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Current Stock Price:	**$ 48.00**
Target Price	$ 69.56
Downside Price	$ 36.16
Margin of Safety	31%
($ in millions)	
Price (5/5/20)	$ 48.00
Shares (mm)	433.1
Market Cap	$ 20,788
Plus Debt (pro forma)	6,303
Less Cash (pro forma)	1,300
Firm Value	**25,791**
EV/EBIT (LTM)	13.7x
Dividend Yield (LTM)	1.9%
ROIC (FY19)	33.3%
ROTC (FY19)	-303.4%
Debt/Capital (pro forma)	30.3%
Net Debt/EBITDA (pro forma)	2.6x
EBIT/Interest Expense (PF)	11x
Avg. 3M Daily Volume (mm)	6.38
Shares Short (mm)	5.4

Rationale:	**% Upside/ Downside**	**Upside/ Down. Ratio**
25x 2022 EPS (4.5% FCF yield)	45%	1.8x
16x 2019 EPS (8.4% FCF yield)	-25%	

					Estimates		
($ in millions)	**2017A**	**2018A**	**2019A**	**2019PF**	**2020E**	**2021E**	**2022E**
Product	5,453.0	5,596.0	5,648.0	5,648.0	5,083.2	5,235.7	5,497.5
Service	6,870.0	7,319.0	7,470.0	7,470.0	7,245.9	7,680.7	8,218.3
Total Revenue	12,323.0	12,915.0	13,118.0	13,118.0	12,329.1	12,916.4	13,715.8
Sales Growth		*4.8%*	*1.6%*	*0.0%*	*-6.0%*	*4.8%*	*6.2%*
EBIT	1,916.0	1,835.0	1,814.0	1,883.0	1,677.9	1,900.9	2,121.4
EBIT Margin	*15.5%*	*14.2%*	*13.8%*	*14.4%*	*13.6%*	*14.7%*	*15.5%*
EBIT Growth		*-4.2%*	*-1.1%*	*3.8%*	*-10.9%*	*13.3%*	*11.6%*
Diluted EPS	**NA**	**NA**	**NA**	**$2.26**	**$2.03**	**$2.38**	**$2.78**
P/E	NA	NA	NA	21.2x	23.6x	20.2x	17.3x
D. shares o/s	NA	NA	NA	436.4	436.4	436.4	426.0
Capex	133.0	172.0	145.0	145.0	197.3	167.9	178.3
% of sales	*1.1%*	*1.3%*	*1.1%*	*1.1%*	*1.6%*	*1.3%*	*1.3%*
FCF	1,317	1,378	1,324	1,324	1,023	1,240	1,359
FCF Yield	*NA*	*NA*	*NA*	*6.4%*	*4.9%*	*6.0%*	*6.5%*
ROIC	**NA**	**33.9%**	**33.3%**	**NA**	**25.5%**	**29.3%**	**35.8%**
ROTC	**NA**	**-372.4%**	**-303.4%**	**NA**	**-279.8%**	**-304.6%**	**-372.2%**

Investment Summary:

I recommend buying Otis shares at $48/share for 45% upside with a 30% margin of safety and $70 price target. Otis designs, manufactures, sells and provides service on elevator equipment globally. The company spun out of United Technologies (UTX) on April 3rd and is currently trading at a 15% discount to peers despite greater scale, leading share, higher margins and similar growth opportunities. The company benefits from a strong competitive advantage, predictable recurring maintenance revenue and strong FCF generation, which should drive outperformance through the currently depressed economic environment. As a recent spin with little analyst coverage, I believe that the market is underappreciating Otis's ability to take share in an industry with long-term growth tailwinds driven by urbanization, growth of the middle class and technological upgrades. Additionally, I expect Otis's margins to increase 100bps over the next three years driven by technology investments and a growing mix towards the higher margin service segment. Finally, Otis has further upside from SG&A rationalization, input cost reductions and greater tax efficiency from its current 33% rate. The current macro environment poses some risks, but Otis's results through the last financial crisis prove company resilience.

Company Overview:

Otis was founded in 1853 in Yonkers, NY by Elisha Graves Otis, who invented the safety brake that made elevators safe for passengers. Today, the company designs, manufactures and sells new elevator equipment and provides service (maintenance, repair and modernization) on its own and others' equipment. It has 69,000 employees, including 1,300 engineers and 4,200 salespeople and 40,000 technicians. Otis reports in two segments: Product (43% of sales and 22% of EBIT) and Service (57% of sales and 78% of EBIT). Sales are split evenly, a third each in Asia, the Americas and EMEA (Europe, Middle East and Africa). While Service is over 60% of sales in the Americas and EMEA, it's just 44% of Asia sales. The company benefits from a razor/razorblade model, with 60% OE to service conversion, and 90% excluding China and Russia (though China conversion rates are set to increase significantly).

Competitive Advantage: Otis's earnings power value is significantly greater than its asset value ($37B vs. $9B), which implies that it has a strong competitive advantage. Otis has a position-based advantage, which stems from economies of scale and brand. As the largest player in a high fixed cost business (~45% of costs are fixed), Otis has significant economies of scale resulting in 20-30% incremental margins and its large installed base drives predictable recurring maintenance revenue. Otis's brand is meaningful in an industry where safety is of utmost importance. Otis's equipment is in the Empire State Building, the Eiffel Tower, the Lotte World Tower and the Burj

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Khalifa, the world's tallest building. Its brand stands for quality, safety and reliability and the company's 93% customer retention rate reflects its stable long-term customer relationships.

Industry Overview:

Competitive Landscape: Otis operates in a concentrated industry where the top four players own 60% of the $75B market. Otis has the largest share with 16% share in new equipment and 19% dollar share in service (12% by volume). Kone and Schindler are European pure plays with slightly lower share in both segments, as shown below. ThyssenKrupp's Elevator Technology segment has 12% share and is expected to be bought by a private equity group of buyers in July. The deal was announced in February 2020 for $18.9B, which is 22x LTM EBIT. As shown below, Otis has higher operating margins versus peers (14% vs. 11%) stemming from a higher mix of service revenue (57% vs. 53%) and economies of scale with a larger installed base (2,000 vs. 1,350).

		Market Share		Product Mix (% sales)		Geographic Mix (% sales)			Installed	Margins	
Company Name	**Ticker**	**Product**	**Service**	**Product**	**Service**	**Americas**	**APAC**	**EMEA**	**Base**	**% Gross**	**% EBIT**
KONE Oyj	HLSE: KNEBV	16%	13%	53%	47%	20.5%	39.0%	40.5%	1,350	52.1%	12.2%
Schindler Holding AG	SWX: SCHN	15%	15%	46%	52%	29.0%	27.1%	43.8%	1,400	70.0%	10.6%
ThyssenKrupp Elevator Tech		12%	12%	46%	54%	41.0%	28.0%	26.0%	1,300		9.7%
Average				**47%**	**53%**	**24.8%**	**33.0%**	**42.2%**		**61.1%**	**11.4%**
Otis Worldwide Corporation	**NYSE: OTIS**	**16%**	**19%**	**43%**	**57%**	**32.8%**	**35.1%**	**32.0%**	**2,000**	**29.2%**	**14.4%**

Suppliers/Customers: Customers differ by segment and are highly fragmented. New equipment customers include developers, general contractors, architects, consultants and government agencies. Service customers include building owners, facility managers, housing associates and government agencies. 25% of COGS consist of material (mostly steel) and suppliers are highly fragmented, 67% is installation/field work and 8% is labor and overhead.

Industry Growth: Industry growth is driven by urbanization, a growing middle class, digitization, maintenance and replacement. Every year, 80M people move from the countryside to cities, which is requiring urban infrastructure growth and greater elevator efficiency. Large developing markets, including China and India, are expected to drive long-term growth for new equipment, followed by service. In developed nations, an aging installed base drives replacement and maintenance growth (>50% of the North American and European installed base is over 20 years old). Digitization is a growing trend in the industry as it increases efficiency in the service segment and adds value to customers through savings and improved customer experience.

Barriers to Entry: High barriers to entry stemming from safety regulations, economies of scale and customer captivity have kept new entrants out of the market and led to above industry growth for the four largest players over the last couple of decades. New entrants must meet strict safety regulations and support large teams of technicians. Current trends towards customer consolidation in developing countries and digitization globally benefit the largest players with the greatest resources to invest in digitization, manufacturing efficiency and better customer service. Of the 18M elevator units installed globally, 2M are serviced by Otis and 9M by small independent service providers (ISPs), which leaves a long runway for share gains as the larger players with greater resources for reinvestment differentiate themselves with customer value-added technologies.

Thesis:

A stable defensive revenue base provides downside protection during the current economic downturn.

57% of Otis's revenues are generated from the service segment, which saw sales decline just 4.5% in 2009. Service contracts are typically four years in length, but the average length of service is 20 years and Otis has a 93% retention rate. As a result, I model service sales down 3% in FY20. New equipment sales are more cyclical but secular tailwinds provide upside for the long-term investor. Product segment sales declined 9% in 2009 and 7% in 2010 and I expect sales to be down 10% in FY20. Otis margins grew through the financial crisis resulting in flat earnings in 2009 and growth in 2010. Given Otis's margin expansion opportunity from SG&A rationalization, input cost reductions and technology investments, all to be discussed later, I believe that EBIT margins will contract only slightly to 13.6% from 14.4% in FY19.

Kone and Schindler provided updated guidance in mid-April (Otis will report May 7th) and reduced FY20 guidance from 0-5% sales growth to 0-10% declines, depending on the duration of restrictions. Kone expects EBIT margins to be flat to down slightly while Schindler expects net profit to decline 20% (somewhat FX driven).

Otis is well positioned to take share in China, the world's largest market with a fast-growing installed base.

China is the largest market making up 60% of industry annual unit sales and 40% of the industry's installed base. While new equipment sales are flattening in China after years of growth, the installed base continues to grow HSD driving service sales. Up until 2014, the service market was very fragmented, and price driven. Otis's parent didn't want to give up margin and therefore gave up leading share in China to Kone. From 2015-2019, Otis rationalized its brands and manufacturing footprint and focused on sales in China, resulting in 150bps share gains. With increased infrastructure and real estate investment to offset trade war impacts, top developers in China are now consolidating and this will favor the large elevator OEMs as national developers require nationwide coverage and are willing to pay up for consistent high-quality service.

I expect Otis to be an outsized benefiter as the largest OEM with low-single-digit new equipment sales growth and high-teens annual service growth over the next five years. Otis's conversion rate for top developers and infrastructure customers is 80% versus 30% for all other China business. Otis's new equipment shipment mix of top developers and infrastructure customers should increase from 25% to 50% by 2024, which will support strong service sales growth. Further, Otis has digitization capabilities that it can leverage to retain existing customers and offer a better service to new customers by reducing the number of maintenance visits, as discussed below. China operating margins are below overall company margins but should increase as the sales mix shifts towards Service.

Technology investments to result in service share gains globally and higher margins from efficiency & mix shift.

Otis has invested heavily in technology in recent years and is starting to benefit through Service share gains, higher conversion and customer retention rates and improved margins. Otis ONE is an IoT solution that connects elevators to OtisLine, which provides system health and diagnostics information. This allows Otis to provide predictive and proactive elevator service, which reduces the frequency of equipment shutdowns, increases service restoration speeds, improves productivity and minimizes disruption. As a result, customers are happy, and Otis can more efficiently deploy its 40,000 field technicians. This leads to higher customer conversion and retention rates as well as improved margins from efficiency gains.

In just one year after implementing smart sensors, Otis witnessed a 40bps increased customer retention rate, a 4% reduction in average maintenance hours/unit and a 210bps increase in service sales/unit. 85% of Otis's field technicians have an Otis iPhone app, which has reduced the time to order parts by 88%. With over 50% of global units serviced by small independents lacking these value-added capabilities, I expect Otis to take share and expand segment margins. Further mix shift towards Service, driven mostly by China, which is experiencing slower new equipment growth and faster service growth, should also add to margin expansion.

Spin provides upside from SG&A rationalization, material cost reduction and tax efficiency (not modeled).

As a standalone company, Otis will implement a common ERP system and CRM tool, centralize back-office functions into a shared services center and reduce the number of P&Ls in the organization. As Otis pairs back investment spend in capabilities and systems required as a public company, these improvements should result in 100-150bps SG&A reduction as a percent of revenue. With capex spend between 1.1-1.3% of sales, Otis converts free cash flow at 110-120% of net income so savings can be reinvested for growth.

Material costs are about 25% of COGS and Otis believes it can reduce these costs by 3% annually. As a large buyer, Otis can better leverage its scale in negotiations, consolidate suppliers and utilize e-auctions and analytical tools between its engineering and manufacturing groups to reduce costs.

Otis has a 33% tax rate as 80% of cash is generated outside the US and 80% of uses are domestic, but there is room for greater efficiency, which is not built into my model assumptions. A 25% tax rate in 2019 would have resulted in a 14% increase in earnings. While this rate may be possible over time, I have assumed just a 200bps reduction in the tax rate over the next three years.

Valuation:

Despite greater scale, higher margins and similar growth opportunities, Otis trades at a 15% discount to its European peers based on price to Consensus NTM EPS (26x vs. 30x). My earnings estimates are 5-8% above Street in each of the next three years driven by higher global Service segment growth (particularly in China) and greater margin expansion. On my assumptions, Otis is trading at a 20% discount. I apply a 25x multiple, in-line with public peers', to my FY22 EPS estimate of $2.78/share, resulting in a $70 price target, which provides 45% upside and a 30% margin of safety. This valuation is supported by Otis's EPV of $37B and ThyssenKrupp's buyout price: 22x EBIT.

As of 4/30/2020

Company Name	Ticker	Stock Price	Market Cap	LTM Net Debt	EV	LTM Revenue	LTM EBIT	LTM EPS	NTM EPS	P/NTM EPS	NTM EBIT	EV/NTM EBIT	FY2020 EPS	FY2021 EPS	FY2022 EPS	FY2020 P/E	FY2021 P/E	FY2022 P/E
KONE Oyj	HLSE: KNEBV	60.52	31,370.0	(1,250.5)	30,142.3	10,919.3	1,333.8	1.92	2.0	30.3x	1,347.2	22.4x	1.88	2.18	2.35	32.2x	27.8x	25.8x
Schindler Holding AG	SWX: SCHN	214.19	23,322.3	(2,325.0)	20,997.3	11,522.7	1,223.0	7.61	7.19	29.8x	1,229.3	17.1x	6.81	8.32	9.15	31.5x	25.7x	23.4x
ThyssenKrupp Elevator Tech						8,988.1	870.1					21.7x						
Average			**27,346.2**		**25,569.8**	**10,476.7**	**1,142.3**			**30.0x**		**19.7x**				**31.8x**	**26.8x**	**24.6x**
													My estimates					
Otis Worldwide Corporation	**NYSE: OTIS**	**50.91**	**21,847.1**	**(886.0)**	**21,587.1**	**13,118.0**	**1,908.0**	**NA**	**1.94**	**26.2x**	**1,654.8**	**13.0x**	**2.03**	**2.38**	**2.78**	**25.1x**	**21.4x**	**18.3x**

Note: Future earnings estimates are sourced from CapIQ unless otherwise noted

My calculations suggest that Otis has a $8.9B asset value and $37.3B earnings power value (EPV) versus the current EV of $26.4B. My assumptions are outlined in the Appendix, though it's worth noting that a significant portion of Otis's EPV is derived from its workforce, which would be very difficult for a new player to replicate and manage. The delta between the EPV and asset value indicates that Otis has a strong competitive advantage, as described above. With over 30% ROIC and a 5% WACC, continued reinvestment for growth will create value for Otis, which would provide further upside to the EPV.

My downside assumes that restrictions last 2-3 years and economic recovery is slow. Here, I value Otis at 16x "peak" (2019) earnings, which is equivalent to an 8% FCF yield, resulting in a $36 PT or 25% downside.

Earnings Power Value Calculation:

	2019PF	2019PF-Adj.
Revenue	13,118.0	13,118.0
COGS	9,292.0	9,292.0
Operating expenses	1,927.0	1,927.0
Operating income	**1,899.0**	**1,899.0**
Operating margin (%)	*14.5%*	*14.5%*
Over (under) depreciation charges	-	32.0
Expenses related to growth:		
Marketing	-	9.7
Product	-	2.0
Lease	-	-
Workforce	-	621.0
Extraordinary items:	-	-
Adjusted operating profit	**1,899.0**	**2,563.7**
Taxes (33%)	626.7	846.0
Sustainable NOPAT	**1,272.3**	**1,717.7**
WACC (%)	4.7%	4.7%
EPV operating business	**26,941.4**	**36,371.7**
Non-operational cash	3,229.0	3,229.0
Debt	4,124.8	4,124.8
EPV equity	**27,837.2**	**37,267.5**

Risks:

Leverage: Otis spun out of UTX with $6.1B debt in order to provide a cash dividend to its former parent. With high recurring revenue and strong FCF generation (110-120% NI conversion), Otis should be able to support leverage at the current level. The company will repay $500M over the next two years, which will bring leverage down to <2x net debt/EBITDA by FY22. Even with depressed EBITDA, I expect Otis to end FY20 at 3.2x total debt/EBITDA.

Longer Recession: My base case assumes that the economy recovers in 2021 but prolonged restrictions or a longer recession would result in earnings declines beyond FY20. While this could lead to my downside PT near-term, long-term investors should benefit from owning the market leader in a defensive industry with secular growth tailwinds.

Pension: Otis has an underfunded pension with $470M obligations in excess of assets. Increased cash contributions could hurt future free cash flow, though contributions have been relatively stable around $33M over the last three years.

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Appendix

Asset Value Assumptions/Calculation:

Property, Plant & Equipment:

Otis' fixed assets include land, buildings and improvements, machinery, tools and equipment and assets under construction, as shown below from the SEC filing. Since land is very risky and the value can fluctuate substantially, I assign a 50% haircut to its balance sheet value. Buildings and improvements have a 20-40 year average useful life and likely require some maintenance capex, but not a ton to upkeep so I include 80% of its balance sheet value. Machinery, tools and equipment last 3-12 years on average so I assume 50% of they're value as these items need to be updated more often. Finally, assets under construction are left unchnaged as these are newer assets and the balance sheet amount likely reflects the true value.

Balance Sheet Fixed Assets ($M)	2019	Adj.	2019-Adj.
Land	45	(23)	23
Buildings and improvements	574	(115)	459
Machinery, tools and equipment	1,043	(522)	522
Assets under construction	141	0	141
Accumulated depreciation	(1,082)	1,082	0
Total	721	423	1,144

Hidden Intangibles:

Balance Sheet Intangible Assets ($M)	Gross Amount	Acc. Amort.
Purchased service portfolios	2,069	(1,598)
Patents, trademarks/trade names	21	(15)
Customer relationships and other	46	(40)
	2,136	(1,653)

As shown above from company SEC filings, intangible assets on the balance sheet don't include brand or workforce, which are key value drivers. Otis' brand helps it win new equipment and service business and as such is worth more than what's reflected on the balance sheet. I assume that 10% of SG&A is direct marketing related and discount that at 7% to get a brand value. The workforce is also crucial to its success and therefore adds value also not reflected on the balance sheet.

($ million)	2019
Brand asset value	$ 2,531
Workforce asset value	$ 311
Employees	69,000
Average salary	$ 90,000
Estimated salary expense (000s)	$ 6,210,000
5% bonus/headhunter fee	$ 310,500

Goodwill:

Otis has $1.6B of goodwill recorded on the balance sheet. This is a result of small acquisitions made over time where the purchase price exceeded the estimated fair value of the assets acquired and liabilities assumed. Otis has invested ~$50M per year over the last three years in acquisitions. Since most of the goodwill was generated from acquisitions made more than two years ago, we assume that these assets are now reflected elsewhere in the balance sheet. As such, we remove goodwill from the asset value.

	2019	Adj.	2019-Adj.
Goodwill	1,647	(1,647)	0

Asset Valuation:

	2019
Book value of equity	2,326
Adjustments:	
PP&E	423
Brand	$ 2,531
Workforce	$ 311
Goodwill	(1,647)
Asset value of equity	**3,944**
Plus net debt (pro forma)	5,003
Asset value of enterprise	**8,947**

Earnings Power Value Assumptions:

Adjustment: over/under depreciation:

Method 1: Revenue growth (assumes constant correlation between revenues and PPE)

Revenue growth	1.6%
PPE	721.0
PPE_{t+1} = PPE*(1+rev growth)	732.3
Growth capex = PPE*rev growth	11.3
Capital expenditures	145.0
Maint. Capex = capex - growth capex	133.7
Depreciation expense (D)	180.0
Over (under) depreciation = D-maint. capex	**46.3**

Method 2: Direct estimate

	2019	2018	2017
D&A	180.0	190.0	177.0
Capex	145.0	172.0	133.0
Acquisition	47.0	50.0	53.0
Difference	12.0	32.0	9.0
Average over (under) depreciation (2017-19)	**17.7**		
Average of the two methods:	**32.0**		

Adjustment: growth expense - brand

Assume that 100% of R&D expense is growth related and 50% of SG&A is growth related

	2019	2018	2017
Sales	13,118.0	12,915.0	12,323.0
Research & development	163.0	181.0	175.0
% of sales	1.2%	1.4%	1.4%
Average R&D growth expense as % of sales	1.4%		
Product: Assign 1.4% to growth capex	**2.0**		
Sales & marketing (50%)	886.0	867.5	824.0
% of sales	6.8%	6.7%	6.7%
Average growth expense as % of sales	6.7%		
Marketing: Assign 6.7% to growth capex	**9.7**		

Adjustment: growth expense - workforce

Number of employees	69,000
Average annual salary:	
Glassdoor	90,000.0
Proxy (median salary)	NA
Average annual salary:	90,000.0
Total ($M)	6,210.0
Wage cost is 10%	621.0

Source:
https://www.glassdoor.com/Salary/OTIS-Service-Manager-Boston-Salaries-EJI_IE7865.0,4_
https://www.salary.com/research/salary/employer/otis-elevator-company/elevator-mech

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WACC Assumptions:

Debt Outstanding	**Amount**	**Interest Rate**
Short-term borrowings	34	
LIBOR+112.5bps term loan due 2023	1000	2.035%
LIBOR+45bps floating rate notes due 2023	500	1.360%
2.056% notes due 2025	1300	2.056%
2.293% notes due 2027	500	2.293%
2.565% notes due 2030	1500	2.565%
3.112% notes due 2040	750	3.112%
3.362% notes due 2050	750	3.362%
Debt issuance costs	-36	
Other long-term debt	5	
Total	6303	
Weighted average cost of debt		2.419%

WACC Calculation

Debt ($M) pro forma	6,303.0		
Share of debt	22.7%		
Weighted average cost of debt	2.42%		
Cost of debt	1.62%		
Equity ($M)	21,437.5		
Share of equity	77.3%		
CAPM assumptions:			5yr beta (CapIQ)
Risk free rate	0.6%		
Beta	0.79	Kone	0.6
Market return	7.0%	Schindler	0.77
Cost of equity	5.6%	Lennox	0.99
WACC	**4.7%**	Avg.	0.786667

Historical UTX Otis Segment Financials:

(dollars in millions)	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Revenues	10,290.0	11,885.0	12,884.0	11,723.0	11,579.0	12,437.0	12,056.0	12,484.0	12,982.0	11,980.0	11,893.0	12,341.0	12,904.0	13,113.0
% growth		*15.5%*	*8.4%*	*-9.0%*	*-1.2%*	*7.4%*	*-3.1%*	*3.6%*	*4.0%*	*-7.7%*	*-0.7%*	*3.8%*	*4.6%*	*1.6%*
Organic new equip. % growth				*-9.0%*	*-7.0%*	*5.0%*	*-1.0%*	*8.0%*	*14.0%*	*4.0%*	*3.0%*	*2.5%*	*4.0%*	*5.0%*
Organic service % growth				*-4.5%*	*-0.5%*	*0.5%*	*2.0%*	*1.0%*	*1.0%*	*0.0%*	*3.0%*	*5.0%*	*4.0%*	*5.0%*
Gross profit before tax	-	-	-	3,893.0	4,039.0	4,347.0	4,048.0	4,139.0	4,226.0	3,858.0	3,808.0	3,729.0	3,712.0	3,822.0
% margin	*NA*	*NA*	*NA*	*33.2%*	*34.9%*	*35.0%*	*33.6%*	*33.2%*	*32.6%*	*32.2%*	*32.0%*	*30.2%*	*28.8%*	*29.1%*
Operating profit before tax	1,888.0	2,321.0	2,477.0	2,447.0	2,575.0	2,815.0	2,512.0	2,590.0	2,640.0	2,338.0	2,125.0	2,002.0	1,915.0	1,948.0
	18.3%	*19.5%*	*19.2%*	*20.9%*	*22.2%*	*22.6%*	*20.8%*	*20.7%*	*20.3%*	*19.5%*	*17.9%*	*16.2%*	*14.8%*	*14.9%*
Assets	6,973.0	7,721.0	7,731.0	7,908.0	8,097.0	8,717.0	8,866.0	9,354.0	9,313.0	8,846.0	8,867.0	9,421.0	9,374.0	9,973.0
ROA	*27%*	*30%*	*32%*	*31%*	*32%*	*32%*	*28%*	*28%*	*28%*	*26%*	*24%*	*21%*	*20%*	*20%*
D&A	183.0	186.0	203.0	204.0	211.0	223.0	220.0	209.0	209.0	176.0	171.0	177.0	190.0	337.0
Capex	(93.0)	(136.0)	(150.0)	(67.0)	(55.0)	(75.0)	(141.0)	(122.0)	(87.0)	(83.0)	(94.0)	(133.0)	(172.0)	(145.0)

Otis Worldwide Corporation (Ticker: OTIS): LONG (45% upside)
May 5, 2020

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Model:

(dollars in millions)	Dec-17	Dec-18	Dec-19	PF 12/31/	Dec-20	Dec-21	Dec-22
Income Statement:							
Net sales:							
Product sales	5,453	5,596	5,648	5,648	5,083	5,236	5,497
% growth		*2.6%*	*0.9%*	*0.9%*	*-10.0%*	*3.0%*	*5.0%*
% organic growth		*3%*	*4%*				
Service sales:	6,870	7,319	7,470	7,470	7,246	7,681	8,218
% growth		*6.5%*	*2.1%*	*2.1%*	*-3.0%*	*6.0%*	*7.0%*
% organic growth		*4%*	*5%*				
Total sales	**12,323**	**12,915**	**13,118**	**13,118**	**12,329**	**12,916**	**13,716**
% growth		*4.8%*	*1.6%*	*1.6%*	*-6.0%*	*4.8%*	*6.2%*
Cost of products sold	4,379	4,586	4,640	4,640	4,219	4,319	4,508
Product gross profit	1,074	1,010	1,008	1,008	864	916	990
% margin	*19.7%*	*18.0%*	*17.8%*	*17.8%*	*17.0%*	*17.5%*	*18.0%*
Cost of services sold	4,242	4,603	4,652	4,652	4,529	4,785	5,095
Service gross profit	2,628	2,716	2,818	2,818	2,717	2,896	3,123
% margin	*38.3%*	*37.1%*	*37.7%*	*37.7%*	*37.5%*	*37.7%*	*38.0%*
Total gross profit	**3,702**	**3,726**	**3,826**	**3,826**	**3,581**	**3,812**	**4,113**
% margin	*30.0%*	*28.9%*	*29.2%*	*29.2%*	*29.0%*	*29.5%*	*30.0%*
Segment operating profit:							
Product	482	390	393		280	340	385
% margin	*8.8%*	*7.0%*	*7.0%*		*5.5%*	*6.5%*	*7.0%*
Service	1,495	1,516	1,603		1,522	1,690	1,874
% margin	*21.8%*	*20.7%*	*21.5%*		*21.0%*	*22.0%*	*22.8%*
General corporate expenses and other	(61)	(71)	(182)		(123)	(129)	(137)
% of sales	*0.5%*	*0.5%*	*1.4%*		*1.0%*	*1.0%*	*1.0%*
Operating profit excluding other	1,916	1,835	1,814		1,678	1,901	2,121
% margin	*15.5%*	*14.2%*	*13.8%*		*13.6%*	*14.7%*	*15.5%*
Research & development	175	181	163	163	123	207	219
% of sales	*1.4%*	*1.4%*	*1.2%*	*1.2%*	*1.0%*	*1.6%*	*1.6%*
Selling, general and administrative	1,648	1,735	1,810	1,772	1,555	1,694	1,902
% of sales	*13.4%*	*13.4%*	*13.8%*	*13.5%*	*12.6%*	*13.1%*	*13.9%*
Other (expense) income, net	37	25	(39)	(8)	0	0	0
Operating profit	**1,916**	**1,835**	**1,814**	**1,883**	**1,678**	**1,901**	**2,121**
% margin	*15.5%*	*14.2%*	*13.8%*	*14.4%*	*13.6%*	*14.7%*	*15.5%*
% growth		*-4.2%*	*-1.1%*	*2.6%*	*-10.9%*	*13.3%*	*11.6%*
Non-service pension (benefit)	(20)	(44)	(33)	9	0	0	0
Interest (income) expense, net	(21)	(14)	(14)	171	146	140	140
Income from operations before income taxes	**1,957**	**1,893**	**1,861**	**1,703**	**1,532**	**1,761**	**1,981**
Income tax expense	1,148	683	594	567	510	563	614
% tax rate	*58.7%*	*36.1%*	*31.9%*	*33.3%*	*33.3%*	*32.0%*	*31.0%*
Net income	**809**	**1,210**	**1,267**	**1,136**	**1,022**	**1,197**	**1,367**
% growth		*49.6%*	*4.7%*	*-6.1%*	*-10.1%*	*17.2%*	*14.2%*
Less: noncontrolling interest in subsidiaries	173	161	151	151	136	159	182
Net income attributable to Otis	**636**	**1,049**	**1,116**	**985**	**886**	**1,038**	**1,185**
Earnings per common share							
Basic				2.27	2.05	2.40	2.80
Diluted				**2.26**	**2.03**	**2.38**	**2.78**
% growth					*-10.2%*	*17.2%*	*16.9%*
Weighted-average common shares outstanding							
Basic				433.1	433.1	433.1	423.0
Diluted				436.4	436.4	436.4	426.3
EBITDA	2,073	1,981	1,961	1,892	1,862	2,081	2,302
% margin	*16.8%*	*15.3%*	*14.9%*	*14.4%*	*15.1%*	*16.1%*	*16.8%*
Returns:							
ROIC		33.9%	33.3%		25.5%	29.3%	35.8%
ROTC		-372.4%	-303.4%		-279.8%	-304.6%	-372.2%
ROE		57.5%	56.8%		-29.9%	-38.0%	-41.8%
ROA		13.2%	13.1%		10.2%	11.9%	13.8%
Incremental margins:							
New equipment operating profit		*-64.3%*	*5.8%*		*20.1%*	*39.8%*	*17.0%*
Service operating profit		*4.7%*	*57.6%*		*36.3%*	*38.7%*	*34.2%*
Total		*-13.7%*	*-10.3%*		*26.0%*	*38.0%*	*27.6%*

Sources: Otis, Schindler, Kone and ThyssenKrupp SEC filings, transcripts and presentations & sell-side initiations

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Balance Sheet:	**Dec-18**	**Dec-19 PF**	**12/31/**	**Dec-20**	**Dec-21**	**Dec-22**
Assets						
Cash and equivalents	1,329	1,446		1,763	1,761	1,560
Accounts receivable	2,720	2,861		2,837	2,831	2,931
Contract assets, current	657	529		529	529	529
Inventories, net	637	571		623	599	579
Other assets, current	269	251		251	251	251
Total current assets	**5,612**	**5,658**		**6,003**	**5,970**	**5,850**
Future income tax benefits	364	373		373	373	373
Fixed assets, net	678	721		735	722	720
Operating lease right-of-use assets	0	535		535	535	535
Intangible assets, net	569	490		490	490	490
Goodwill	1,688	1,647		1,647	1,647	1,647
Other assets	224	263		276	289	302
Total assets	**9,135**	**9,687**		**10,059**	**10,026**	**9,917**
Liabilities & equity:						
Short-term borrowings	27	34		34	34	34
Accounts payable	1,351	1,331		1,366	1,347	1,394
Accrued liabilities	1,599	1,739		1,739	1,739	1,739
Contract liabilities, current	2,326	2,270		2,270	2,270	2,270
Total current liabilities	**5,303**	**5,374**		**5,409**	**5,390**	**5,437**
Long-term borrowings	0	0		6,016	5,766	5,766
Future pension and postretirement benefit obligations	527	590		558	526	494
Operating lease liabilities	0	386		386	386	386
Future income tax obligations	750	695		695	695	695
Other long-term liabilities	340	316		316	316	316
Total liabilities	**6,920**	**7,361**		**13,380**	**13,079**	**13,094**
Commitments and contingent liabilities						
Redemable noncontrolling interest	**109**	**95**		**95**	**95**	**95**
Total UTC Net Investment	1,569	1,700		1,700	1,700	1,700
Noncontrolling interest	537	531		531	531	531
Total equity	**2,106**	**2,231**		**(3,416)**	**(3,148)**	**(3,272)**
Total liabilities and equity	**9,135**	**9,687**		**10,059**	**10,026**	**9,917**
check?	-	-		-	-	-

Balance sheet ratios:						
Days sales outstanding	76.9	79.6		84.0	80.0	78.0
Days inventory outstanding	25.3	22.4		26.0	24.0	22.0
Days payables outstanding	53.7	52.3		57.0	54.0	53.0

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Statement of Cash Flows:	**Dec-17**	**Dec-18**	**Dec-19**	**PF 12/31/**	**Dec-20**	**Dec-21**	**Dec-22**
Net income	809	1,210	1,267		1,022	1,197	1,367
Depreciation and amortization	177	190	180		184	181	180
Deferred income tax (benefit) provision	(35)	127	(8)		0	0	0
Impact from U.S. tax reform	507 -	-			0	0	0
Stock compensation cost	29	38	37		40	50	55
Loss on disposal of businesses	0	0	26		0	0	0
Change in working capital:	6	(8)	(32)		7	12	(33)
Accounts receivable, net	(13)	(196)	(191)		24	6	(100)
Contract assets, current	0	(158)	25		0	0	0
Inventories and contracts in progress, net	(109)	24	60		(52)	24	20
Other assets, current	9	(11)	30		0	0	0
Accounts payable and accrued liabilities	119	166	(28)		35	(19)	47
Contract liabilities, current	0	167	72		0	0	0
Pension contributions	(30)	(34)	(32)		(32)	(32)	(32)
Other operating activities, net	(13)	27	31		0	0	0
Net cash from operating activities	**1,450**	**1,550**	**1,469**		**1,220**	**1,407**	**1,537**
Capital expenditures	(133)	(172)	(145)		(197)	(168)	(178)
Investments in businesses, net of cash acquired	(53)	(50)	(47)		0	0	0
Other investing activities, net	0	21	(11)		0	0	0
Net cash from investing activities	**(186)**	**(201)**	**(203)**		**(197)**	**(168)**	**(178)**
Increase (decrease) in borrowings, net	(1)	11	6		6,016	(250)	0
Net transfers to UTC	(1,218)	(1,312)	(972)		(6,300)	0	0
Dividends paid	(197)	(173)	(163)		(409)	(479)	(547)
Equity issuance (repurchase)	0	0	0		0	(500)	(1,000)
Other financing activities, net	12	(23)	(4)		0	0	0
Net cash from financing activities	**(1,404)**	**(1,497)**	**(1,133)**		**(693)**	**(1,229)**	**(1,547)**
Effect of foreign exchange rates on cash	98	(77)	(20)		0	0	0
Net increase (decrease) in cash	**(42)**	**(225)**	**113**		**330**	**11**	**(188)**
Cash and equivalents, beginning of year	1,613	1,571	1,346		1,446	1,763	1,761
Cash and equivalents, end of year	**1,571**	**1,346**	**1,459**		**1,776**	**1,774**	**1,573**
Less: restricted cash	17	17	13		13	13	13
Cash and equivalents, end of year	**1,554**	**1,329**	**1,446**		**1,763**	**1,761**	**1,560**

Capex table:							
Fixed assets, net	0	678	721		735	722	720
Depreciation	177	190	180		184	181	180
% of fixed assets	*#DIV/0!*	*28.0%*	*25.0%*		*25.0%*	*25.0%*	*25.0%*
Capital expenditures	133	172	145		197	168	178
% of sales	*1.1%*	*1.3%*	*1.1%*		*1.6%*	*1.3%*	*1.3%*

Debt table:							
Short-term debt		27	34		34	34	34
Debt issuance (paydown)		0	0		6,016	(250)	0
Long-term debt		0	0		6,016	5,766	5,766
Total debt		27	34		6,050	5,800	5,800
Interest expense		(14)	(14)	171	146	140	140
% interest rate		*-51.9%*	*-41.2%*		*2.4%*	*2.4%*	*2.4%*

Supplemental Cash Flow:							
FCF	1,317	1,378	1,324		1,023	1,240	1,359
% of net income	*162.8%*	*131.4%*	*118.6%*		*115.4%*	*119.4%*	*114.7%*
% of sales	*10.7%*	*10.7%*	*10.1%*		*8.3%*	*9.6%*	*9.9%*
FCF per diluted share	NA	NA	NA		2.34	2.84	3.19
Current price/FCF					21.1x	17.4x	15.5x
Working capital	6	(8)	(32)		7	12	(33)
% of sales	*0.0%*	*-0.1%*	*-0.2%*		*0.1%*	*0.1%*	*-0.2%*
Leverage:							
Total debt/EBITDA					3.2x	2.8x	2.5x
Net debt/EBITDA					2.3x	1.9x	1.8x