



LINC

LUND UNIVERSITY FINANCE SOCIETY EST 1991

EQUITY RESEARCH REPORT

CTT SYSTEMS (CTT)

”A STOCK YET TO TAKE OFF”

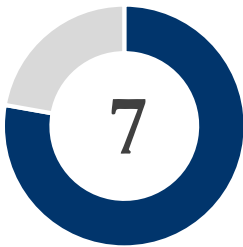
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COMPANY DESCRIPTION

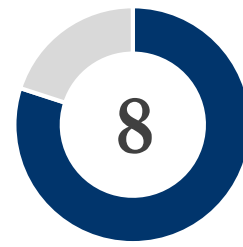
CTT Systems is a Swedish based aircraft original equipment manufacturers (OEM) supplier founded in 1991. CTT manufactures and sells humidity and moisture control systems for commercial aircrafts. They aim to solve the humidity paradox which occurs in aircrafts, a wet fuselage but a dry cabin. With a de-humidifier in the fuselage, airlines can lower their fuel and maintenance costs, while humidifiers in-flight cabins heightens the flight experience. CTT markets its products to aircraft OEMs and is the sole supplier to Boeing and Airbus, and to commercial airlines for after installation. Boeing and one OEM customer account for over 70% of revenues. CTT's main product offers are *Zonal Drying*, a de-humidifier system for the fuselage, *Cair system*, a humidification system for the cabin, and *Cabin humidifier*, a humidification system for cockpit and crew resting place. CTT offers aftermarket services which account for 32% of revenues.

VALUE DRIVERS



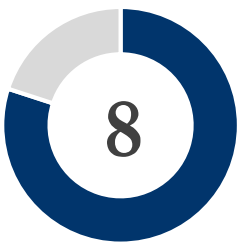
CTT is the sole supplier of OEM humidity and moisture control systems to Boeing and Airbus commercial wide-body aircrafts. However, there is still potential to penetrate the market further, especially with new aircraft models. The underlying growth of in flight traffic is also in their favor. The CTT business model includes a strong aftermarket. The wide moat in the aerospace OEMs market is to their advantage.

FINANCIAL HISTORY



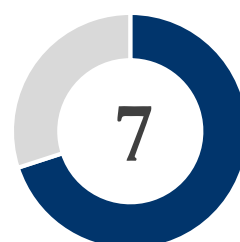
CTT has during the past five years had an average organic growth of 16.5%, with an EBIT-margin of 28.6%. CTT was founded in 1997 and became profitable in 2012, at least since 2009 they have maintained a positive cash flow. In 2018 the company's ROIC (NOPAT/Invested Capital) were 82% with a -23% net debt/equity ratio.

MANAGEMENT



Torbjörn Johansson has been CEO since 1997. Management is experienced engineers within the aerospace industry and has a history in managing industrial companies. As of 2018, the CEO of Latour Industries joined the Executive Board. Management has also invested in CTT shares, and Chairman, Tomas Torlöf, is the largest shareholder (13%).

RISK PROFILE



CTT is highly dependent on two key accounts which account for 72% of revenues. Airbus account for 22% and Boeing stood for 50%. Since almost all revenue is paid in USD and expenses in SEK, CTT's currency exposure is high. Future of penetration grade of systems per plane and on new models, CCT's ability to market its products, and OEMs' and airlines' will to invest.

CTT SYSTEMS (CTT)



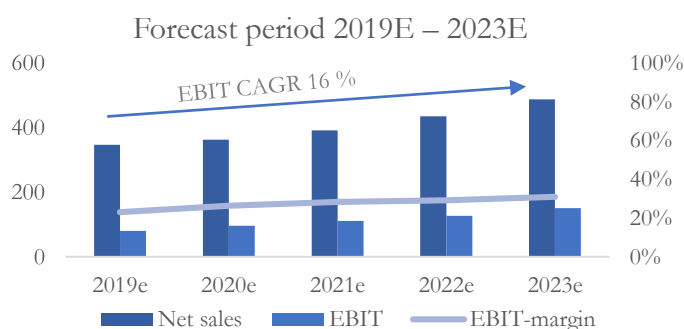
CTT Systems is the sole provider of humidification and moisture control systems to the near-duopoly of aircraft manufacturers, Boeing and Airbus. Although having recently lost the important B787 account, CTT is still expected to see near double-digit growth through the new 777X and strong aftermarket. According to DCF-analysis, with WACC of 10.6%, the company is at fairly valued at 153.8 SEK. This indicates a potential downside of 9% from current trading levels.

➤ **Increase in wealth, and investments for health and cost-cutting.** Global commercial aircraft fleet is projected to grow at a 3.6% CAGR between 2017-2037 due to a wealthier population. The low-cost airline market has in the past ten years grown with a CAGR of 5% and constitute 31% of the market today. Spending on the well being of passengers and crew is increasing. This provides a large scale growth opportunity if CTT can penetrate the market further.

➤ **Humidification orders to Boeing 777X and OEM will drive growth in coming years.** Initial provisions in 2019 will partly cover loss from Boeings decision not to order more dehumidifiers. However, dehumidifiers increased with 16%, the product segments largest challenge is to penetrate narrowbody sales and become a catalogue standard.

➤ **Aftermarket sales increased with 31% during 2018 which decreases the cyclical nature of the business.** Sales increase mainly due to an increase in pad sales consumables driven by humidifiers. Total accumulated aftermarket value for one humidifier is estimated to be four times as large as the original sales value. As a player in an underlying cyclical market, the aftermarket lowers cyclical risks and provides a stable source of recurring revenue with high margins.

➤ **Large potential but not without risks.** The largest risks are CTT's dependency on Boeing and an OEM customer which account for 50% and 21% of total revenues. Their investments depend on their investment will and value of CTT's products. CTT's products must meet quality requirements and regulations.



CTT SYSTEMS (CTT)

Current Price (SEK)	169
52 v Low/High	103.8 / 230
Market Cap (MSEK)	2118
Net Debt (MSEK)	73
Enterprise Value (MSEK)	2191
Sector	Aerospace/defence
Exchange	Nasdaq Stockholm
Next Report	2019-07-19

1 Year Chart

As of 2019.05.14



MSEK	2019E	2020E	2021E
Sales	353	370	403
Growth (%)	10	8	12
Gross Marg (%)	68	69	71
EBITDA	93	102	117
EBIT Marg (%)	26.3	27.5	28.9
Earnings	66	74	86
Earnings Marg (%)	18.8	20	21.3
EV/S	6.2	5.9	5.4
EV/EBITDA	23.1	21.4	18.7
P/E	32.8	29.5	25.4
ND/EBITDA	-0.3	-1.5	-2.4
FCF to Equity	76	105	116

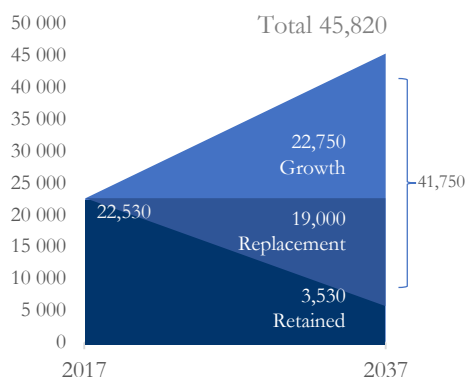
Ownership as of 2018-12-31

Tomas Torlöf	13%
Rockwell Collins Inc.	9%
Swedbank Robur Fonder	8%
Catron Design AB	4%

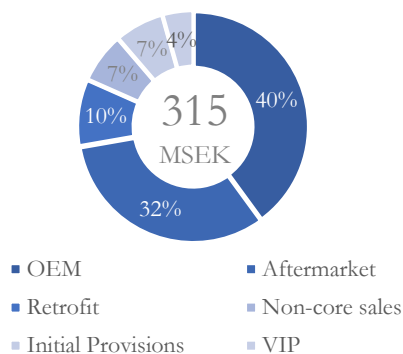
INVESTMENT THESIS



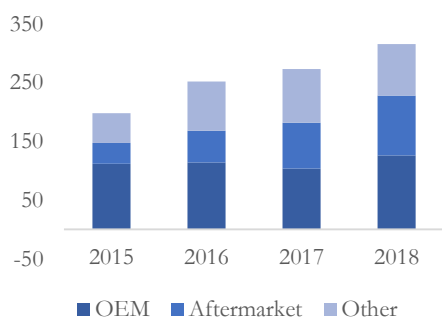
Global commercial aircraft fleet growth 2017-2037



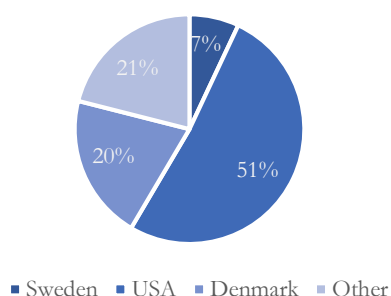
System Sales 2018



Aftermarket and OEM Sales of Total Net Sales 2014-2018



Sales per region 2018



CTT de-humidifier decreases condensation between fuselage between cabin insulation and outer shell. This can decrease airplane weight with 300kg, which decreases fuel usage with up to 0.4%-0.6% per year and minimizes CO₂ emissions and maintenance costs. The CTT humidifiers heightens the moisture from 8% to 22%, which increases overall comfort for both passengers and crew.

The global commercial aircraft is projected to grow at a 3.6% CAGR until 2037 due to a wealthier population. Boeing predicts strong economic growth and a growing global middle class, which will in 2037 account for 56% of the world population in contrast to 40% in 2017. This drives the commercial airline market. Additionally, the low-cost airline market has in the past decade grown with a CAGR of 5% and constitute 31% of the market today. Production ramp-up is likely as commercial aircraft order backlog remains strong. Although, CTT's underlying market is cyclical; airplane backlog orders is of future demand and airplane deliveries are planned 7-10 years ahead (Appendix I). This enables CTT to predict deliveries and adjust their production rate. CTT has a large potential to scale in OEM sales and following aftermarket and retrofit sales. CTT must penetrate the market further by increasing system/aircraft which in turn depends on how well they market their products to both airline and OEMs and increase their willingness to invest in them. In 2018, CTT humidifiers has been selected by four airlines for business class cabin for the first time to be delivered in 2019, which indicates a will to invest in heightening cabin standards.

Boeing 777X in option catalogue will drive revenues in near future and initial provision will impact revenues in 2019. Production rate increases and new programs are the key trigger for investments into aerospace production equipment. During the past decade CTT growth has been driven by three large OEM orders by Boeing. CTT estimates that total order value is estimated to be 50% of Boeing 787 which stood for 10-15% of revenues during 2017-H1'18. Initial provision from B777X will impact revenue in 2019. First installations of B777X is planned in 2020 and full production rate in 2023-2025. This will partly replace lost revenues from B787 after Boeings decision to de-select CTT de-humidifier as standard equipment, which will put pressure on margins by the end of 2019 and in 2020. The dehumidifier segment grew with 16% in 2018, and has large growth possibilities if CTT is able to penetrate the narrow-body airplane market and become a catalogue standard. The challenge to overcome OEMs' tendency to cut costs and shed weight still remains and hinders their will to invest. Humidifiers for cockpit and crew has proven to be a more popular choice. B787 has humidifiers in 80% of their cockpits. Humidifier OEM deliveries has grown at a CAGR of 33% in 2014-2018, in contrast to dehumidifier deliveries with a CAGR of 18%.

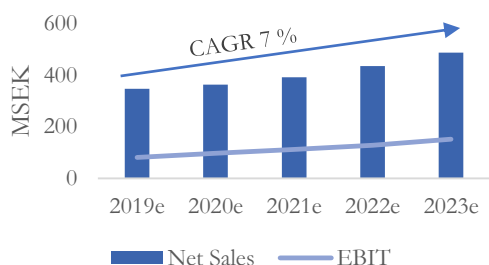
In 2018 aftermarket sales increased with 31% due to increase in humidifier pad sales and accounted for 32% of revenues. Airplane models are in production for 20 years, and has an economic lifetime expectancy of 20 years. Sales consists of consumables, spare parts and reparation (after four year guarantee) foremost via aftermarket distributors such as Satair (Airbus) and Boeing. Humidifier sales has higher margins than dehumidifiers and is the primary driver for aftermarket growth. Pre-installed systems also drives retrofit sales since airlines strive for standardization. Already installed B787 humidifiers will continue to generate aftermarket sales. Aftermarket sales is an impactful and non-cyclical source of potential revenue. The aftermarket has higher margins than OEM market, but is not as protected. If pre-installed, accumulated aftermarket sales value is estimated to be roughly four times as large as the original investment for one humidifier after 20 years (Appendix II).

A small player with a wide moat. CTT is highly exposed to USD and highly affected by customers' planned production and relationships. However, despite being highly dependent on two customers which stand for 72% of revenues, Boeing (50%) and Airbus (22%), CTT still succeeds in keeping 72% in gross margin. The conservative approaches in OEM selection and the oligopolistic OEM supplier market enables CTT to maintain long-term relationships with OEMs. Furthermore, consolidation trends among OEM suppliers are also strong within the aerospace industry. (Appendix III). This is to gain benefits from economies of scale benefits and strengthening their position towards OEMs. However, long product life-time, certifications and regulations and high development costs in the OEM supply chain model also upholds a wide moat.

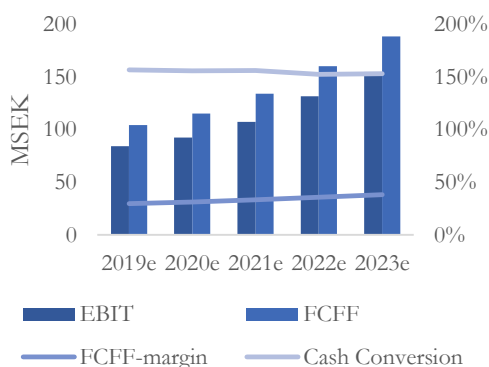
Risk-free rate (PwC 2019)	2.6%
Market risk premium (PwC 2019)	8.3%
Company specific risk premium due to high customer dependency	1.0%
Beta Aerospace/Defense (Damadoran 2018)	1.2
WACC	10.6%
Long-term growth rate	2%

	Target Price	As of SP (%)	Sales CAGR (%)
Base	154	-9	7
Bear	112	-34	4.7
Bull	173	2	10

Estimated Financials 2019-2023
Base Case



Financial Development 2019E- 2023E
Base Case



Net Sales (MSEK)	2019E	2020E	2021E	2022E	2023E
Base	353	370	403	448	497
Bear	350	361	379	408	440
Bull	354	384	434	495	569

The valuation of CTT has been conducted through a DCF analysis with a forecast period between 2019E–2023E. WACC is calculated to a 10.6%, with recommended PwC risk-free rate of 2.6% and market risk and size adjusted premium of 8.3%. CTT is listed on Nasdaq Stockholm Small Cap list with a market capitalisation of 2055 MSEK. The stock is sensitive to company-specific events. New orders will drive the stock value up, while news of lost orders has a great impact on stock price, e.g., after news of deselection of dehumidifiers on B787, the stock fell 35%. The CTT business model has expectations of a growing aftermarket in line with the moisture control systems installation base. Therefore volume and aftermarket sales are two key factors that have the greatest effect on EBIT-margin.

A base case scenario projects a downside of 9%. In the forecast period of 2019E–2023E revenue growth is estimated at a CAGR of 7%. This is motivated by topline growth foremost driven by CTT's B777X humidifier sales and the following aftermarket. Dehumidifiers will grow in line with historic growth. Initial provisions from B777X will partly replace lost revenues from B787 after Boeing's decision to de-select CTT dehumidifier to aircraft as a standard. B787 stood for 10–15% of revenues during 2017–H1'18 which will press sales margins by the end of 2019. Current B787 orders will continue to generate aftermarket sales and B777x will boost new aftermarket sales. However, B777X will only make up for 50% of B787 revenues. CTT predicts that A350 and B787 humidifier deliveries will increase by 15% in 2019. Cost of sold goods will follow the long term negative trend, i.e. CTT will slightly improve margins after 2020. Personnel is expected to increase slightly in order to meet new orders; however, in total the general administrative expenses as a percentage of sales will decrease. Net capital expenditures will increase slightly as they invest in their expansion. Operating net working capital as a percentage of sales will stay at its current level, and grow proportionally. (Appendix IV & VII)

In a bear case scenario, organic topline growth is estimated at a CAGR of 4.7% in the same forecast period. The WACC is calculated 11.1%, which includes a 1.5% company-specific risk premium due to underestimated currency risk. In this case, dehumidifier sales will grow at a lower rate than in base case and lower gross margins. However, humidifier sales will be at the same level and aftermarket sales for delivered orders will continue to generate revenue. Loss from B787 will put extra pressure on gross margin in 2019E–2020E. In a worst-case short-term scenario, the B777x orders will be delayed up to 2 years or production rate will slow. This motivates a downside of 34% with a target price at 114 SEK. (Appendix V)

In a bull case scenario, commercial airlines and OEMs will select CTT humidifier sales will be over expectation and dehumidifier sales will grow over expected rate. Total organic growth is estimated to be at a CAGR of 10% during the previously mentioned forecast period. Dehumidifiers will penetrate the narrow body aircraft further and combined with humidifier sales, this will boost future aftermarket sales and retrofit sales significantly. CTT will keep and slightly improve gross margin and defend market share. This motivates an upside of 2% with a target price of 173 SEK. (Appendix VI)



Tomas Torlöv (1,634,336 shares through Trulscm)

Chairman of the Executive Board since 2013

Education: Engineer, KTH, Royal Institute of Technology.

Other experiences: Board Member at Trulscm Förvaltning, Trulscm Aktiebolag, Pelago Venture Partners, M2J Holding, M2J Software Holding (before Tilgin Holding), Seliro (before Nilgir AB), Tilgin, tGem AB, HGA Software. Board member since 2013.

Torbjörn Johansson (49,322 shares)

CEO since 1997

Education: Engineer, the Institute of Technology Linköping University. Student engineer at SAAB flight division 1982–1983.

Other experiences: Development engineer at JAS39 Gripen, SAAB 1983–1988. Development engineer/manager EPI GmbH (now Telair) in Bayern Germany 1988–1991. Technical manager Elektrometall GmbH i Bayern Tyskland 1991–1996. Technical manager CTT Systems 1996–1997.



Daniel Ekstrand (2,194 shares)

CFO since 2016

Education: Business Administration, Stockholm School of Economics. Scania Trainee program 2005- 2006.

Other experiences: Financial Controller Scania 2006-2009, Accounting manager Engine Production Scania 2009-2011, CFO Engine Machining & Foundry 2011-2013, CFO Bergsgruppen in Nyköping 2013-2015. Board Member of Stego Plast Vacuumforming and Dikt Holding.

Björn Lenander (500 shares)

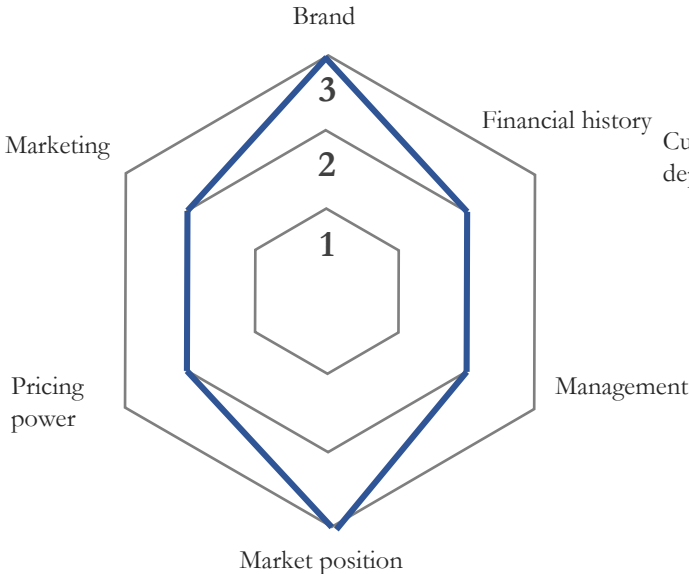
Member of the Executive Board since 2018

Education: Engineer, KTH, Royal Institute of Technology.

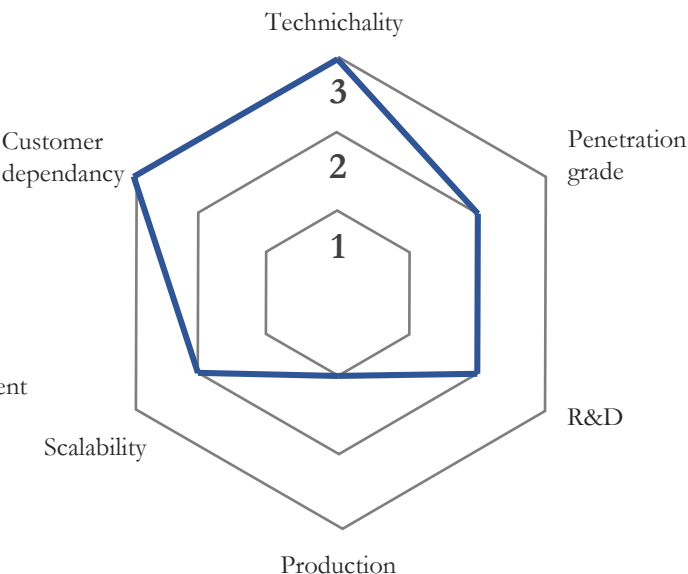
Other experiences: CEO Latour Industries AB. Chairman of the Executive Board of Aritco Group, Bemsig, Densig, LSAB Group, REAC, Vimec Srl. Board Member of Aritco Lift, AVT Group, Bastec, Elvaco, Swegon Group, Terratech, and Vialan.



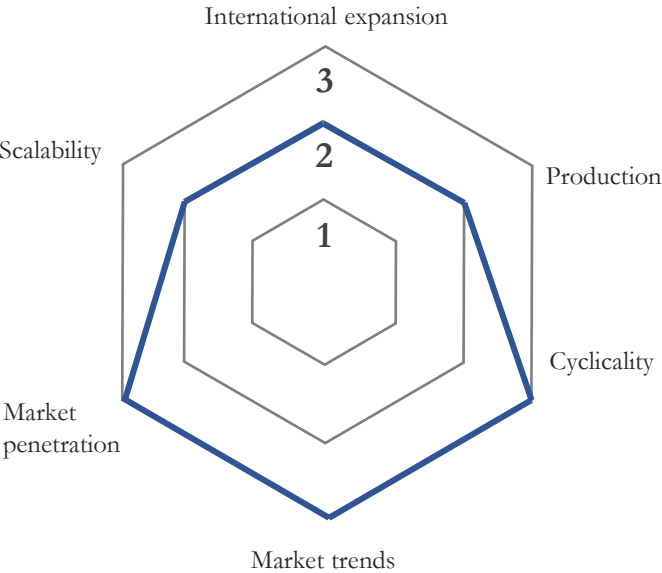
STRENGTHS



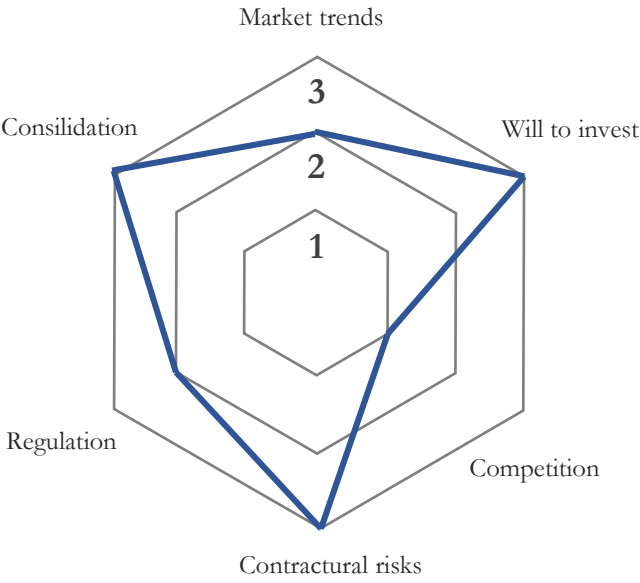
WEAKNESSES



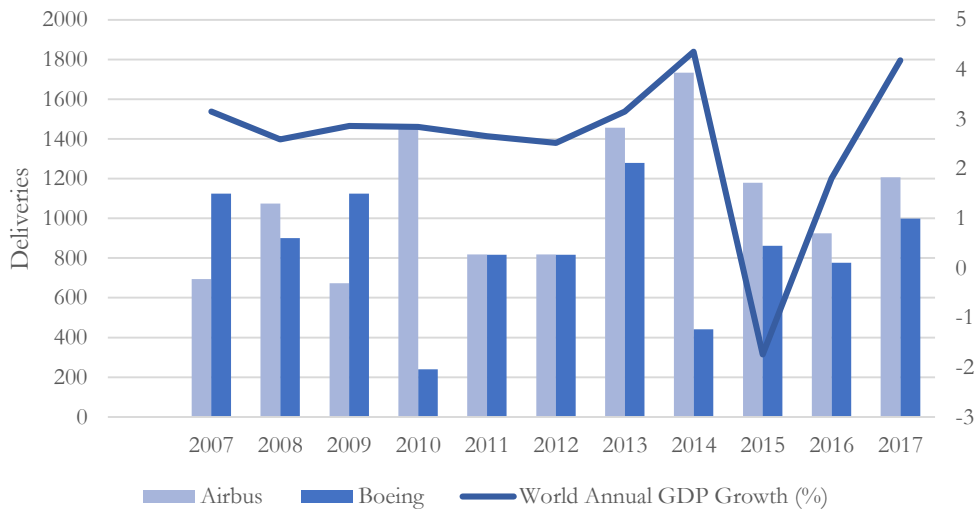
OPPORTUNITIES



THREATS

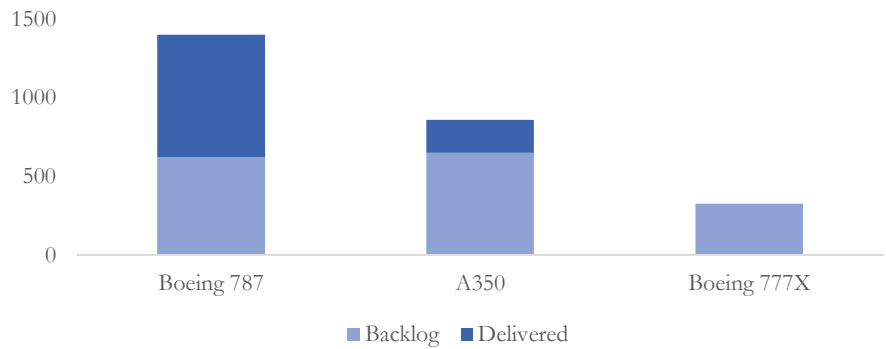


Boeing and Airbus Total Commercial Deliveries 2007-2017



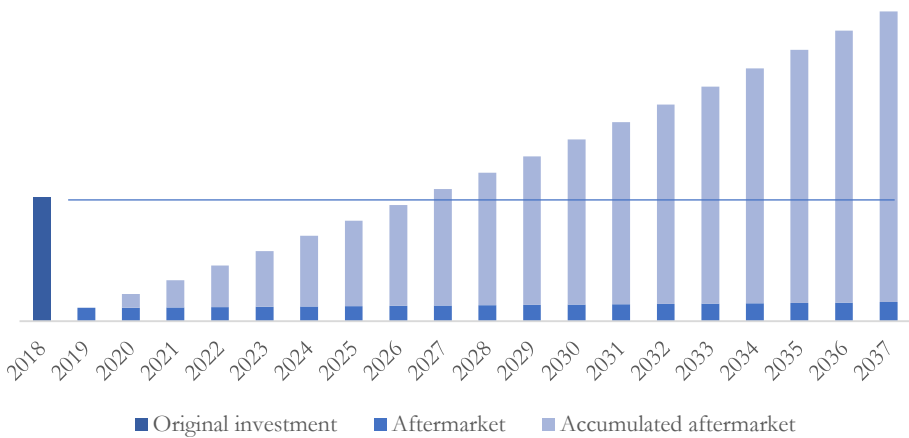
Source: Boeing, Airbus, World Bank Group, LINC

Humidifiers Backlog/Delivered
OEM Widebody Program



Source: CTT, LINC

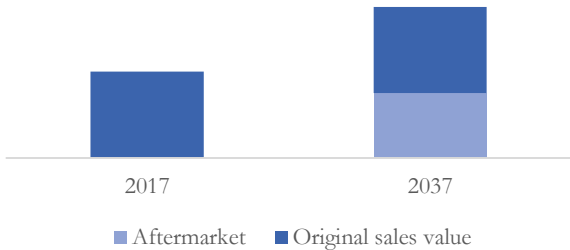
Humidifier's worth during airplane lifetime



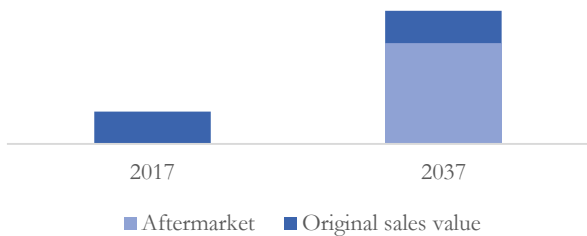
Source: CTT, LINC

The chart illustrates that the total aftermarket value of OEM-instillation (Boeing 787 with two Zonal drying and three humidifiers) is roughly three times as large as the original sales value. The calculation is based on 20 years lifetime with 2% inflation on aftermarket products and maintenance according to Boeing’s recommendation.

Dehumidifier Aftermarket Value

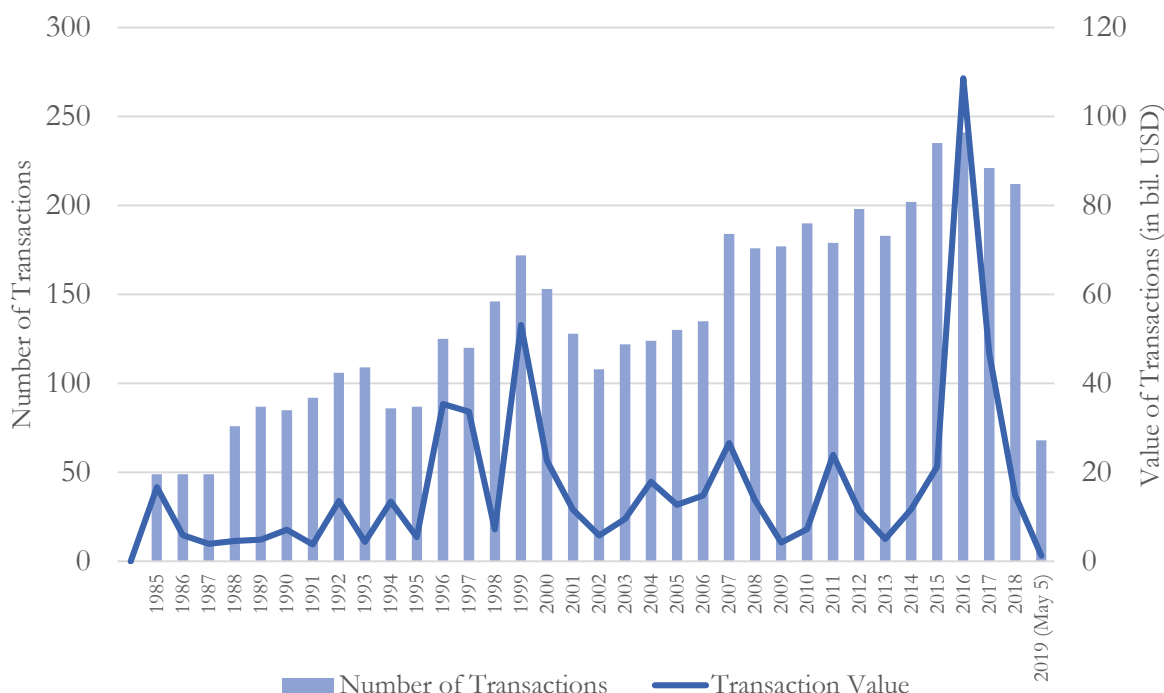


Humidifier Aftermarket Sales Value



Source: CTT, LINC

Global Mergers & Acquisitions - Aerospace & Defense



Source: Institute for Mergers, Acquisitions and Alliances, LINC

Aerospace & Defense Public Valuations

Components & Subsystems	LTM Revenue	LTM EBITDA Margin (%)	Market Cap	TEV	TEV/LTM EBITDA
Amtek	44465	26	16711	18360	15,8
Circor	792	9,7	733	1425	18,5
Cobham	2774	14,1	4038	4558	11,6
Crane	2912	17,6	4784	5556	10,8
Meggitt	740	26,1	5027	6330	8,8
RBC Bearings	675	24,3	3105	3224	19,6
Teledyne	2733	18,2	7119	8067	16,2
Timken	3183	15,1	3379	4361	9,1
TransDigm	3603	47,2	18096	2819	17
Woodward	2174	16,9	4728	5259	14,3
Median		21,50			14,2
Controls & Systems					
Astronics	651	11	1009	1269	17,8
Curtiss -Wright	2295	19,9	5262	5680	12,5
Eaton	20807	17	32684	39811	11,3
Heroux-Devtek	300	14,1	418	449	10,7
Honeywell	41434	20,5	107595	115786	13,6
ISSC	16	NM	49	26	NM
Moog	2592	21,7	2787	3438	10,5
Parker-Hannifin	13981	16,9	20722	25411	10,8
Rockwell Collins	8478	21,3	22119	28824	16
Median		16,6			12,9

Trading metrics as of 6.30.18. Valuation multiples based on LTM financial data converted at the historical exchange rate as of each fiscal period end date, and exchange excludes multiples over 25x and under 0x.

Source: James Capital Partners, LINC

APPENDIX IV

Base case

CTT SYSTEMS	ACTUAL PERIOD					FORECAST PERIOD				
	2014	2015	2016	2017	2018	2019e	2020e	2021e	2022e	2023e
Net Sales	195,2	198,1	251,6	273,2	315,3	353,4	370,0	403,3	447,6	496,9
Organic growth	30,0%	1,5%	27,0%	8,6%	15,4%	12%	5%	9%	11%	11%
Structural growth										
Other revenues	10,1	13,7	2,9	4,4	20,6	6,5	3,0	3,0	8,0	9,0
COGS	-80,7	-77,9	-84,4	-86,4	-109,2	-116,5	-122,1	-129,1	-138,8	-149,1
Gross Profit	124,6	133,9	170,1	191,2	226,7	243,46	250,89	277,23	316,87	356,82
Gross margin	63,8%	67,6%	67,6%	70,0%	71,9%	68,9%	67,8%	68,7%	70,8%	71,8%
Selling General and Administrative Expenses	-104,4	-95,1	-107,4	-125,6	-130,6	-150,58	-149,16	-160,56	-175,99	-192,86
Personnel	-56,2	-57,6	-62,5	-68,7	-76,1					
Other general and administrative expenses	-48,2	-37,5	-44,9	-56,9	-54,5					
As % of sales	-53,5%	-48,0%	-42,7%	-46,0%	-41,4%	-43%	-40%	-40%	-39%	-39%
EBITDA	20,2	38,8	62,7	65,6	96,1	92,87	101,73	116,67	140,89	163,96
EBITDA margin	10,35%	19,59%	24,92%	24,01%	30,48%	26,3%	27,5%	28,9%	31,5%	33,0%
Amort of Intang - Acquis related (Pre-tax)	-14,6	-9,8	-12,0	-7,7	-6,1	-8,60	-9,20	-9,20	-9,20	-9,20
Merger/ Acquisition Expense	0	0	0	0	0	0,00	0,00	0,00	0,00	0,00
Other one-time charges	0	0,5	-0,4	0	0	0,00	0,00	0,00	0,00	0,00
Operating Income (EBIT)	5,6	29,5	50,3	57,9	90,2	84,27	92,53	107,47	131,69	154,76
EBIT margin	2,9%	14,9%	20,0%	21,2%	28,6%	23,8%	25,0%	26,6%	29,4%	31,1%
Net Financial items	-4	-1,3	-2,4	3	-0,7	0,25	0,60	0,70	0,60	0,50
As % of sales	-2,0%	-0,7%	-1,0%	1,1%	-0,2%	0,1%	0,2%	0,2%	0,1%	0,1%
Earnings Before Tax (EBT)	1,6	28,2	47,9	60,9	89,5	84,52	93,13	108,17	132,29	155,26
Income tax	0	0,5	-0,4	0	0	-18,09	-19,19	-22,28	-27,25	-31,98
Tax, deferred, adjustments	0	-0,1	-10,7	-13,5	-19,8					
As % of EBT	0,0%	-1,4%	23,2%	22,2%	22,1%	21,4%	20,6%	20,6%	20,6%	20,6%
Net Income	1,6	28,7	47,5	60,9	69,7	66,43	73,95	85,89	105,04	123,27
Net margin	0,8%	14,5%	18,9%	22,3%	22,1%	18,8%	20,0%	21,3%	23,5%	24,8%

CTT SYSTEMS	ACTUAL PERIOD					FORECAST PERIOD				
	2014	2015	2016	2017	2018	2019e	2020e	2021e	2022e	2023e
FREE CASH FLOW TO FIRM										
EBIT	5,6	29,5	50,3	57,9	90,2	84,3	92,5	107,5	131,7	154,8
Income tax	0,00	-0,1	-10,7	-13,5	-19,8	-18,1	-19,2	-22,3	-27,3	-32,0
Depreciation & amortization	14,6	9,8	12	7,7	6,1	8,6	9,2	9,2	9,2	9,2
As a % of sales	7%	5%	5%	3%	2%	2,4%	2,5%	2,3%	2,1%	1,9%
NetCAPEX, excl. Acquisitions	-3,8	-2,6	-51,9	82,63	25,87	35,3	40,7	48,4	58,2	69,6
As a % of sales	-2%	-1,3%	-21%	30%	8%	10%	11%	12%	13%	14%
Operating net working capital	19,2	37,3	68,1	57,0	82,5	88,4	96,2	104,9	116,4	129,2
As a % of sales	10%	19%	27%	21%	26%	25%	26%	26%	26%	26%
Change in net working capital	-5,5	-18,1	-30,8	11,1	-25,5	-5,9	-7,8	-8,7	-11,5	-12,8
As a % of sales	-3%	-9%	-12%	4%	-8%	1,7%	2,1%	2,1%	2,6%	2,6%
Free Cash Flow to Firm (FCFF)	10,9	18,5	-31,1	145,8	76,9	104,3	115,4	134,1	160,3	188,7

DCF					
Free cash flow	104,3	115,4	134,1	160,3	188,7
Discount year	1	2	3	4	5
Discount rate	0,90	0,82	0,74	0,67	0,60
Discounted FCFF	94,3	94,3	99,1	107,0	113,9

DCF Assumptions & Inputs	
Current share price	169,00 kr
# shares outstanding	12,5
Market value of Equity	2117,5
Market value of Debt	
Current Enterprise Value	2113,6
Debt/Equity ratio	0,00%
Risk free rate	2,60%
Market risk premium	8,30%
Company specific risk premium	1,00%
Beta	1,23
Cost of Equity	10,61%
Cost of Debt	-0,96%
Effective tax rate	22,12%
WACC	10,63%
Long-term growth rate	2,00%

DCF Output	
NPV FCFF 19-23	508,5
NPV FCFF terminal	1346,0
NPV, EV	1854,5
Net debt	73,1
Equity Value	1927,6
# shares outstanding	12,5
DCF Value per share	153,8
Up-/downside	-9%
Explicit forecast value	27%
Terminal value	73%

Implied Multiples (LFY/LTM)	
P/E	27,7
EV/FCFF	24,1
EV/EBIT	20,6
EV/EBITDA	19,3

Source: CTT, LINC

APPENDIX V

Bear case

CTT SYSTEMS	ACTUAL PERIOD					FORECAST PERIOD				
	2014	2015	2016	2017	2018	2019e	2020e	2021e	2022e	2023e
Net Sales	195,2	198,1	251,6	273,2	315,3	349,77	361,17	379,23	407,67	440,28
Organic growth	30,0%	1,5%	27,0%	8,6%	15,4%	10,9%	3,3%	5,0%	7,5%	8,0%
Structural growth										
Other revenues	10,1	13,7	2,9	4,4	20,6	12,5	9	3	8	9
COGS	-80,7	-77,9	-84,4	-86,4	-109,2	-130,4	-144,5	-132,7	-142,7	-154,1
Gross Profit	124,6	133,9	170,1	191,2	226,7	231,9	225,7	249,5	273,0	295,2
Gross margin	63,8%	67,6%	67,6%	70,0%	71,9%	66%	62%	66%	67%	67%
Selling General and Administrative Expenses	-104,4	-95,1	-107,4	-125,6	-130,6	-149,1	-148,0	-153,5	-163,0	-173,8
Personnel	-56,2	-57,6	-62,5	-68,7	-76,1					
Other general and administrative expenses	-48,2	-37,5	-44,9	-56,9	-54,5					
As % of sales	-53,5%	-48,0%	-42,7%	-46,0%	-41,4%	-42,6%	-41,0%	-40,5%	-40,0%	-39,5%
EBITDA	20,2	38,8	62,7	65,6	96,1	82,9	77,7	96,0	110,0	121,4
Amort of Intang - Acquis related (Pre-tax)	-14,6	-9,8	-12,0	-7,7	-6,1	-8,6	-9,2	-9,2	-9,2	-9,2
Merger/Acquisition Expense	0	0	0	0	0	0	0	0	0	0
Other one-time charges	0	0,5	-0,4	0	0	0	0	0	0	0
Operating Income (EBIT)	5,6	29,5	50,3	57,9	90,2	74,3	68,5	86,8	100,8	112,2
EBIT margin	2,9%	14,9%	20,0%	21,2%	28,6%	21%	19%	23%	25%	25%
Net Financial items	-4	-1,3	-2,4	3	-0,7	0,25	0,6	0,7	0,6	0,5
As % of sales	-2,0%	-0,7%	-1,0%	1,1%	-0,2%	0%	0%	0%	0%	0%
Earnings Before Tax (EBT)	1,6	28,2	47,9	60,9	89,5	74,5	69,1	87,5	101,4	112,7
Income tax	0	0,5	-0,4	0	0	-18,0	-23,0	-18,0	-20,9	-23,2
Tax; deferred, adjustments	0	-0,1	-10,7	-13,5	-19,8					
As % of EBT	0,0%	-1,4%	23,2%	22,2%	22,1%	24,2%	33,3%	20,6%	20,6%	20,6%
Net Income	1,6	28,7	47,5	60,9	69,7	56,5	46,1	69,5	80,5	89,5
Net margin	0,8%	14,5%	18,9%	22,3%	22,1%	16,2%	12,8%	18,3%	19,8%	20,3%

CTT SYSTEMS	ACTUAL PERIOD					FORECAST PERIOD				
	2014	2015	2016	2017	2018	2019e	2020e	2021e	2022e	2023e
FREE CASH FLOW TO FIRM										
EBIT	5,6	29,5	50,3	57,9	90,2	74,3	68,5	86,8	100,8	112,2
Income tax	0,00	-0,1	-10,7	-13,5	-19,8	-18,0	-23,0	-18,0	-20,9	-23,2
Depreciation & amortization	14,6	9,8	12	7,7	6,1	8,6	9,2	9,2	9,2	9,2
As a % of sales	7%	5%	5%	3%	2%	2,5%	2,5%	2,4%	2,3%	2,1%
NetCAPEX, excl. Acquisitions	-3,8	-2,6	-51,9	82,63	25,87	35,0	36,1	37,9	40,8	44,0
As a % of sales	-2%	-1,3%	-21%	30%	8%	10%	10%	10%	10%	10%
Operating net working capital	19,2	37,3	68,1	57,0	82,5	83,9	83,1	79,6	77,5	74,8
As a % of sales	10%	19%	27%	21%	26%	24%	23%	21%	19%	17%
Change in net working capital	5,5	18,1	30,8	-11,1	25,5	1,4	-0,9	-3,4	-2,2	-2,6
As a % of sales	3%	9%	12%	-4%	8%	-0,4%	0,2%	0,9%	0,5%	0,6%
Free Cash Flow to Firm (FCFF)	21,9	54,7	30,5	123,6	127,9	101,3	90,0	112,5	127,7	139,6

DCF

Free cash flow	101,3	90,0	112,5	127,7	139,6
Discount year	1	2	3	4	5
Discount rate	0,90	0,81	0,73	0,66	0,59
Discounted FCFF	91,1	72,8	81,9	83,7	82,4

DCF Assumptions & Inputs

Current share price	169,00 kr
# shares outstanding	12,5
Market value of Equity	2117,5
Market value of Debt	0
Current Enterprise Value	2113,6
Debt/Equity ratio	0,00%
Risk free rate	2,60%
Market risk premium	8,30%
Company specific risk premium	1,50%
Beta	1,23
Cost of Equity	11,11%
Cost of Debt	-1,0%
Effective tax rate	22,1%
WACC	11,13%
Long-term growth rate	2,00%

DCF Output

NPV FCFF 19-23	412,0
NPV FCFF terminal	919,9
NPV, EV	1331,9
Net debt	73,1
Equity Value	1405,0
# shares outstanding	12,5
DCF Value per share	112,1
Up/downside	-34%

Explicit forecast value	31%
Terminal value	69%

Implied Multiples (LFV/LTM)

P/E	20,2
EV/FCFF	10,4
EV/EBIT	14,8
EV/EBITDA	13,9

Source: CTT, LINC

APPENDIX VI

Bull case

CTT SYSTEMS	ACTUAL PERIOD						FORECAST PERIOD				
	2013	2014	2015	2016	2017	2018	2019e	2020e	2021e	2022e	2023e
INCOME STATEMENT, MSEK											
Net Sales	150,2	195,2	198,1	251,6	273,2	315,3	354,2	384,3	434,2	495,0	569,2
Organic growth	-1,2%	30,0%	1,5%	27,0%	8,6%	15,4%	12,3%	8,5%	13,0%	14,0%	15,0%
Structural growth											
Other revenues	9,7	10,1	13,7	2,9	4,4	20,6	12,5	9	3	8	9
COGS	-62	-80,7	-77,9	-84,4	-86,4	-109,2	-121,5	-126,8	-130,3	-146,0	-167,9
Gross Profit	97,9	124,6	133,9	170,1	191,2	226,7	245,2	266,4	306,9	357,0	410,3
Gross margin	65,2%	63,8%	67,6%	67,6%	70,0%	71,9%	69,2%	69,3%	70,7%	72,1%	72,1%
Selling General and Administrative Expenses	-81,7	-104,4	-95,1	-107,4	-125,6	-130,6	-150,9	-151,6	-169,2	-190,4	-216,1
Personnel	-44,7	-56,2	-57,6	-62,5	-68,7	-76,1					
Other general and administrative expenses	-37,0	-48,2	-37,5	-44,9	-56,9	-54,5					
As % of sales	-54,4%	-53,5%	-48,0%	-42,7%	-46,0%	-41,4%	-42,6%	-39,5%	-39,0%	-38,5%	-38,0%
EBITDA	16,2	20,2	38,8	62,7	65,6	96,1	94,3	114,8	137,8	166,6	194,2
Amort of Intang - Acquis related (Pre-tax)	-9,9	-14,6	-9,8	-12,0	-7,7	-6,1	-8,6	-9,2	-9,2	-9,2	-9,2
Merger/ Acquisition Expense	0	0	0	0	0	0	0	0	0	0	0
Other one-time charges	3,3	0	0,5	-0,4	0	0	0	0	0	0	0
Operating Income (EBIT)	9,6	5,6	29,5	50,3	57,9	90,2	85,7	105,6	128,6	157,4	185,0
EBIT margin	6,4%	2,9%	14,9%	20,0%	21,2%	28,6%	24,2%	27,5%	29,6%	31,8%	32,5%
Net Financial items	-1,9	-4	-1,3	-2,4	3	-0,7	0,25	0,6	0,7	0,6	0,5
As % of sales	-1,3%	-2,0%	-0,7%	-1,0%	1,1%	-0,2%	0%	0%	0%	0%	0%
Earnings Before Tax (EBT)	7,7	1,6	28,2	47,9	60,9	89,5	85,9	106,2	129,3	158,0	185,5
Income tax	3,3	0	0,5	-0,4	0	0	-18,0	-23,0	-26,6	-32,5	-38,2
Tax, deferred, adjustments	-0,1	0	-0,1	-10,7	-13,5	-19,8					
As % of EBT	-41,6%	0,0%	-1,4%	23,2%	22,2%	22,1%	20,9%	21,7%	20,6%	20,6%	20,6%
Net Income	11,0	1,6	28,7	47,5	60,9	69,7	67,9	83,2	102,6	125,4	147,3
Net margin	7,3%	0,8%	14,5%	18,9%	22,3%	22,1%	19,2%	21,7%	23,6%	25,3%	25,9%
FREE CASH FLOW TO FIRM											
EBIT	9,6	5,6	29,5	50,3	57,9	90,2	85,7	105,6	128,6	157,4	185,0
Income tax	-0,1	0,00	-0,1	-10,7	-13,5	-19,8	-18,0	-23,0	-26,6	-32,5	-38,2
Depreciation & amortization	9,9	14,6	9,8	12	7,7	6,1	8,6	9,2	9,2	9,2	9,2
As a % of sales	7%	7%	5%	5%	3%	2%	2,4%	2,4%	2,1%	1,9%	1,6%
NetCAPEX, excl. Acquisitions	3,2	-3,8	-2,6	-51,9	82,63	25,87	35,4	42,3	52,1	59,4	74,0
As a % of sales	2%	-2%	-1,3%	-21%	30%	8%	10%	11%	12%	12%	13%
Operating net working capital	13,7	19,2	37,3	68,1	57,0	82,5	85,0	88,4	95,5	108,9	125,2
As a % of sales	9%	10%	19%	27%	21%	26%	24,0%	23,0%	22,0%	22,0%	22,0%
Change in net working capital	-3,9	-5,5	-18,1	-30,8	11,1	-25,5	-2,5	-3,4	-7,1	-13,4	-16,3
As a % of sales	-3%	-3%	-9%	-12%	4%	-8%	0,7%	0,9%	1,6%	2,7%	2,9%
Free Cash Flow to Firm (FCFF)	18,7	10,9	18,5	-31,1	145,8	76,9	109,2	130,7	156,1	180,1	213,7

DCF					
Free cash flow	109,2	130,7	156,1	180,1	213,7
Discount year	1	2	3	4	5
Discount rate	0,90	0,82	0,74	0,67	0,60
Discounted FCFF	98,7	106,8	115,3	120,2	128,9

DCF Assumptions & Inputs	
Current share price	169,00 kr
# shares outstanding	12,5
Market value of Equity	2117,5
Market value of Debt	0
Current Enterprise Value	2113,6
Debt/Equity ratio	0,00%
Risk free rate	2,60%
Market risk premium	8,30%
Company specific risk premium	1,00%
Beta	1,23
Cost of Equity	10,61%
Cost of Debt	-0,96%
Effective tax rate	22,1%
WACC	10,63%
Long-term growth rate	2,00%

DCF Output	
NPV FCFF 19-23	569,9
NPV FCFF terminal	1523,8
NPV, EV	2093,7
Net debt	73,1
Equity Value	2166,8
# shares outstanding	12,5
DCF Value per share	172,9
Up-/ downside	2%
Explicit forecast value	27%
Terminal value	73%
Implied Multiples (LFV/LTM)	
P/E	31,1
EV/FCFF	27,2
EV/EBIT	23,2
EV/EBITDA	21,8

Source: CTT, LINC

Sensitivity analysis

		Terminal growth						
WACC		0,5%	1,0%	1,5%	2,0%	2,5%	3,0%	3,5%
	8,7%	171	179	189	200	213	229	247
	9,7%	151	158	165	173	183	194	206
	10,7%	136	141	147	153	160	168	177
	11,7%	123	127	132	137	142	148	155
	12,7%	113	116	119	123	128	132	138

		Terminal growth						
Terminal EBIT Margin		0,5%	1,0%	1,5%	2,0%	2,5%	3,0%	3,5%
	27,1%	126	131	136	142	148	155	164
	29,1%	131	136	142	148	154	162	171
	31,1%	137	142	147	154	161	169	178
	33,1%	142	147	153	160	168	176	186
	35,1%	147	153	159	166	174	183	193

Sare CTT, LINC

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