



Westinghouse Air Brake Technologies Corporation

(NYSE: WAB)

Recommendation: Long

Current Price: \$110.04

Target Price: \$129.06

Upside: 17.28% over 3Y

Business Overview

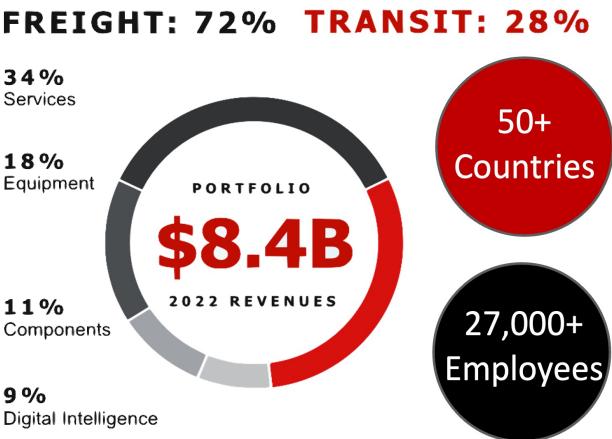
Wabtec (Westinghouse Air Brake Technologies Corporation) is a global leader in freight and transit rail technologies based in PA, America

Wabtec sources of revenue insights

Wabtec manufactures essential technology-based **railroad services** and components for both the **freight** and **transit** industries worldwide, including locomotives and freight cars, as well as propulsion and braking systems

5Y GROWTH EXPECTATIONS

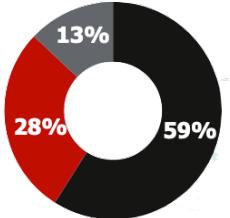
- Equipment
- Digital Intelligence
- Services
- Transit
- Components



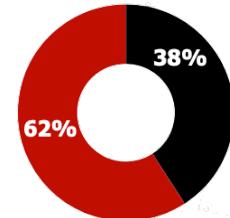
PORTFOLIO
\$8.4B
2022 REVENUES

50+ Countries
27,000+ Employees

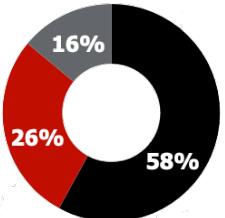
ATTRACTIVE END MARKETS



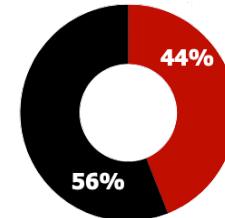
ROBUST AFTERMARKET PORTFOLIO



BROAD SCALE IN GLOBAL MARKETS



STRONG MIX OF RECURRING REVENUES



■ Freight
■ Transit
■ All Other (Industrial and Mining)

■ OE
■ Aftermarket

■ Americas (45% in U.S.)
■ EMEA
■ APAC

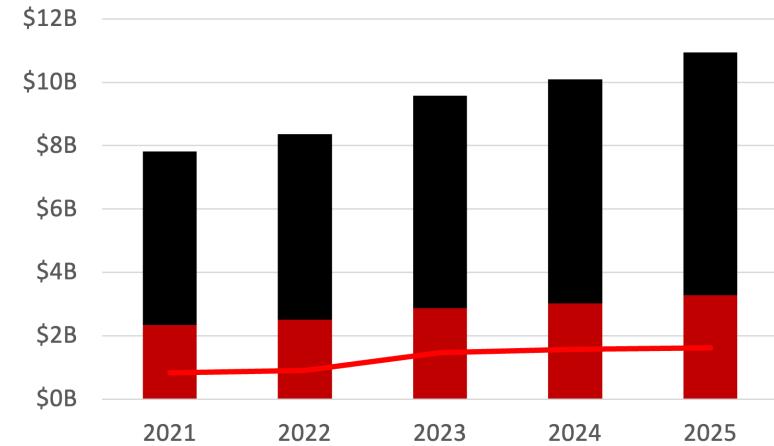
■ Non-Recurring
■ Recurring

Strong financial performances coupled with resilient portfolio

High-margin recurring revenue streams

drives ~60% of profits

- Revenues for Freight
- Revenues for Transit
- EBIT



Five years outlook



MSD CORE ORGANIC GROWTH CAGR

250 - 300 BPS MARGIN EXPANSION

DISCIPLINED CAPITAL DEPLOYMENT

DOUBLE-DIGITEPS GROWTH
WITH STRONG OPERATING
CASH FLOW CONVERSION
(90%+)

Industry Overview

Wabtec has offered industry leading returns over past three years in a business set for significant future growth.

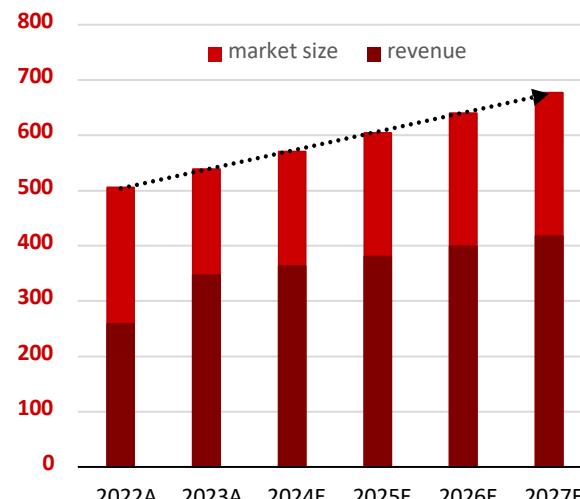
Rail Industry insights (Porter's Five Forces)

Competition	New entrants	Power of buyer
Very little competition as it is a niche industry, little ability to undercut, competition is primarily through innovation	Low risk of new entrants due to high barriers of entry in rail component industry, companies benefit from economies of scale	High switching costs and little choice in terms of competitors means power is not with the buyer in this industry.
Power of supplier	Substitutes	
Diverse range of suppliers, low chance of experiencing devastating supply shocks	Low risk of substitution, trains need technology and equipment to function, this cannot be substituted for something else	

Wabtec peer comparison matrix

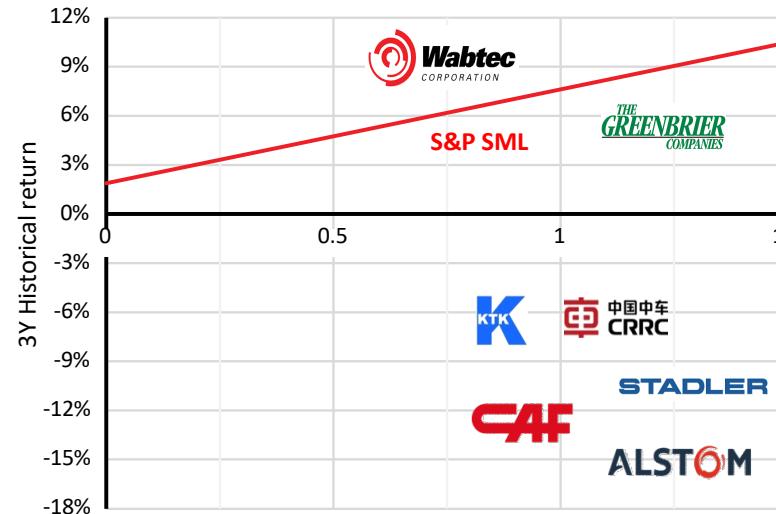
	中国中车 CRRC	THE GREENBRIER COMPANIES	KTK	Wabtec CORPORATION	STADLER	CAF	ALSTOM
Geographically diversified revenue stream	✗	✗	✗	✓	✗	✓	✓
Science based ESG target	✗	✗	✗	✓	✗	✗	✓
Dividend growth	✓	✓	✗	✓	✗	✗	✗
3Y Revenues > 0	✗	✓	✗	✓	✗	✗	✗

Global Rail Industry revenue and market size growth



- Global rail **market size** is set for consistent growth in the coming years, reaching \$538.55 billion in 2022 and set to reach \$677.78 billion in 2027 at a CAGR of 5.9%
- Global rail **revenues** also indicate promising growth, sitting at \$129.90 billion in 2023 and set to rise to \$156.50 billion in 2027 at a CAGR of 4.77%
- Reliable growth driven by **sustainability**, better customer experiences, digitalization and strengthened global connections

Historical return of competitors compared to risk

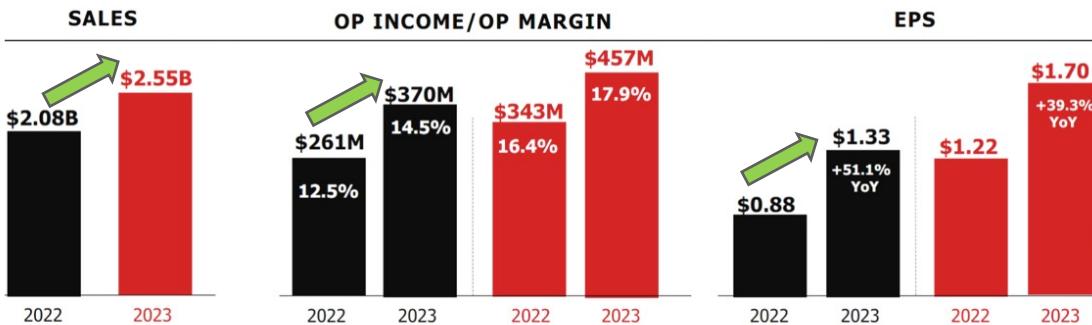


- Amongst its peers Wabtec **leads** everyone, as it not only provided the highest (positive) 3-year returns but also managed to **outperform** the S&P 500
- Wabtec was amongst two companies able to provide positive returns over this time-period, remarkably at a **lower risk** than its peers

Thesis 1: Low exposure to economic cycles in an inherently cyclical rail industry

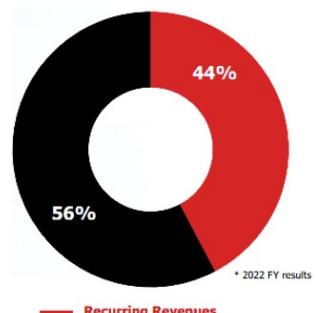
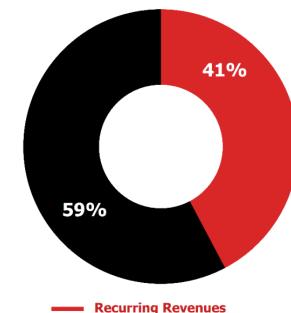
Despite uncertain and volatile macro-economic conditions, Wabtec positioned to drive long-term profitable growth

Top-line performance and operating margins grow amongst macro uncertainty...



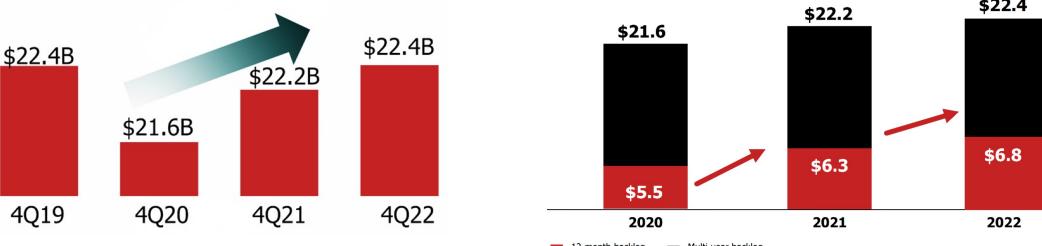
- Expanded margins despite higher input costs, supply chain disruptions and loss of business in Russia
- (1) Adjusted numbers represent non-GAAP financial measures to consider irregular or non-cash expenses, such as those related to acquisitions, restructuring, or one-time balance sheet adjustments

...and will be accelerated by expanding proportion of recurring revenue streams



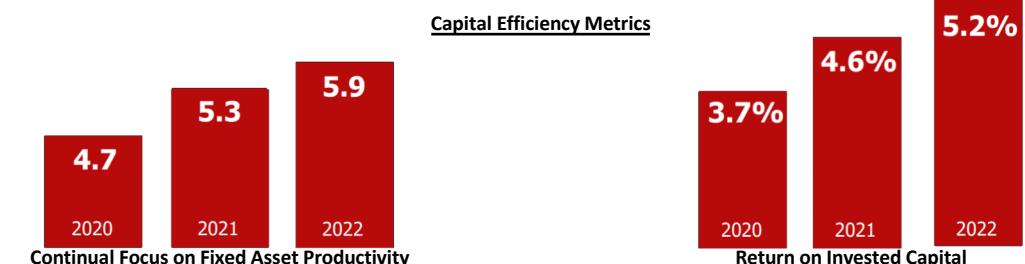
- 3% increase in recurring revenue compared to 2021
- ~60% of company profit driven by recurring revenues
- Driven by expansive installed base of locomotives and significant content on transit / freight cars
- Includes service businesses, replacement parts, software licenses and digital services

Robust backlog provides visibility despite macro volatility...



- Strong 12-month and multi-year backlog provides resiliency and confidence in future revenues despite macro volatility
- Expanding long-term backlog while executing more near-term orders

...and low leverage and strong operational performance reduce financial risk

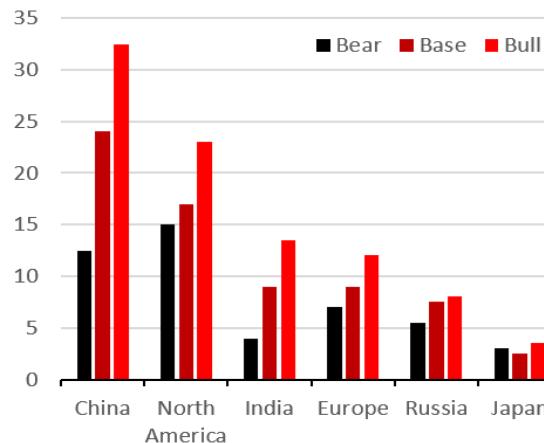


- Financial leverage (indicated by debt-to-equity ratio) was 0.3
- Competitors eg CSX Corp and Caterpillar Inc reported respective ratios of 1.4 and 2.3
- Less sensitive to current high-interest environment
- Boosted by capital efficiency gains through continuous operational improvement

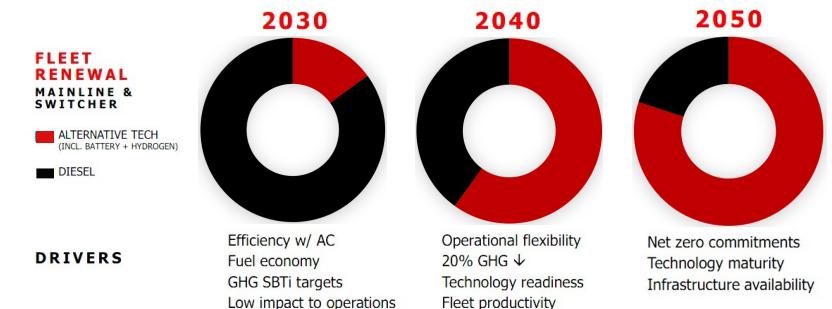
Thesis 2: Market fails to price Wabtec attributing to its lead on rail decarbonisation

Wabtec poised to capitalise on the growing demand for sustainable transport; backed by government funding and increased consumer awareness on ESG considerations

Passenger and freight activity will more than double by 2050 ...

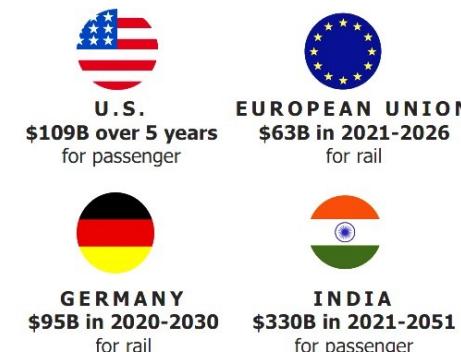


Wabtec's growth driven by fleet renewal, technology mix and partnerships



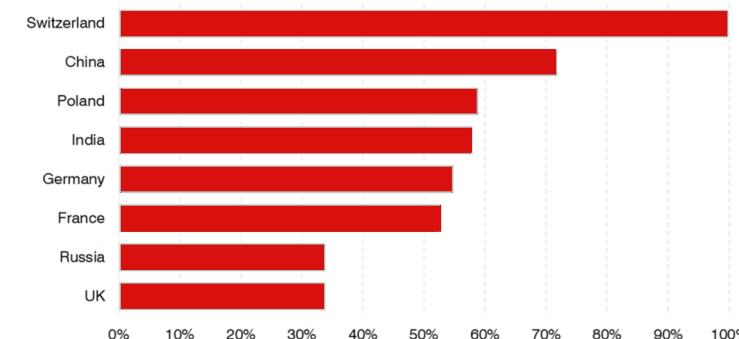
- In effort to reduce the industry's carbon footprint to zero, Wabtec, Genesee & Wyoming, Carnegie Mellon formed consortium for rail sustainability effort
- Wabtec's international fleets are growing at 5% CAGR since 2016

Both government and private sectors are pledging strong financial backing



Electrification of European Rail boosted by Singaporean, Canadian, Dutch and Abu Dhabi Sovereign Funds

Opportunities to stimulate railway electrification via multinational policies



Notable policies include:

- EU's Sustainable and Smart Mobility Strategy presented as part of the European Green Deal
- UK's Traction Decarbonisation Network Strategy (TDNS)

Thesis 3 – Wabtec have made 8 acquisitions in the last five years, showing no signs of slowing

Wabtec has acquired 46 companies in total in eleven different countries, mainly targeting machinery (31%) and manufacturing (19%).

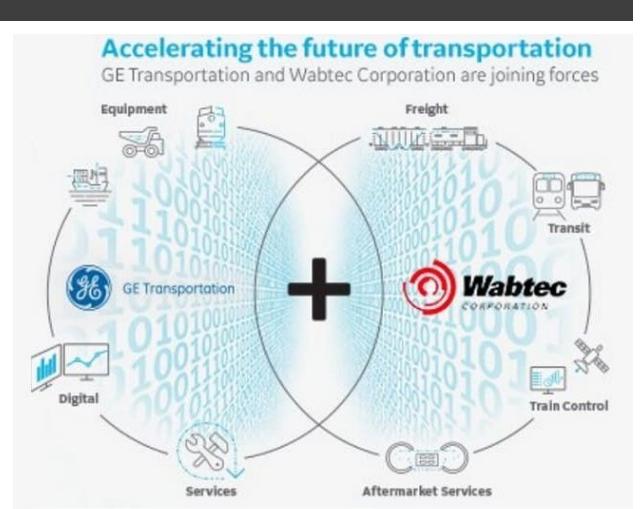
Latest Acquisitions: L&M Radiator (June 2023) and Super Metal (Nov 2022)

- Wabtec have made two big acquisitions of L&M radiator and Super Metal in the last few years:
 - L&M Radiator - The technology and expertise brought by L&M Radiator are expected to complement Wabtec by developing clean energy solutions.
 - Super Metal - Super Metal's location in Brazil provided Wabtec with a strong foothold in South America. Wabtec have a huge focus on sustainability and Super Metal seeks to support the zero-emission rail system that Wabtec aim to build.



Major Acquisition of GE

- Back in 2018, Wabtec merged with GE Transportation. This deal had a huge impact and cemented Wabtec's status as a large global machinery firm.
- In particular, it brought together GE Transportation's digital tools with Wabtec's electronic systems to develop autonomous systems.



History shows Wabtec's success is driven by acquisitions and strategic initiatives worldwide

- Since Wabtec began acquiring companies in 2010, they have grown 346%.
- This is mainly due to growing within the US.
- There is still room for growth as they now look to focus on international status which gives these acquisitions even more relevance.

- 1 On 4 January 2022, acquired the **New Delhi-based railway friction business**, Masu, for 34 million USD.
- 2 On 20 April 2022, acquired Trimble's Beena Vision business.
- 3 On 16 June 2022, acquired Collins Aerospace ARINC rail solutions



1



2



3

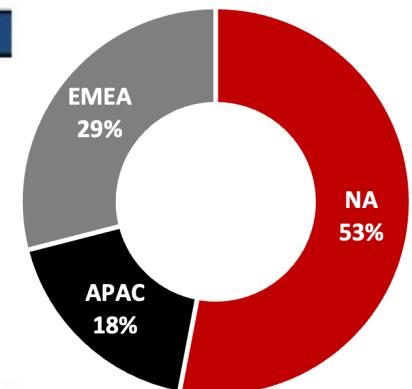
"This acquisition will strengthen Wabtec's position as a 'Made in India' manufacturer, provide an attractive offering for customers, and open new opportunities for regional and international expansion." - Lilian Leroux (Chief Strategy Officer)

"Beena Vision's systems, coupled with Wabtec's TrackIQ portfolio, will create a comprehensive wayside inspection offering...improving insight into reductions in maintenance costs, and to increase fleet availability for revenue generation for clients" - Nalin Jain (President of Digital Electronics)

"ARINC's rail solutions systems, coupled with Wabtec's digital and electronics portfolio, will accelerate the industry's journey of rail optimization" - Nalin Jain (President of Digital Electronics)

Revenue

US	43%
India	7%
Canada	6%
Russia & CIS	5%
Australia	5%
Germany	5%
UK	4%
France	4%

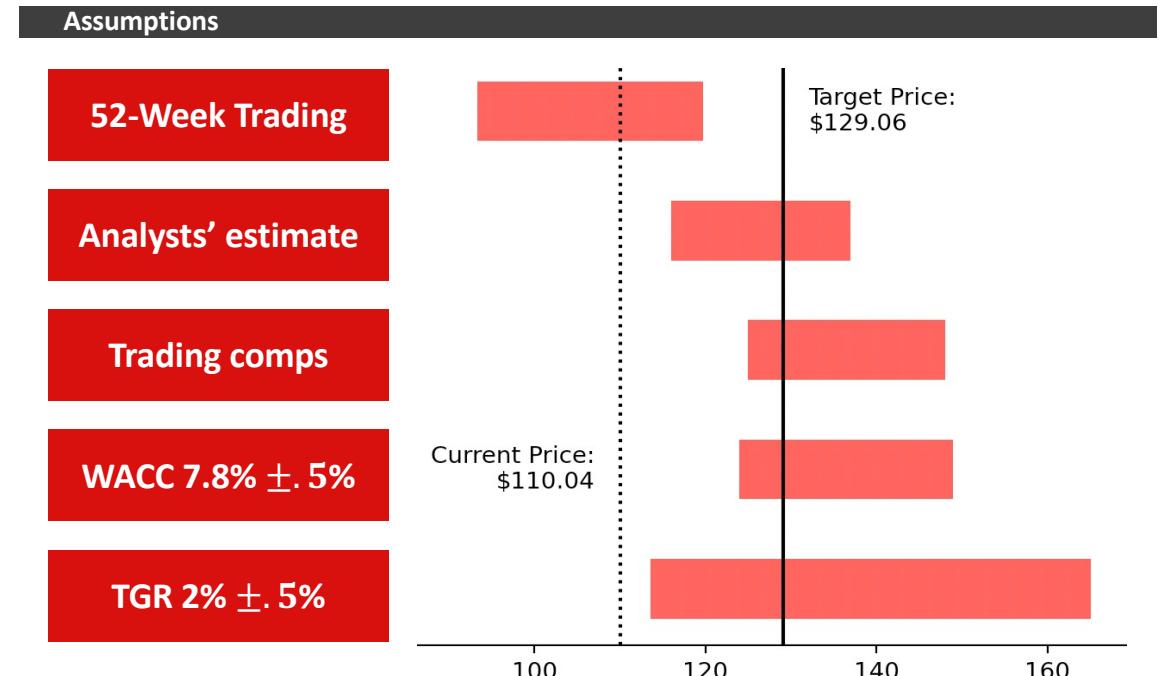


Valuation

We believe that on crossed analysis, Wabtec is undervalued and deserve an implied fair value of \$129.06, representing a 17.28% upside from current levels in a 3Y, i.e. a 4.66% return/year

Assumptions			
<ul style="list-style-type: none"> Beta 5Y (β): 0.97 Immense untapped growth WACC: 7.8% Risk free rate: 4.64% 			mean of 12.35% growth per annum YoY since 1994 given by Bloomberg Terminal 10Y US Treasury Bill
			
Comment	Crisis hypothesis based on a synthetic growth rate from past crisis data aggregation	Target in line with above-mentioned DCF assumptions	Boom hypothesis based on the Wabtec's above average performing years
Revenue growth for the next 3Y	-12.42%	+8.72%	+29.52%
Target Price	\$82.92	\$129.06	\$192.47
Probability ^(*)	10%	85%	5%

^(*) Henri Nyberg, Predicting bear and bull stock markets with dynamic binary time series models, Journal of Banking & Finance, Volume 37, Issue 9, 2013, Pages 3351-3363



WACC	Terminal Growth Rate				
	1.00%	1.50%	2.00%	2.50%	3.00%
8.8%	-8.9% / \$100.27	-2.2% / \$107.59	5.4% / \$115.98	14.2% / \$125.69	24.6% / \$137.07
8.3%	-2.7% / \$107.06	4.9% / \$115.41	13.7% / \$125.08	24.0% / \$136.40	36.2% / \$149.85
7.8%	4.4% / \$114.85	13.1% / \$124.47	23.4% / \$135.74	35.5% / \$149.13	50.2% / \$165.27
7.3%	12.6% / \$123.86	22.8% / \$135.08	34.9% / \$148.40	49.5% / \$164.47	67.4% / \$184.25
6.8%	22.2% / \$134.42	34.2% / \$147.68	48.7% / \$163.67	66.6% / \$183.36	89.2% / \$208.17

Risks, Mitigants and Event Path

Evaluating the potential headwinds, events and catalysts to form a clear path to value realization.

Risk and Mitigant Overview

Risk	Analysis	Mitigants
Advancements in Trucking	<ul style="list-style-type: none"> Government subsidies will accelerate advancements in autonomous trucking operations, reducing the operating expenditures of trucking relative to rail 	<ul style="list-style-type: none"> Freight rail operating costs are still 1/4 the cost of trucking. This is because rail transport is 4x more fuel efficient and allows greater volumes to be transported quicker
Decline in Intermodal traffic	<ul style="list-style-type: none"> US rail volumes have seen a 5% decline this year, primarily led by a 10% drop in intermodal traffic 	<ul style="list-style-type: none"> WABTEC's commitment to drive involvement in growing international markets counter act this, expanding its global reach to over 50 countries
Decline in coal	<ul style="list-style-type: none"> Declines in the coal volume, which is one of the most common commodities transported by rail, will impact the rail industry 	<ul style="list-style-type: none"> Volumes of other commodities being transported via rail are increasing YOY From 2021-2022 construction material volumes increased 10.6%, and metal volumes increased 2.8%

Event pathway

Short Term	Medium Term	Long Term
<ul style="list-style-type: none"> In October 2022, Wabtec were awarded a contract to build first nuclear power plant in Poland. Unlocking further ESG value 	<ul style="list-style-type: none"> The Rebound from travel restrictions lifting between 2020-2025 will contribute to a global annual compound growth rate of 13.6% This will increase the reliance on industries Wabtec is involved in 	<ul style="list-style-type: none"> In November 2022, the company joined the hyper-powered vessel battery charging system (HYPOBATT) project to support the electrification of vessels, to revolutionize the future of cell technology

Catalysts

There are several key trends that will boost the rail industry in the future.

Quick insight of some catalysts

Catalyst	Analysis
Expansion of Global Rail Networks	<ul style="list-style-type: none">• Countries across the world are committed to expanding their high-speed rail networks• There is rapid growth in Asia with nearly 11,000km of high-speed rail networks already being under construction in China alone
High Speed Rail	<ul style="list-style-type: none">• These rail networks that enable trains to travel at speeds >250kmph will increase the volume of freight or passengers that can be transported within a given time
Autonomous Trains	<ul style="list-style-type: none">• Will cut operating costs and increase the volume of freight or passengers that can be transported
Customer driven sustainability targets	<ul style="list-style-type: none">• Higher demand for state-of-the-art equipment (Hydrogen locomotives)• Companies are still trying to improve their travel plan efficiency; AI will be the next leading factor driving it

ESG

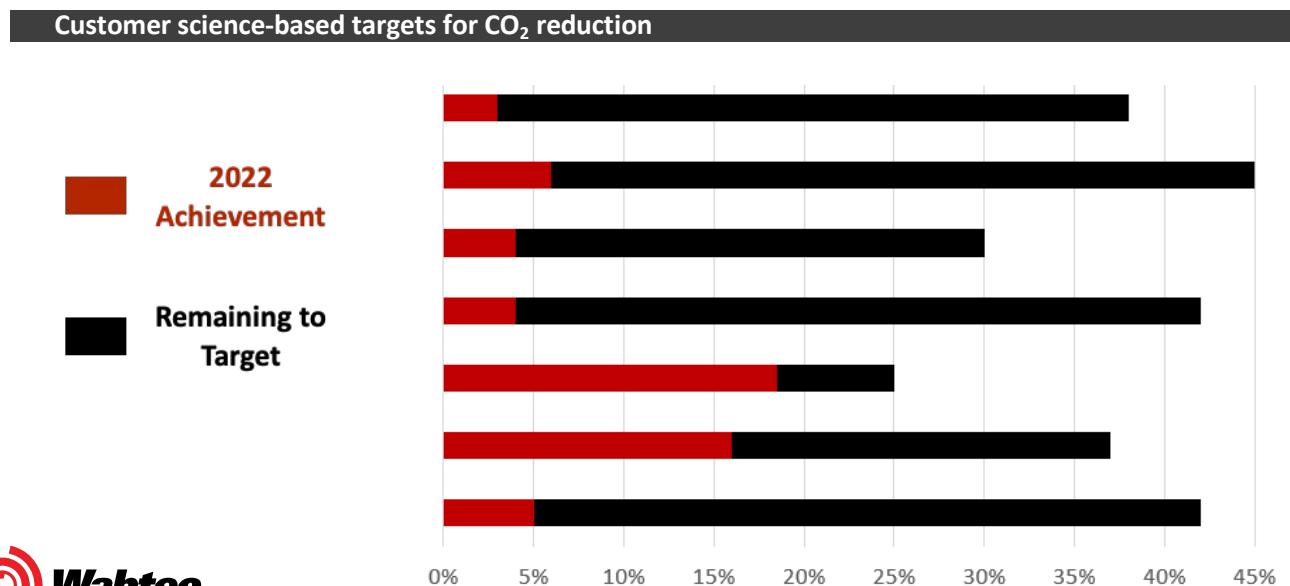
Wabtec excels in all aspects of ESG, especially when compared to their industry competitors.

WABTEC reduced their operational greenhouse gas footprint by 35% between 2019 and 2022 for a 2030-target of 50%

Their fleet of more than **23,000 locomotives globally** travelled over **1.8 billion miles** and helped end customers **eliminate over 138 million metric tons of GHG emissions** by choosing rail over truck transportation

Significant year-over-year progress on all diversity, equity, and inclusion targets, such as an **11% increase in female representation globally**.

Wabtec is committed to the well-being of people in our operational areas. In India alone, it has already made an impact on **+50 schools in India** in 2023



List of ESG Metrics Wabtec leads the industry in as per Bloomberg

Sustainable Product ([Environmental](#))

Energy Management ([Environmental](#))

Total GHG Emissions ([Environmental](#))

GHG Intensity ([Environmental](#))

Exposure to Fossil Fuel Sectors ([Environmental](#))

United National Global Compact (UNGC)
Violations ([Social](#))

UNGC Policies Score ([Social](#))

Exposure to Controversial Weapons ([Social](#))

Board Composition ([Governance](#))

Executive Compensation ([Governance](#))

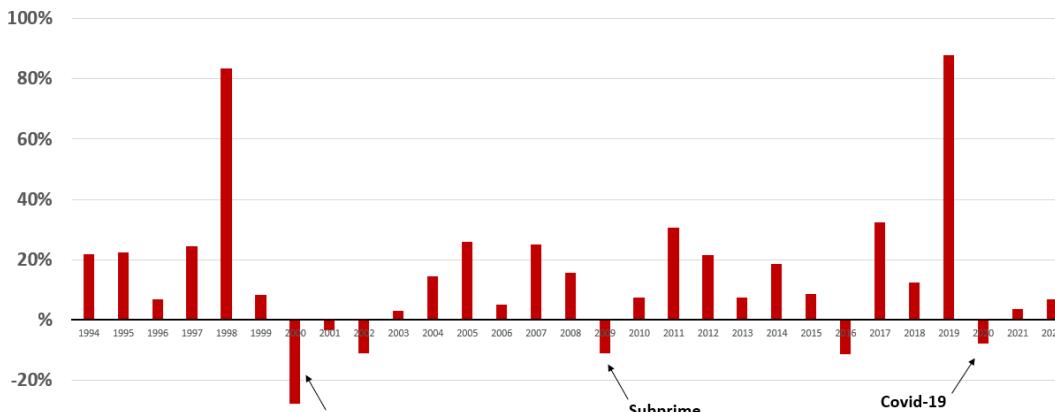


Wabtec
CORPORATION

Thank you

Appendix 1: Revenue Projection

YoY Revenues growth (%) over the past 30 years



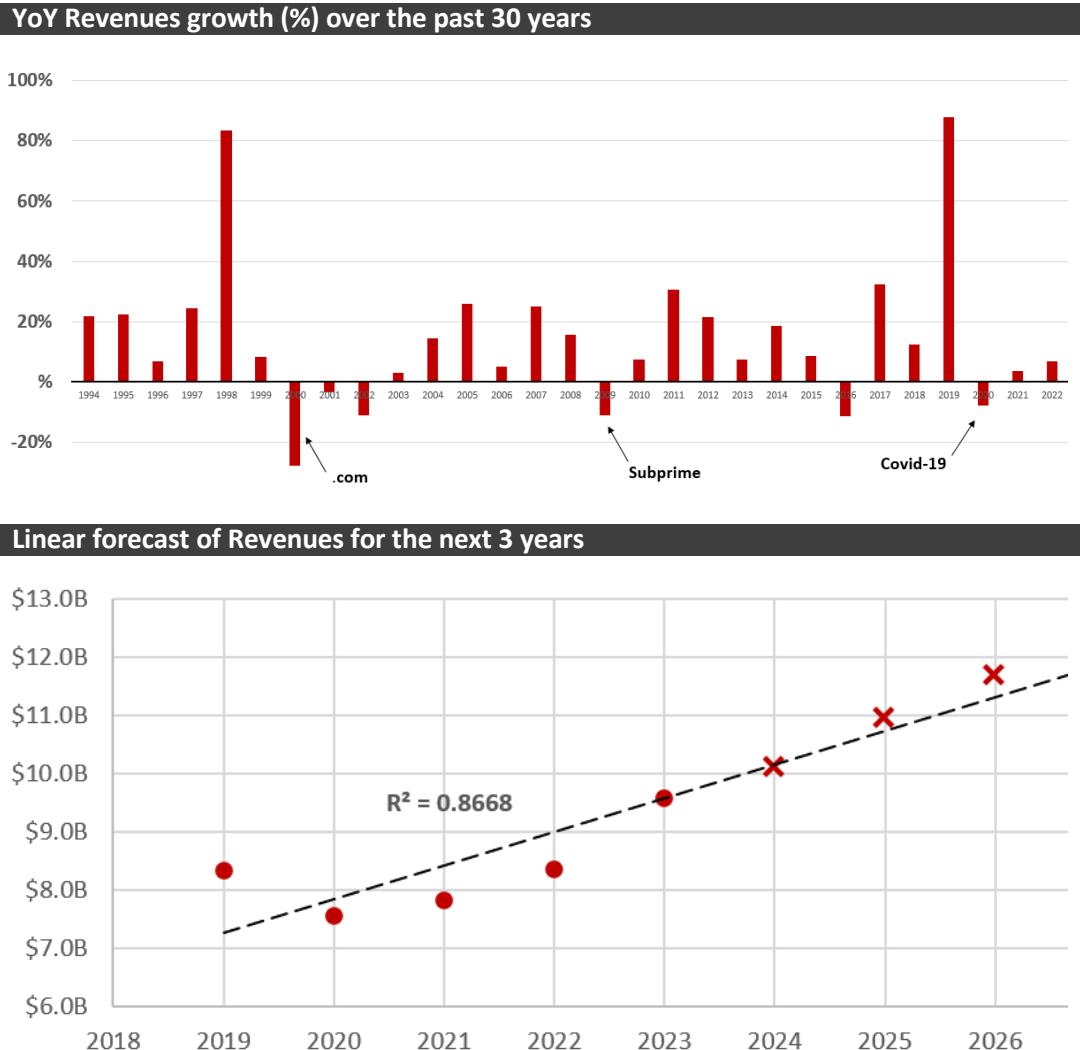
Linear forecast of Revenues

In Millions of USD 12 Months Ending	FY 2018 12/31/2018	FY 2019 12/31/2019	FY 2020 12/31/2020	FY 2021 12/31/2021	FY 2022 12/31/2022	Current/LTM 09/30/2023	FY 2023 Est 12/31/2023	FY 2024 Est 12/31/2024
Market Capitalization	6,787.2	14,914.2	13,827.5	17,114.0	18,085.6	20,266.5		
- Cash & Equivalents	580.9	604.2	598.7	473.0	541.0	392.0		
+ Preferred & Other	3.9	37.1	30.4	38.0	45.0	41.0		
+ Total Debt	3,856.9	4,702.4	4,534.2	4,376.0	4,336.0	4,364.0		
Enterprise Value	10,067.1	19,049.5	17,793.4	21,055.0	21,925.6	24,279.5		
Revenue, Adj	4,363.5	8,323.0	7,556.1	7,822.0	8,362.0	9,457.0	9,584.2	10,097.6
Growth %, YoY	12.4	90.7	-9.2	3.5	6.9	16.3	14.6	5.4
Gross Profit, Adj	1,233.9	2,566.9	2,181.5	2,422.0	2,583.0	2,867.0	2,956.6	3,175.0
Margin %	28.3	30.8	28.9	31.0	30.9	30.3	30.8	31.4
EBITDA, Adj	659.3	1,640.7	1,390.0	1,584.0	1,682.0	1,942.0	1,853.8	1,989.7
Margin %	15.1	19.7	18.4	20.3	20.1	20.5	19.3	19.7
Net Income, Adj	387.8	754.2	724.5	596.0	672.0	824.7	1,030.1	1,147.3
Margin %	8.9	9.1	9.6	7.6	8.0	8.7	10.7	11.4
EPS, Adj	4.01	4.25	3.80	3.16	3.67	4.55	5.96	6.64
Growth %, YoY	15.6	6.0	-10.7	-16.8	16.2	27.3	62.1	11.4
Cash from Operations	314.7	1,015.5	783.7	1,073.0	1,038.0	925.0		
Capital Expenditures	-93.3	-185.3	-136.4	-130.0	-149.0	-176.0	-181.1	-203.0
Free Cash Flow	221.4	830.2	647.3	943.0	889.0	749.0	905.2	1,205.9

Source: Bloomberg

Wabtec has been able to generate good revenue growth since its merger with Motive Power back in 1999

Geometric mean of **12.35%** growth per annum



Appendix 2: Comparable Companies

Ticker	Company	Share Price	nbr of Shares	Enterprise Valu	Market Cap	Revenue (in million USDs)			EBITDA (in million USDs)		Net Income (in millions)	
						2021	2022	2023	2022	2023	2022	2023
WAB	WAB Tech	\$110.04	179	21,926	18,086	7,822	8,362	9,584	1,682	1,854	672	1,030
CRRC	CRRC Corp	\$0.73	24,327	22,821	19,479	35,000	33,152	33,384	3,008	3,119	1,411	1,688
KTK	KTK Group	\$1.31	783	1,132	1,028	588	526	524	48	53	26	35
GBX	Greenbrier C	\$35.81	31	2,725	1,114	1,748	2,997	3,944	194	326	18	86
SRAIL	Stadler Rail	\$35.92	100	3,815	3,592	3,976	3,930	4,317	322	367	75	163
CAF	Construcción	\$30.80	34	1,374	1,056	3,480	3,334	3,958	245	296	53	79
ALO	Alstom	\$14.38	384	12,050	5,514	10,252	17,983	17,189	1,162	1,203	-437	136
CSX	CSX Corp	\$30.45	1,980	77,680	60,163	12,550	14,853	14,707	7,656	7,437	4,166	3,847
NSC	Norfolk Sout	\$199.07	226	60,090	45,017	11,142	12,745	12,320	6,043	4,688	3,270	2,090
CNI	Canadian Na	\$112.54	648	86,100	72,908	14,477	17,107	16,899	9,040	8,978	5,118	4,915
TRN	Trinity Indust	\$23.32	82	7,580	1,909	1,516	1,977	2,451	334	658	86	94
UNP	Union Pacific	\$215.33	610	161,370	127,650	21,804	24,875	24,140	12,589	11,860	6,998	6,365
GET	Getlink	\$16.09	540	12,620	8,490	774	1,606	1,962	460	617	252	358

	Revenue Growth		EBITDA Margin		Profit Margin		EV / Revenue		EV / EBITDA		P / E	
	2022	2023	2022	2023	2022	2023	2022	2023	2022	2023	2022	2023
WAB	7%	15%	20%	19%	8%	11%	2.6x	2.3x	13.0x	11.8x	26.9x	17.6x
CRRC	(5%)	1%	9%	9%	4%	5%	0.7x	0.7x	7.6x	7.3x	13.8x	11.5x
KTK	(11%)	(0%)	9%	10%	5%	7%	2.2x	2.2x	23.8x	21.4x	39.1x	29.2x
GBX	71%	32%	6%	8%	1%	2%	0.9x	0.7x	14.1x	8.4x	63.7x	13.0x
SRAIL	(1%)	10%	8%	9%	2%	4%	1.0x	0.9x	11.8x	10.4x	47.9x	22.0x
CAF	(4%)	19%	7%	7%	2%	2%	0.4x	0.3x	5.6x	4.6x	20.1x	13.4x
ALO	75%	(4%)	6%	7%	(2%)	1%	0.7x	0.7x	10.4x	10.0x	-12.6x	40.7x
CSX	18%	(1%)	52%	51%	28%	26%	5.2x	5.3x	10.1x	10.4x	14.4x	15.6x
NSC	14%	(3%)	47%	38%	26%	17%	4.7x	4.9x	9.9x	12.8x	13.8x	21.5x
CNI	18%	(1%)	53%	53%	30%	29%	5.0x	5.1x	9.5x	9.6x	14.2x	14.8x
TRN	30%	24%	17%	27%	4%	4%	3.8x	3.1x	22.7x	11.5x	22.2x	20.3x
UNP	14%	(3%)	51%	49%	28%	26%	6.5x	6.7x	12.8x	13.6x	18.2x	20.1x
GET	107%	22%	29%	31%	16%	18%	7.9x	6.4x	27.4x	20.5x	33.7x	23.7x

	2023 Trading Multiple			Enterprise Value			Equity Value			Share Price
	Revenue	EBITDA	P/E	Revenue	EBITDA	Net Income	Revenue	EBITDA	Net Income	
Minimum	0.3x	4.6x	11.5x	3,327	8,617	11,887	-645	4,645	7,915	-\$3.60
1st Quartile	0.7x	9.6x	14.8x	6,719	17,778	15,280	2,747	13,806	11,308	\$15.35
Lower Limit 75%	2.5x	10.8x	18.7x	24,306	19,958	19,225	20,334	15,986	15,253	\$113.60
Mean	3.0x	11.7x	20.3x	28,914	21,732	20,878	24,942	17,760	16,906	\$139.34
Median	2.3x	10.4x	20.1x	21,926	19,363	20,658	17,954	15,391	16,686	\$100.30
Upper Limit 75%	3.5x	12.7x	21.9x	33,523	23,507	22,532	29,551	19,535	18,560	\$165.09
3rd Quartile	5.1x	12.8x	22.0x	48,831	23,761	22,700	44,859	19,789	18,728	\$250.61
Maximum	6.7x	21.4x	40.7x	64,068	39,668	41,918	60,096	35,696	37,946	\$335.73

Appendix 3: DCF Analysis

Income Statement (\$M)	2018	2019	2020	2021	2022	2023	2024	2025	2026
Revenue	4,364	8,323	7,556	7,822	8,362	9,584	10,098	10,948	11,682
% growth		90.74%	-9.21%	3.52%	6.90%	14.62%	5.36%	8.43%	6.70%
EBIT	550	1,185	860	954	1,063	1,638	1,760	1,821	1,991
% of sales	12.61%	14.24%	11.38%	12.20%	12.71%	17.09%	17.43%	16.64%	17.04%
Taxes	84	100	129	123	157	169	186	203	220
% of EBIT	15.26%	8.39%	14.98%	12.89%	14.77%	14.21%	13.96%	14.31%	14.16%
EBIAT = EBIT - Taxes	466	1,086	731	831	906	1,468	1,574	1,618	1,770
D&A	109	401	473	491	479	491	523	541	560
% of sales	2.50%	4.82%	6.26%	6.28%	5.73%	6.09%	6.03%	5.95%	6.02%
CapEx	-93	-185	-136	-130	-149	-156	-161	-167	-172
% of sales	-2.14%	-2.23%	-1.81%	-1.66%	-1.78%	-1.62%	-1.60%	-1.52%	-1.48%
FCFF	310	990	794	1,079	1,029	910	1,192	1,289	1,386
Discounted Cash Flow						876	1,064	1,067	1,064

Terminal Value	24,199
Enterprise Value	28,270
+ Cash	392
- Debt	4,364
Equity Value	24,298
Shares	179
Share Price	\$135.74

% Debt	30.07%
Cost of Debt	3.23%
Tax Rate	24.30%
Equity Value	10,147
% Equity	69.93%
Cost of	7.56%
Risk Free Rate	4.64%
Beta	0.97
Market Risk	3.00%
Debt + Equity	14,511

from US10Y

7.64%

WACC 7.84% ← from Bloomberg
 TGR 2.00% ← Calculated 4.96%