

**Company Report – Research Update**

Company Note	2
Investment Thesis	4
Company Overview	5
Financial Data	7
Financial Analysis	8
Ratings History	9
Tigress Research Methodology Overview	9
Glossary of Key Terms and Measures	9
Contacts	10
Analyst Certification	10
Research Disclosures	10
Tigress Research Investment Rating Meanings and Distribution	10
Specific Disclosures for the companies that are the subject of this Report	11
Research Report Disclaimer	12
About Tigress Financial Partners LLC	12

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**Caterpillar Inc. (CAT-US)**  
**Machinery**

- We reiterate our buy rating on CAT as Business Performance continues to accelerate driven by increasing demand across key industries in all regions especially China.
- Business Performance continues to accelerate driven by broad-based increases in machinery demand.
- CAT's dealers are starting to ramp up inventory to meet increasing demand for the first time in four years.
- CAT's turnaround story is just getting started as it is re-entering a multiyear up-cycle in machinery demand.
- CAT's large cash position and cash flow can continue to fund growth, dividend increases, and share repurchases.

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**Company Note**
**Caterpillar Inc. (CAT-US)**  
 Machinery

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**Research Action:**

Reiterate rating

Rating: Buy

Prior Rating: Buy

Price 10/27/2017: \$137.81

52 Week High /

Low: \$140.44

\$80.33

**Key Data: (TTM as of Sep-17)**

Excess Cash per Share: \$12.60

Annual Dividend: \$3.12

Dividend Yield: 2.26%

Avg. Volume (30 Day): 4.0M

Shares Outstanding: 591.0M

Float: 589.7M

Equity MV: \$81,442.0M

Sales TTM: \$42,140.0M

Beta: 1.33

EBITDAR: \$11,249.6

NOPAT: \$4,083.4

Total Invested Capital: \$56,186.1

Return on Capital: 7.78%

Cost of Capital: 6.73%

Economic Profit: \$553.7

Market Value Added: \$61,332.7

Current Operations Value: \$60,690.2

Future Growth Value: \$56,828.7

- We reiterate our buy rating on CAT as Business Performance continues to accelerate driven by increasing demand across key industries in all regions especially China.** Increasing demand for CAT equipment, driven by the global recovery in construction and mining will continue to drive accelerating sales growth. CAT's turnaround story is just getting started as it is entering a multiyear up-cycle in machinery demand. CAT's strong brand equity and market-leading position together with its ongoing innovation to improve equipment operating efficiency and safety to greater enhance its customer's profitability will continue to drive industry share gains. CAT's focus on increasing Return on Capital and focus on lean manufacturing will continue to drive greater Economic Profit and increasing shareholder value creation. CAT's significant cash position and increasing cash flow create the potential for greater stock buybacks and dividend increases, further enhancing shareholder returns. We believe further upside in the shares exists.

- Business Performance continues to accelerate driven by broad-based increases in machinery demand.** For the LTM ending September 2017, Net Sales Revenue increased 5.4% Y/Y from \$39.99 billion to \$42.14 billion. We forecast a further increase of 11.5% to \$46.98 billion over the NTM as the global recovery in construction and mining continues to drive accelerating sales growth. Economic Operating Cash Flow (EBITDAR) increased 46.7% Y/Y from \$7.67 billion to \$11.25 billion over the LTM. We forecast a decline of 6.4% to \$10.53 billion as CAT continues to invest to improve operating efficiency and supply chain management to meet increasing demand. Net Operating Profit After Tax (NOPAT) increased 121% Y/Y from \$1.85 billion to \$4.1 billion over the LTM. We forecast, a decline of 14.2% over the NTM as CAT increases capital investment to continue to ramp up production. Return on Capital increased from 3.44% to 7.78% over the LTM. We forecast a further increase to 8.49% over the NTM. Economic Profit increased 142% Y/Y from a negative (\$1.31 billion) to \$553.7 million over the LTM. We forecast a further increase to \$603.7 million over the LTM. We believe the global recovery in construction and CAT's leading position will drive increasing Economic Profit and greater shareholder value creation.

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- **CAT's dealers are starting to ramp up inventory to meet increasing demand for the first time in four years.** CAT's, dealers are starting to enter in inventory restocking cycle after a four-year \$6.5 billion inventory sell down. New machinery demand is now in its fourth quarter of recovery after experiencing a four-year downturn driven by excess supply and declining demand. Used equipment inventory has been cleared out, and new equipment demand is continuing to accelerate.
- **CAT's turnaround story is just getting started as it is re-entering a multiyear up-cycle in machinery demand.** CAT sees strong demand across all industries and all regions. Onshore oil and gas in North America is strong. Construction activity in North America up significantly Y/Y and continues to improve globally. CAT's Construction Industries revenue increased 37% Y/Y. Resource Industries revenue increased 36%, and energy and transportation revenues increased 12%. North American sales increased 27% Y/Y led by increased energy industry demand. Sales in the EAME region increased 22% driven by dealer restocking. The ongoing strength in China's construction market drove a 29% increase in Asia-Pacific demand. Improving economic conditions in Latin America helped sales in the region increased 20%. CAT continues to improve its operating efficiency and better manage its supply chain to increase production levels, enabling it to fulfill growing demand better.
- **CAT's large cash position and cash flow can continue to fund growth, dividend increases, and share repurchases.** CAT currently has over \$7.5 billion, or \$12.62 a share, in excess cash. We expect CAT to generate \$10.53 billion in Economic Operating Cash Flow (EBITDAR) over the NTM. CAT repurchased \$2 billion worth of shares in 2015 and made no purchases in 2016. CAT currently has about \$3.7 billion in purchase capacity remaining on the \$10 billion share repurchase announced at the beginning of 2014 which expires at the end of 2018. CAT recently increased its quarterly dividend from \$0.77 to \$0.78 a share giving it a current yield of 2.73%, which is about 50 basis points above the current yield on the S&P 500. As CAT's Business Performance trends improve, we should see increases in its annual dividend at a level equal to or greater than its 10% five-year average dividend growth rate.

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**Investment Thesis**

Caterpillar is entering a multiyear up cycle of global machinery demand. CAT's ongoing focus on Return on Capital and operating efficiency will continue to drive increasing Economic Profit and greater shareholder value creation. Increasing cash flow will enable CAT to increase dividends and share repurchases, further enhancing shareholder return.

**Company Overview**

**Caterpillar Inc. (CAT-US)** is the world's leading designer and manufacturer of construction equipment, diesel and natural gas engines, mining equipment, and industrial gas turbines. CAT sells its products globally and is the leading exporter in the U.S. with more than 50% of its revenue coming from international customers. CAT sells and supports its equipment through an extensive global dealer network.

Caterpillar's brands include CAT, along with Anchor, AsiaTrak, EDM, FG Wilson, Hindustan, Kemper Valve & Fittings Corp, m2m Data Corp, MWM, MaK, Olympian, Perkins, Prentice, Progress Rail, Pyroban, Solar Turbines, Turbomach, Turner Powertrain Systems and Zhengzhou SIWEI.

Caterpillar operates and reports its results in two business lines - Machinery, Energy & Transportation systems, and Financial Products.

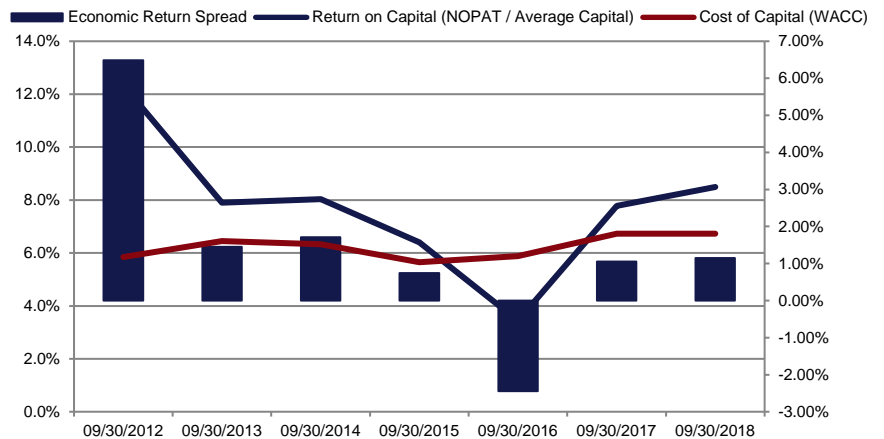
**Machinery, Energy & Transportation** (93% of net sales revenue) includes the following segments:

**Construction Industries:** Manufactures and sells construction equipment for use in construction, excavation, forestry, and infrastructure.

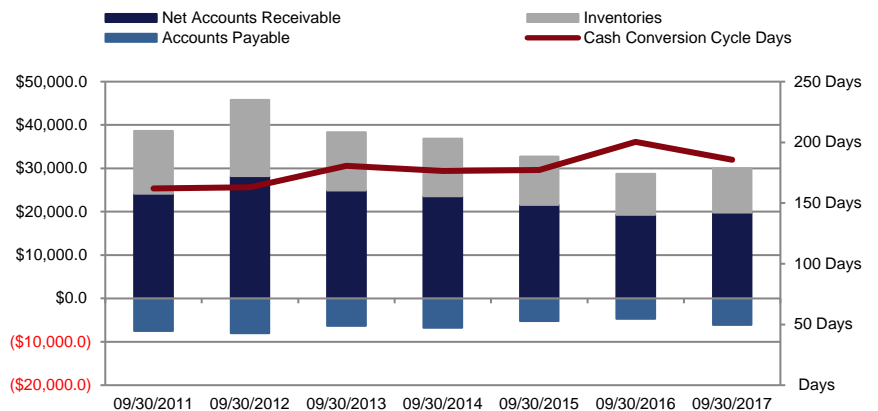
**Energy and Transportation:** Manufactures and sells engines, turbines, diesel-electric locomotives and related parts and services serving power generation, industrial, oil and gas, and the transportation industries.

**Resource Industries:** Manufactures and sells machinery and equipment used in mining, quarry & aggregates, waste, and materials handling.

**Financial Products:** (7% of net sales revenue) provides financing to its customers and dealers for the purchase and lease of Caterpillar and other brands of equipment along with dealer and inventory financing.

**Economic Profit Analysis**


CAT's Economic Profitability continues to improve, driven by accelerating sales revenue and greater operating efficiencies.

**Cash Conversion Cycle**


CAT's cash conversion cycle has improved Y/Y from 200 days 185 days. We believe CAT lean manufacturing focus continues to drive improving operating efficiency.

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Company Report – Research Update

Caterpillar Inc. (CAT-US)

Machinery

Financial Data

Report Basis	LTM	LTM	LTM	LTM	LTM	LTM	NTM	5 Yr	3 Yr	Current
Reported Period Ending	09/30/2012	09/30/2013	09/30/2014	09/30/2015	09/30/2016	09/30/2017	09/30/2018	Average	Average	Trend
<b>Net Sales Revenue</b>	\$67,043.0	\$57,329.0	\$55,342.0	\$50,225.0	\$39,993.0	\$42,140.0	\$46,978.5	\$49,005.8	\$44,119.3	\$44,559.2
Sales Growth	20.36%	-14.49%	-3.47%	-9.25%	-20.37%	5.37%	11.48%	-8.44%	-8.08%	8.43%
Sales Growth Trend	31.35%	-0.55%	-7.88%	-6.93%	-15.92%	-4.93%	9.04%	-7.24%	-9.26%	2.05%
<b>Operating Cash Flow (EBITDAR)</b>	\$15,609.8	\$12,168.7	\$12,530.7	\$10,723.0	\$7,666.7	\$11,249.6	\$10,525.7	\$10,867.7	\$9,879.8	\$10,887.6
EBITDAR Margin	23.28%	21.23%	22.64%	21.35%	19.17%	26.70%	22.41%	22.22%	22.41%	24.55%
EBITDAR Growth	28.81%	-22.04%	2.97%	-14.43%	-28.50%	46.73%	-6.44%	-3.05%	1.27%	20.15%
<b>Net Operating Profit Before Tax (NOPBT)</b>	\$9,958.8	\$6,496.7	\$6,878.7	\$5,075.0	\$2,284.7	\$6,094.6	\$4,741.7	\$5,365.9	\$4,484.8	\$5,418.2
NOPBT Margin	14.85%	11.33%	12.43%	10.10%	5.71%	14.46%	10.09%	10.81%	10.09%	12.28%
NOPBT Growth	40.73%	-34.76%	5.88%	-26.22%	-54.98%	166.76%	-22.20%	11.33%	28.52%	72.28%
<b>Cash Operating Income Tax</b>	\$2,922.8	\$1,615.4	\$1,961.6	\$1,329.3	\$436.5	\$2,011.2	\$1,237.6	\$1,470.8	\$1,259.0	\$1,624.4
Economic Tax Effective Rate	29.35%	24.87%	28.52%	26.19%	19.11%	33.00%	26.10%	26.34%	26.10%	29.55%
<b>Net Operating Profit After Tax (NOPAT)</b>	\$7,036.0	\$4,881.2	\$4,917.1	\$3,745.8	\$1,848.1	\$4,083.4	\$3,504.1	\$3,895.1	\$3,225.8	\$3,793.8
NOPAT Margin	10.49%	8.51%	8.88%	7.46%	4.62%	9.69%	7.46%	7.83%	7.26%	8.57%
NOPAT Growth	33.84%	-30.63%	0.73%	-23.82%	-50.66%	120.94%	-14.19%	3.31%	15.49%	53.38%
<b>Cash &amp; Equivalents</b>	\$7,362.0	\$6,407.0	\$8,122.0	\$7,653.0	\$7,851.0	\$9,591.0	\$10,457.7	\$7,924.8	\$8,365.0	\$10,024.3
<b>Total Assets</b>	\$90,541.0	\$87,272.0	\$84,488.0	\$78,969.0	\$76,402.0	\$78,560.0	\$85,659.1	\$81,138.2	\$77,977.0	\$82,109.5
<b>Non - Interest Bearing Liabilities (NIBLs)</b>	\$30,989.0	\$28,167.0	\$24,080.0	\$23,780.0	\$22,291.0	\$24,606.0	\$26,829.5	\$24,584.8	\$23,559.0	\$25,717.8
<b>Net Assets</b>	\$59,500.0	\$59,038.0	\$60,335.0	\$55,117.0	\$54,041.0	\$53,884.0	\$58,753.2	\$56,483.0	\$54,347.3	\$56,318.6
<b>Economic Asset Adjustments</b>	\$4,258.6	\$3,900.9	\$2,708.1	\$2,894.4	(\$1,686.6)	\$2,302.1	\$2,510.2	\$2,023.8	\$1,170.0	\$2,406.1
<b>Net Operating Assets</b>	\$63,758.6	\$62,938.9	\$63,043.1	\$58,011.4	\$52,354.4	\$56,186.1	\$61,263.4	\$58,506.8	\$55,517.3	\$58,724.8
<b>Debt &amp; Debt Equivalents</b>	\$41,127.6	\$40,437.9	\$40,152.1	\$38,339.4	\$37,952.4	\$36,650.1	\$39,962.0	\$38,706.4	\$37,647.3	\$38,306.1
<b>Equity &amp; Equivalents</b>	\$17,884.0	\$18,110.0	\$18,823.0	\$15,896.0	\$15,645.0	\$15,627.0	\$17,039.1	\$16,820.2	\$15,722.7	\$16,333.1
<b>Total Capital - Financing Sources</b>	\$59,011.6	\$58,547.9	\$58,975.1	\$54,235.4	\$53,597.4	\$52,277.1	\$57,001.2	\$55,526.6	\$53,370.0	\$54,639.1
<b>Capital Adjustments</b>	\$2,983.0	\$3,000.0	\$1,838.0	\$2,098.0	(\$2,529.0)	\$1,576.0	\$1,718.4	\$1,196.6	\$381.7	\$1,647.2
<b>Net Capital Financing Sources</b>	\$61,994.6	\$61,547.9	\$60,813.1	\$56,333.4	\$51,068.4	\$53,853.1	\$58,719.6	\$56,723.2	\$53,751.6	\$56,286.3
<b>Net Working Capital</b>	\$25,534.2	\$22,341.5	\$21,027.1	\$19,881.3	\$17,341.7	\$17,563.0	\$19,150.1	\$19,630.9	\$18,262.0	\$18,356.5
Cost of Net Working Capital	\$1,354.2	\$1,544.8	\$1,372.7	\$1,155.6	\$1,095.1	\$1,174.2	\$1,280.3	\$1,268.5	\$1,141.6	\$1,227.3
% of Revenue	2.02%	2.69%	2.48%	2.30%	2.74%	2.79%	2.73%	2.60%	2.61%	2.76%
<b>Operational Capital</b>	\$42,318.8	\$39,830.4	\$38,328.2	\$36,632.6	\$33,864.1	\$32,476.1	\$35,410.8	\$36,226.3	\$34,324.3	\$33,943.5
Cost of Operational Capital	\$2,272.6	\$2,650.7	\$2,473.9	\$2,117.6	\$2,074.0	\$2,231.8	\$2,433.4	\$2,309.6	\$2,141.1	\$2,332.6
% of Revenue	3.39%	4.62%	4.47%	4.22%	5.19%	5.30%	5.18%	4.76%	4.90%	5.24%
<b>Productive Capital</b>	\$53,856.8	\$50,516.4	\$48,339.2	\$46,019.6	\$43,042.1	\$40,847.1	\$44,538.3	\$45,752.9	\$43,302.9	\$42,692.7
Cost of Productive Capital	\$2,970.1	\$3,367.8	\$3,129.0	\$2,665.6	\$2,620.1	\$2,822.1	\$3,077.2	\$2,920.9	\$2,702.6	\$2,949.6
% of Revenue	4.43%	5.87%	5.65%	5.31%	6.55%	6.70%	6.55%	6.02%	6.19%	6.62%
<b>Total Operating Capital</b>	\$59,748.8	\$61,383.4	\$57,688.2	\$52,869.6	\$46,503.1	\$48,702.1	\$53,103.1	\$53,429.3	\$49,358.3	\$50,902.6
Cost of Total Operating Capital	\$3,278.2	\$3,908.6	\$3,768.9	\$3,123.2	\$2,923.5	\$3,202.8	\$3,492.2	\$3,385.4	\$3,083.2	\$3,347.5
% of Revenue	4.89%	6.82%	6.81%	6.22%	7.31%	7.60%	7.43%	6.95%	7.04%	7.52%
<b>Non - Operating Capital</b>	\$4,009.9	\$3,540.6	\$5,354.9	\$5,141.8	\$5,851.4	\$7,484.0	\$8,160.3	\$5,474.5	\$6,159.0	\$7,822.1
Cost of Non - Operating Capital	\$171.1	\$243.6	\$281.6	\$296.5	\$323.4	\$448.6	\$489.2	\$318.7	\$356.2	\$468.9
% of Revenue	0.26%	0.42%	0.51%	0.59%	0.81%	1.06%	1.04%	0.68%	0.82%	1.05%
<b>Total Capital</b>	\$63,758.6	\$64,923.9	\$63,043.1	\$58,011.4	\$52,354.4	\$56,186.1	\$61,263.4	\$58,903.8	\$55,517.3	\$58,724.8
Cost of Total Capital	\$3,449.3	\$4,152.2	\$4,050.4	\$3,419.7	\$3,246.9	\$3,651.4	\$3,981.4	\$3,704.1	\$3,439.3	\$3,816.4
% of Revenue	5.14%	7.24%	7.32%	6.81%	8.12%	8.67%	8.47%	7.63%	7.86%	8.57%
<b>Cost of Capital (WACC)</b>	5.85%	6.45%	6.33%	5.65%	5.88%	6.73%	6.73%	6.21%	6.09%	6.73%
<b>Capital Structure</b>										
<b>Debt &amp; Debt Equivalents</b>	\$41,127.6	\$40,437.9	\$40,152.1	\$38,339.4	\$37,952.4	\$36,650.1	\$39,962.0	\$38,706.4	\$37,647.3	\$38,306.1
Debt & Debt Equivalents % of Market Value	42.25%	43.24%	40.11%	50.19%	42.22%	33.21%	33.21%	41.16%	40.83%	33.21%
<b>Preferred Equity</b>	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Preferred Equity % of Market Value	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<b>Market Value of Common Equity</b>	\$56,207.3	\$53,072.1	\$59,952.7	\$38,054.8	\$51,936.9	\$73,700.2	\$80,360.2	\$55,343.3	\$54,564.0	\$77,030.2
Common Equity % of Market Value	57.75%	56.76%	59.89%	49.81%	57.78%	66.79%	66.79%	58.84%	59.17%	66.79%
<b>Total Economic Market Value (MV)</b>	\$97,334.9	\$93,510.0	\$100,104.7	\$76,394.2	\$89,889.4	\$110,350.4	\$120,322.2	\$94,049.7	\$92,211.3	\$115,336.3
Total %	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
<b>Excess Cash</b>	\$4,009.9	\$3,540.6	\$5,354.9	\$5,141.8	\$5,851.4	\$7,484.0	\$8,160.3	\$5,474.5	\$6,159.0	\$7,822.1
<b>Economic Enterprise Value</b>	\$93,325.0	\$89,969.5	\$94,749.8	\$71,252.4	\$84,038.0	\$102,866.4	\$112,161.9	\$88,575.2	\$86,052.3	\$107,514.1
<b>Average Capital</b>	\$57,045.6	\$61,771.3	\$61,180.5	\$58,573.2	\$53,700.9	\$52,460.8	\$56,286.3	\$57,537.3	\$54,911.6	\$54,373.6
Capital Δ	\$9,898.1	(\$446.7)	(\$734.9)	(\$4,479.7)	(\$5,265.0)	\$2,784.7	\$4,866.4	(\$1,628.3)	(\$2,320.0)	\$3,825.6

Source: Company Data, Financial statements and Tigress Research

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## Company Report – Research Update

### Caterpillar Inc. (CAT-US)

### Machinery

#### Financial Analysis

Report Basis	LTM	LTM	LTM	LTM	LTM	LTM	NTM	5 Yr	3 Yr	Current
Reported Period Ending	09/30/2012	09/30/2013	09/30/2014	09/30/2015	09/30/2016	09/30/2017	09/30/2018	Average	Average	Trend
Return on Market Value (NOPAT / MV)	7.23%	5.22%	4.91%	4.90%	2.06%	3.70%	4.03%	4.16%	3.55%	3.87%
Return on Enterprise Value (NOPAT / EV)	7.54%	5.43%	5.19%	5.26%	2.20%	3.97%	4.33%	4.41%	3.81%	4.15%
Return on Capital (NOPAT / Average Capital)	12.33%	7.90%	8.04%	6.40%	3.44%	7.78%	8.49%	6.71%	5.87%	8.14%
Cost of Capital (WACC)	5.85%	6.45%	6.33%	5.65%	5.88%	6.73%	6.73%	6.21%	6.09%	6.73%
Economic Return Spread	6.48%	1.45%	1.71%	0.75%	-2.44%	1.06%	1.15%	0.50%	-0.21%	1.10%
Capital Charge	\$3,337.4	\$3,986.4	\$3,873.0	\$3,309.3	\$3,159.7	\$3,529.7	\$3,848.6	\$3,571.6	\$3,332.9	\$3,689.2
Economic Profit (EP)	\$3,698.7	\$894.9	\$1,044.1	\$436.4	(\$1,311.5)	\$553.7	\$603.7	\$323.5	(\$107.1)	\$578.7
Economic Profit Improvement (EPI)	\$1,283.6	(\$2,803.8)	\$149.2	(\$607.6)	(\$1,748.0)	\$1,865.2	\$50.0	(\$629.0)	(\$163.5)	\$957.6
EP Growth	53.15%	-75.81%	16.67%	-58.20%	-400.50%	142.22%	9.04%	-75.12%	-105.49%	75.63%
Economic Profit Margin on Sales	5.52%	1.56%	1.89%	0.87%	-3.28%	1.31%	1.29%	0.47%	-0.37%	1.30%
Economic Profit Per Share	\$5.73	\$1.37	\$1.62	\$0.71	(\$2.21)	\$0.95	\$1.03	\$0.49	(\$0.18)	\$0.99
GAAP Earnings Per Share	\$10.03	\$5.37	\$6.30	\$4.90	\$1.73	\$1.48	\$7.41	\$3.96	\$2.70	\$4.44
Excess Cash Per Share	\$6.14	\$5.54	\$8.76	\$8.74	\$10.01	\$12.62	\$13.76	\$9.13	\$10.46	\$13.19
<b>Performance Drivers</b>										
Sales Growth	20.36%	-14.49%	-3.47%	-9.25%	-20.37%	5.37%	11.48%	-8.44%	-8.08%	8.43%
Sales Growth Trend (ROC Sales Growth)	31.35%	-0.55%	-7.88%	-6.93%	-15.92%	-4.93%	9.04%	-7.24%	-9.26%	2.05%
EBITDAR Margin	23.28%	21.23%	22.64%	21.35%	19.17%	26.70%	22.41%	22.22%	22.41%	24.55%
EBITDAR Growth	28.81%	-22.04%	2.97%	-14.43%	-28.50%	46.73%	-6.44%	-3.05%	1.27%	20.15%
NOPBT Margin	14.85%	11.33%	12.43%	10.10%	5.71%	14.46%	10.09%	10.81%	10.09%	12.28%
NOPBT Growth	40.73%	-34.76%	5.88%	-26.22%	-54.98%	166.76%	-22.20%	11.33%	28.52%	72.28%
NOPAT Margin	10.49%	8.51%	8.88%	7.46%	4.62%	9.69%	7.46%	7.83%	7.26%	8.57%
NOPAT Growth	33.84%	-30.63%	0.73%	-23.82%	-50.66%	120.94%	-14.19%	3.31%	15.49%	53.38%
Economic Profit Margin on Sales (EP / Sales)	5.52%	1.56%	1.89%	0.87%	-3.28%	1.31%	1.29%	0.47%	-0.37%	1.30%
Economic Profit Growth	53.15%	-75.81%	16.67%	-58.20%	-400.50%	142.22%	9.04%	-75.12%	-105.49%	75.63%
Economic Return Spread (ROC-WACC)	6.48%	1.45%	1.71%	0.75%	-2.44%	1.06%	1.15%	0.50%	-0.21%	1.41%
Economic Return Ratio (ROC / WACC)	210.83%	122.45%	126.96%	113.19%	58.49%	115.69%	126.14%	107.35%	95.79%	120.91%
Economic Profit Momentum (ΔEP/Capital)	2.07%	-4.56%	0.25%	-1.08%	-3.42%	3.46%	0.09%	-1.07%	-0.35%	1.77%
Economic Profit Momentum Margin (ΔEP/Sales)	1.91%	-4.89%	0.27%	-1.21%	-4.37%	4.43%	0.11%	-1.16%	-0.38%	2.27%
Capital Growth	19.00%	-0.72%	-1.19%	-7.37%	-9.35%	5.45%	9.04%	-2.63%	-3.75%	7.24%
Capital Turns	1.08X	0.93X	0.91X	0.89X	0.78X	0.82X	0.80X	0.86X	0.82X	0.79X
EVC Acceleration Margin	2.30%	-4.18%	0.26%	-1.10%	-3.48%	4.66%	0.12%	-1.34%	-0.33%	2.17%
EVC Acceleration Spread	2.77%	-4.92%	0.24%	-0.99%	-2.98%	3.47%	0.10%	-1.12%	-0.28%	1.74%
<b>Risk Factors</b>										
Free Cash Flow (NOPAT - Δ Capital)	(\$2,862.1)	\$5,327.9	\$5,652.0	\$8,225.5	\$7,113.1	\$1,298.7	(\$1,362.3)	\$5,523.4	\$5,545.8	(\$31.8)
Free Cash Flow Rate (FCF / Capital)	-4.62%	8.66%	9.29%	14.60%	13.93%	2.41%	-2.32%	9.78%	10.31%	0.05%
Free Cash Flow Yield (FCF / MV)	-2.94%	5.70%	5.65%	10.77%	7.91%	1.18%	-1.13%	6.24%	6.62%	0.02%
Total Debt / Total Capital	66.34%	65.70%	66.03%	68.06%	74.32%	68.06%	68.06%	68.43%	70.14%	68.06%
Total Debt / EBITDAR	263.47%	332.31%	320.43%	357.54%	495.03%	325.79%	379.66%	366.22%	392.79%	352.73%
Excess Cash	\$4,009.9	\$3,540.6	\$5,354.9	\$5,141.8	\$5,851.4	\$7,484.0	\$0.0	\$5,474.5	\$6,159.0	\$3,742.0
Financial Leverage ((Total Debt - Excess Cash) / Pension Leverage (Net Pension Liability / MV))	38.13%	39.46%	34.76%	43.46%	35.71%	26.43%	33.21%	35.96%	35.20%	29.82%
Equity Risk Index (S&P 500 = 1.00)	1.39	1.39	1.38	1.38	1.37	1.37	1.37	1.38	1.37	1.37
Stock Price Volatility	4.43	3.57	2.67	3.13	3.59	3.37	3.37	3.27	3.36	3.37
Sales Index (NL Sales)	11.11	10.96	10.92	10.82	10.60	10.65	10.76	10.79	10.69	10.70
Market Value Index (NL Market Value)	11.49	11.45	11.51	11.24	11.41	11.61	11.70	11.44	11.42	11.65
Size Index (NL Sales: MV)	11.30	11.20	11.22	11.03	11.00	11.13	11.23	11.12	11.06	11.18
Beta	1.59	1.58	1.57	1.57	1.56	1.55	1.55	1.57	1.56	1.55
TFP Adjusted Beta	1.39	1.39	1.38	1.38	1.37	1.37	1.37	1.38	1.37	1.37
Stock Price Volatility	4.43	3.57	2.67	3.13	3.59	3.37	3.37	3.27	3.36	3.37
<b>Valuation Measures</b>										
Total Economic Market Value (MV)	\$97,334.9	\$93,510.0	\$100,104.7	\$76,394.2	\$89,889.4	\$110,350.4	\$120,322.2	\$94,049.7	\$92,211.3	\$115,336.3
Economic Enterprise Value	\$93,325.0	\$89,969.5	\$94,749.8	\$71,252.4	\$84,038.0	\$102,866.4	\$112,161.9	\$88,675.2	\$86,052.3	\$107,514.1
Equity Market Value	\$56,207.3	\$53,072.1	\$59,952.7	\$38,054.8	\$51,936.9	\$73,700.2	\$80,360.2	\$55,343.3	\$54,564.0	\$77,030.2
Total Capital	\$63,758.6	\$64,923.9	\$63,043.1	\$58,011.4	\$52,354.4	\$56,186.1	\$61,263.4	\$58,903.8	\$55,517.3	\$58,724.8
Market Value Created MVC (MV - Capital)	\$33,576.3	\$28,586.1	\$37,061.7	\$18,382.8	\$37,534.9	\$54,164.2	\$59,058.8	\$35,145.9	\$36,694.0	\$56,611.5
MVC Margin (MVC / Sales)	50.08%	49.86%	66.97%	36.60%	93.85%	128.53%	125.71%	71.72%	83.17%	127.05%
MVC Spread (MVC / Capital)	52.66%	44.03%	58.79%	31.69%	71.69%	96.40%	96.40%	59.67%	66.09%	96.40%
Current EVC Value (EP / WACC)	\$63,220.9	\$13,866.5	\$16,492.9	\$7,724.9	(\$22,290.5)	\$8,229.4	\$8,973.1	\$5,210.2	(\$1,759.9)	\$8,601.2
Current Operations Value COV	\$120,266.5	\$75,637.8	\$77,673.4	\$66,298.1	\$31,410.4	\$60,690.2	\$65,259.4	\$62,747.5	\$53,151.7	\$62,974.8
Current Operations Value Per Share	\$186.46	\$115.90	\$120.39	\$107.42	\$52.85	\$103.87	\$105.47	\$101.42	\$88.79	\$104.69
Future Growth Value (MVC - EVA Value)	(\$22,931.6)	\$17,872.3	\$22,431.3	\$10,096.1	\$58,478.9	\$49,660.2	\$55,062.8	\$31,302.2	\$39,059.6	\$52,361.5
Future Growth Value Reliance (FGV / MV)	-23.56%	19.11%	22.41%	13.22%	65.06%	45.00%	45.76%	33.28%	42.36%	45.40%
Share Price	\$86.04	\$83.40	\$99.03	\$65.36	\$88.77	\$124.71	\$124.71	\$92.25	\$92.95	\$124.71
Dividend Yield	2.21%	2.59%	2.52%	4.39%	3.47%	2.48%				
Total Shareholder Return (TTM)	18.73%	-0.48%	21.27%	-29.61%	39.29%	42.96%	0.00%	-26.03%	0.75%	34.17%
MV to IC Ratio	1.53X	1.44X	1.59X	1.32X	1.72X	1.96X	1.96X	1.60X	1.66X	1.96X
EV / EBITDAR Multiple	5.98X	7.39X	7.56X	6.64X	10.96X	9.14X	10.66X	8.15X	8.71X	9.87X
EV / NOPBIT Multiple	9.37X	13.85X	13.77X	14.04X	36.78X	16.88X	23.65X	16.51X	19.19X	19.84X
EV / NOPAT Multiple	13.26X	18.43X	19.27X	19.02X	45.47X	25.19X	32.01X	22.74X	26.68X	28.34X
EV / EP Multiple	25.23X	100.54X	90.75X	163.25X	-64.08X	185.78X	185.78X	273.80X	-803.23X	185.78X
Future Growth Value (% of MV)	-23.56%	19.11%	22.41%	13.22%	65.06%	45.00%	45.76%	33.28%	42.36%	45.40%
Current Operations Value (% of MV)	123.56%	80.89%	77.59%	86.78%	34.94%	55.00%	54.24%	66.72%	57.64%	54.60%
Market Value (COV + FGV %)	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Basic Shares Outstanding	645.0	652.6	645.2	617.2	594.3	584.3	618.7	618.7	598.6	601.5

Source: Company Data, Financial statements and Tigress Research

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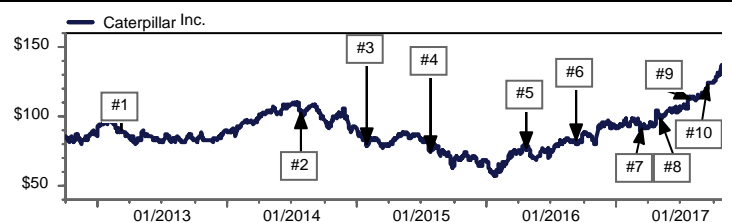
## Company Report – Research Update

### Caterpillar Inc. (CAT-US)

### Machinery

#### Ratings History

Caterpillar Inc. (CAT-US)				
Item #	Date	Research Action	Rating	Price
#10	09/18/2017	Reiterate Rating	Buy	\$123.83
#9	07/31/2017	Upgrade Rating	Buy	\$113.95
#8	05/05/2017	Reiterate Rating	Neutral	\$99.64
#7	03/16/2017	Upgrade Rating	Neutral	\$92.85
#6	09/08/2016	Reiterate Rating	Underperform	\$83.54
#5	04/26/2016	Reiterate Rating	Underperform	\$77.65
#4	07/27/2015	Downgrade Rating	Underperform	\$75.32
#3	01/29/2015	Reiterate Rating	Neutral	\$80.00
#2	07/30/2014	Upgrade Rating	Neutral	\$103.38
#1	03/11/2013	Initiation of Coverage	Underperform	\$91.18



#### Tigress Research Methodology Overview

We employ proprietary quantitative valuation models combined with dynamic fundamental analysis based on the principles of Economic Profit to formulate timely and insightful investment ratings, analysis, strategies, and recommendations.

We make key adjustments to reported financial data eliminating GAAP-based accounting distortions and measuring all companies on a cash operating basis.

Our proprietary research framework is a multi-factor model that scores and ranks companies based on their risk-adjusted ability to create Economic Profit relative to their current market value focusing on three key components:

**Business Performance:** Measuring economic profitability, growth and operating efficiency.

**Risk:** Measuring business sustainability, volatility, strength, and consistency.

**Valuation:** Linking business performance to market value. Measuring value created relative to capital employed and enterprise multiples of economic profit and cash flow.

We score and rank 24 key measurements of performance, risk, and value into relative market and industry investment recommendations.

For more information on our research methodology, please review the *Tigress Investment Research Guide to Company Valuation and Analysis*.

#### Glossary of Key Terms and Measures

**Excess Cash per Share:** Excess Cash per Share is the amount of excess cash divided by basic shares outstanding. Excess Cash consists of all cash and short-term securities less operating cash needed to run the business. Operating Cash is 5% of TTM net sales revenue.

**EBITDAR:** Earnings Before Interest, Taxes, Depreciation, Amortization, and Restructuring and Rent Costs. This is especially important when comparing companies that use a significant amount of leased assets like restaurants and retailers.

**NOPAT:** Net Operating Profit after Tax represents a company's after-tax cash operating profit excluding financing costs.

**Total Invested Capital:** Total Invested Capital the total cash investment that shareholders and debt holders have made during the life of the company.

**Return on Capital:** Return on Capital equals NOPAT divided by Total Invested Capital. It is a key measure of operating efficiency. ROC quantifies how well a company generates cash flow relative to the capital invested in its business.

**Cost of Capital:** Is the proportionately weighted cost of each category of capital – common equity, preferred equity and debt.

**Economic Profit:** Economic Profit is the net operating income after tax less the opportunity cost of the total capital invested. It is the most important driver of shareholder value.

**Current Operations Value:** Current Operations Value is the portion of market value based on the discounted present value of the current earnings stream assuming it remains constant forever.

**Future Growth Value:** Future Growth Value is the portion of market value based on un-earned Economic Profit

For more information on the key terms and measures, please review the *Tigress Investment Research Guide to Company Valuation and Analysis*.

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Rating:	Meaning:	Rating Distribution (10/27/2017)			
		Companies Under Coverage		Relationship Companies Under Coverage*	
		#	%	#	%
<b>Strong Buy:</b>	Expect significant price gains in the price of the stock relative to its industry peer group and general market over the next 12 months.	16	14%	1	17%
<b>Buy:</b>	Expect out-performance for the price of the stock relative to its industry peer group and general market over the next 12 months.	52	44%	4	66%
<b>Neutral:</b>	Expect little or no outperformance opportunity over the next 12 months.	44	38%	1	17%
<b>Underperform:</b>	Expect underperformance for the price of the stock relative to its industry peer group and general market over the next 12 months.	5	4%	0	0%
<b>Sell:</b>	Expect price decline or significant relative market and industry underperformance over the next 12 months.	0	0%	0	0%
<b>Not Rated</b>	No Current Research Rating	NA	NA	65	NA

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Total 117 100% 71 100%

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<b>Company:</b>	<b>Disclosure:</b>
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<b>Key</b>	<b>Disclosure:</b>
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