462	1483	1347	1394	1394
Taxes	533	725	531	698	555	606	627	627
Net income	930	724	768	764	928	741	766	766
Less: Net income for noncontrolling interests	93	98	105	85	71	73	68	62
Net income attributable to CMI	837	626	663	679	857	667	699	705
Earnings per share								
Basic	\$ 9.58	\$ 8.69	\$ 7.93	\$ 9.04	\$ 7.86	\$ 6.39	\$ 6.53	\$ 6.53

Source: Company Reports

Appendix 3: Balance Sheet

Balance Sheet							
	2012	2013	2014	2015	2016E	2017E	2018E
Cash	1369	2699	2301	1711	329	-700	-1038
Operating assets ex cash	5551	5790	6661	6136	5745	5653	5889
Operating assets	6920	8489	8962	7847	6074	4952	4851
Operating liabilities	3120	3351	3935	3779	3830	3820	3926
NOWC	3800	5138	5027	4068	2244	1132	925
NOWC ex cash (NWC)	2431	2439	2726	2357	1915	1833	1963
NFA	5381	6089	6709	7187	8291	8565	7759
Invested capital	9181	11227	11736	11255	10535	9697	8684
Marketable securities	247	150	93	100	100	100	100
Total assets	12548	14728	15764	15134	14465	13617	12711
Short-term and long-term det	714	1689	1663	1600	1500	1420	1340
Other liabilities	1740	1818	2073	2005	2005	2005	2005
Debt/equity-like securities							
Equity	6974	7870	8093	7750	7130	6372	5439
Total supplied capital	9428	11377	11829	11355	10635	9797	8784
Total liabilities and equity	12548	14728	15764	15134	14465	13617	12711

Source: Company Reports

Appendix 4: Ratios

Ratios	2012	2013	2014	2015	2016E	2017E	2018E
Profitability							
Gross margin	25.5%	24.7%	25.3%	25.9%	24.8%	25.2%	26.9%
Operating (EBIT) margin	8.7%	8.1%	8.6%	8.3%	8.4%	8.8%	9.0%
Net profit margin	9.5%	8.6%	8.6%	7.3%	6.3%	6.2%	6.2%
Activity							
NFA (gross) turnover		3.0	3.0	2.8	2.2	2.0	2.2
Total asset turnover		1.3	1.3	1.2	1.2	1.2	1.4
Liquidity							
Op asset / op liab	2.2	2.5	2.3	2.1	1.6	1.3	1.2
NOWC Percent of sales		25.8%	26.4%	23.8%	18.1%	9.9%	5.8%
Solvency							
Debt to assets	5.7%	11.5%	10.5%	10.6%	10.4%	10.4%	10.5%
Debt to equity	10.2%	21.5%	20.5%	20.6%	21.0%	22.3%	24.6%
Other liab to assets	13.9%	12.3%	13.2%	13.2%	13.9%	14.7%	15.8%
Total debt to assets	19.6%	23.8%	23.7%	23.8%	24.2%	25.2%	26.3%
Total liabilities to assets	44.4%	46.6%	48.7%	48.8%	50.7%	53.2%	57.2%
Debt to EBIT	0.5	1.2	1.0	1.0	1.0	0.9	0.8
EBIT/interest	18.6	14.0	8.4	16.1	12.1	13.2	14.9
Debt to total net op capital	0.1	0.2	0.1	0.1	0.1	0.1	0.2
ROIC							
NOPAT to sales		4.8%	4.5%	5.2%	4.6%	4.8%	5.0%
Sales to IC		1.7	1.7	1.7	1.6	1.7	1.9
Total		8.1%	7.6%	8.6%	7.4%	8.2%	9.6%
Total using EOY IC	10.3%	7.4%	7.4%	8.8%	7.7%	8.5%	10.2%
ROE							
5-stage							
EBIT / sales		8.1%	8.6%	8.3%	8.4%	8.8%	9.0%
Sales / avg assets		1.3	1.3	1.2	1.2	1.2	1.4
EBT / EBIT		92.9%	88.1%	93.8%	91.8%	92.4%	93.3%
Net income / EBT		114.2%	112.9%	94.3%	81.0%	76.5%	73.7%
ROA		10.9%	10.8%	9.1%	7.4%	7.6%	8.4%
Avg assets / avg equity		1.83751	1.910167	1.950262	1.989215	2.079858	2.228982
ROE		20.0%	20.7%	17.7%	14.7%	15.8%	18.7%

Appendix 4: Ratios continued

3-stage						
Net income / sales	8.6%	8.6%	7.3%	6.3%	6.2%	6.2%
Sales / avg assets	1.3	1.3	1.2	1.2	1.2	1.4
ROA	10.9%	10.8%	9.1%	7.4%	7.6%	8.4%
Avg assets / avg equity	1.83751	1.910167	1.950262	1.989215	2.079858	2.228982
ROE	20.0%	20.7%	17.7%	14.7%	15.8%	18.7%
Payout Ratio	28.3%	31.0%	44.5%	59.6%	65.6%	67.9%
Retention Ratio	71.7%	69.0%	55.5%	40.4%	34.4%	32.1%
Sustainable Growth Rate	14.3%	14.3%	9.8%	5.9%	5.4%	6.0%

Source: IMCP

Appendix 5: 3-stage DCF Model

	Year						
	1	2	3	4	5	6	7
	First Stage			Second Stage			
Cash flows	2017	2018	2019	2020	2021	2022	2023
<i>Sales Growth</i>	-1.6%	4.2%	5.0%	6.0%	7.0%	6.0%	5.0%
<i>NOPAT / S</i>	4.8%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
<i>S / NWC</i>	9.35	9.09	9.09	9.09	9.09	9.09	9.09
<i>S / NFA (EOY)</i>	2.00	2.30	2.30	2.30	2.30	2.30	2.30
<i>S / IC (EOY)</i>	1.65	1.84	1.84	1.84	1.84	1.84	1.84
<i>ROIC (EOY)</i>	8.0%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%
<i>ROIC (BOY)</i>		8.5%	9.5%	9.6%	9.7%	9.6%	9.5%
<i>Share Growth</i>		-4.9%	-2.0%	-3.0%	-4.0%	-5.0%	-4.0%
Sales	\$17,129	\$17,847	\$18,739	\$19,863	\$21,254	\$22,529	\$23,656
NOPAT	\$829	\$883	\$928	\$983	\$1,052	\$1,115	\$1,171
<i>Growth</i>		6.6%	5.0%	6.0%	7.0%	6.0%	5.0%
- Change in NWC	-82	130	98	124	153	140	124
<i>NWC</i>	1833	1963	2061	2185	2338	2478	2602
<i>Growth NWC</i>		7.1%	5.0%	6.0%	7.0%	6.0%	5.0%
- Chg NFA	274	-805	388	489	605	554	490
<i>NFA EOY</i>	8,565	7,759	8,147	8,636	9,241	9,795	10,285
<i>Growth NFA</i>		-9.4%	5.0%	6.0%	7.0%	6.0%	5.0%
Total inv in op cap	192	-675	486	613	757	695	614
Total net op cap	10398	9723	10209	10821	11579	12273	12887
FCFF	\$637	\$1,558	\$441	\$371	\$295	\$420	\$557
<i>% of sales</i>	3.7%	8.7%	2.4%	1.9%	1.4%	1.9%	2.4%
<i>Growth</i>		144.6%	-71.7%	-16.0%	-20.5%	42.7%	32.5%
- Interest (1-tax rate)	63	59	62	65	69	72	76
<i>Growth</i>		-5.5%	5.0%	5.0%	5.0%	5.0%	5.0%
FCFE w or w/o debt	\$575	\$1,499	\$379	\$305	\$226	\$349	\$482
<i>% of sales</i>	3.4%	8.4%	2.0%	1.5%	1.1%	1.5%	2.0%
<i>Growth</i>		160.9%	-74.7%	-19.5%	-26.0%	54.2%	38.2%
/ No Shares	163.3	155.3	152.2	147.7	141.8	134.7	129.3
FCFE	\$3.52	\$9.65	\$2.49	\$2.07	\$1.59	\$2.59	\$3.73
<i>Growth</i>		174.3%	-74.2%	-17.0%	-22.9%	62.3%	44.0%
* Discount factor	0.90	0.80	0.72	0.65	0.58	0.52	0.47
Discounted FCFE	\$3.16	\$7.76	\$1.80	\$1.34	\$0.92	\$1.35	\$1.74

Third Stage							
Terminal value P/E							
Net income	\$1,066	\$1,104	\$865	\$918	\$984	\$1,043	\$1,095
% of sales	6.2%	6.2%	4.6%	4.6%	4.6%	4.6%	4.6%
EPS	\$6.53	\$7.11	\$5.69	\$6.22	\$6.94	\$7.75	\$8.47
Growth		8.8%	-20.0%	9.4%	11.6%	11.7%	9.4%
Terminal P/E							16.50
* Terminal EPS							\$8.47
Terminal value							\$139.81
* Discount factor							0.47
Discounted terminal value							\$65.21
Summary							
First stage	\$10.92	Present value of first 2 year cash flow					
Second stage	\$7.14	Present value of year 3-7 cash flow					
Third stage	\$65.21	Present value of terminal value P/E					
Value (P/E)	\$83.27	= value at beg of fiscal yr 2017					

Source: IMCP, Company Reports

Appendix 6: Porters 5 forces

Threat of New Entrants – Relatively low

Barriers to entry into the industrial production industry will make it difficult for competitors to start new businesses. Capital requirements for engine and truck producers remain high. New entrants also face challenges against brand loyalty, technological advancement requirements, and meeting environmental fuel standards.

Treat of Substitutes – Moderate

Many engine sales go to companies which produce both components and OEM vehicles. These customers could choose to source their production based on cost efficiency and consumer brand recognition.

Supplier Power – Relatively low

CMI produces many of its own engine components, preventing supplier power.

Buyer Power – High

Many of CMI's sales are linked to deals and agreements with buyers. In these situations, buyers can back out leaving the company with many specialized engines of previous year's models that run the risk of not meeting future fuel emission standards.

Intensity of Competition – Low

Even though there are a few engine and component producers, most companies in the industry specialize in certain makes and models, lowering the risk of competition. Brand loyalty also lowers competition.

Appendix 7: SWOT Analysis

Strengths	Weaknesses
Market adaptation Specialization of products Customer loyalty	Rely on local economies Compete on price Changing emission laws
Opportunities	Threats
Margin expansion Decrease foreign currency effects Restructuring	Buyer's sourcing Low market demand International uncertainty