



# Industrials & Energy, and Healthcare Pitch

April 22nd , 2024



# Weekly Meeting Agenda



**01**

## **Industrials and Energy Pitch: Tesla**

A world leading auto-manufacture and EV innovator

**02**

## **Healthcare Pitch: Vertex**

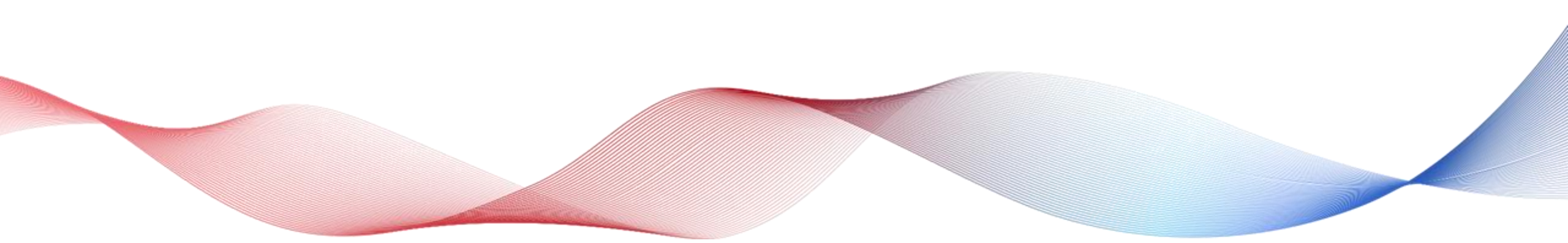
US Biotech firm developing unique treatments for untaped disorders



Industrials & Energy

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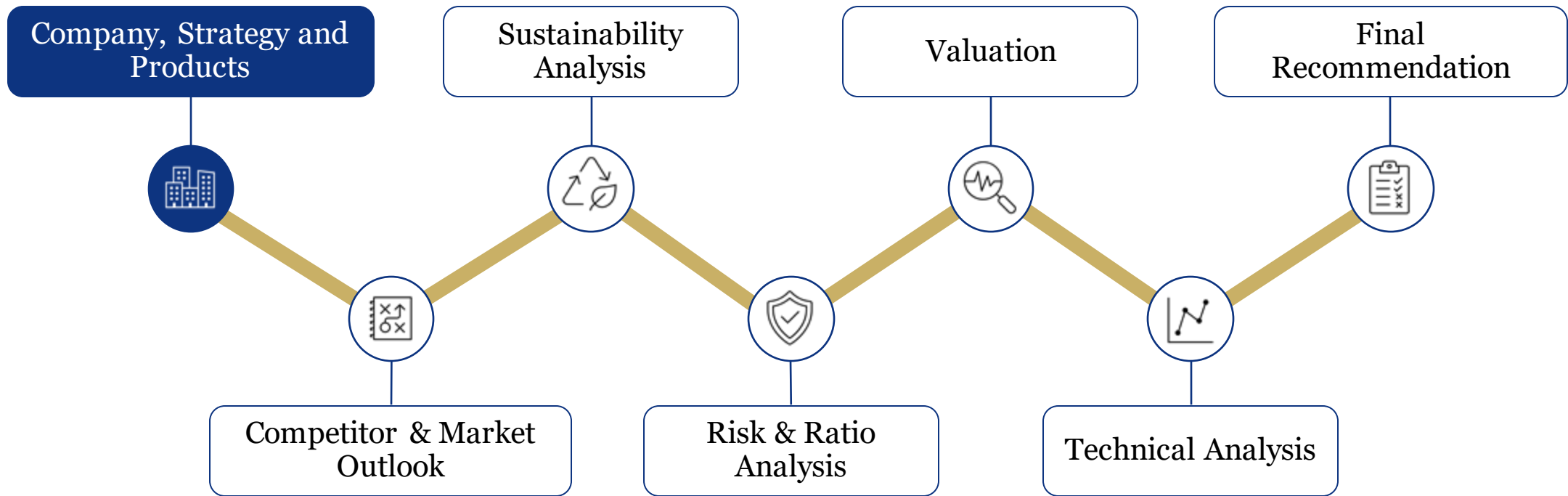
**Σ**igma  
Investments



TESLA

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Investments





# Company Overview



Tesla is the market leader and pioneer in the global EV market

## Profile

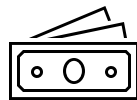
- Tesla, Inc. currently engages in the design, development, manufacturing, and sale of electric vehicles and energy generation and storage systems
- Tesla Model Y best-selling car across all segments in 2023, with volume of 1.23 million units

## Global presence

- Preserve leader role in the EV business over the last 10 years
- Strong impact globally, ranging from geopolitics to sustainability



Market Cap  
\$556 bn



P/E Ratio  
34.17



Beta  
1.76



Revenue CAGR  
35,2% (5y)

## Tesla Stock Price



Source: Factset, updated on 19/04/2024

# Company Strategy



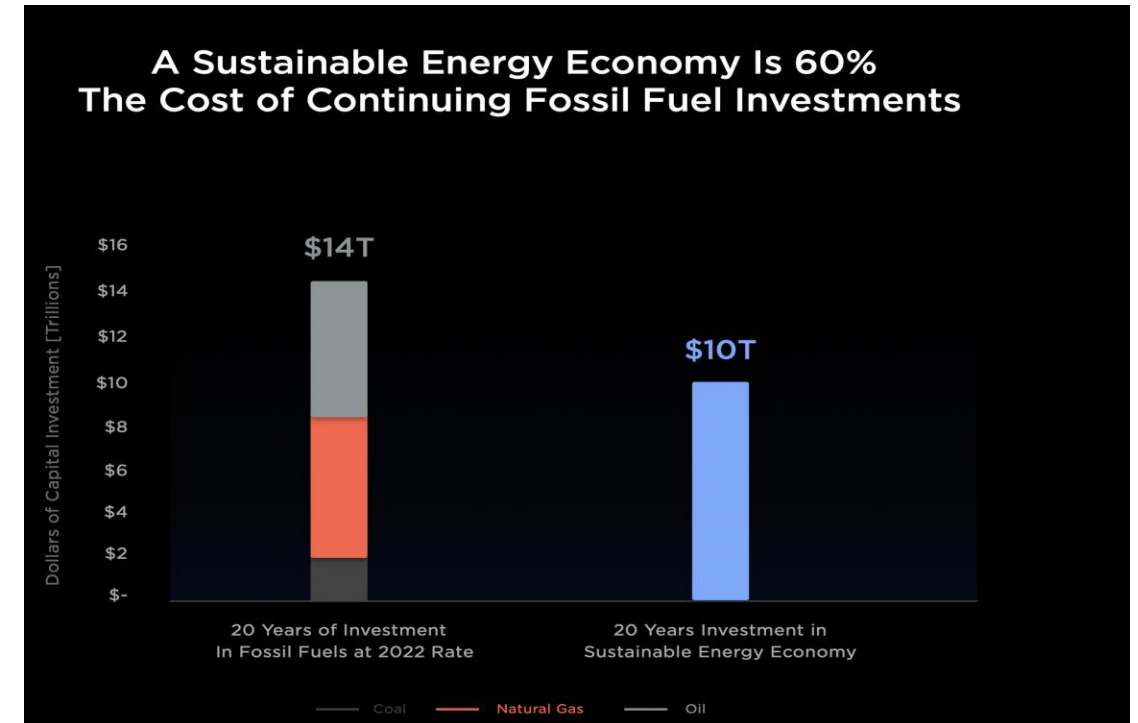
“Create a high-performance electric sport car to finance cheaper future electric cars for mass market”

## Completion of Master Plan, phase 1 and 2

- Development of self-driving passenger vehicles
- Expanding of EV market by addressing all market preferences
- Creation of Solar city entering in the Solar panel business

## Next Challenge: Master Plan 3

1. Switch to renewable Power (**cutting 35% fossil fuels**)
2. Implementation of EV vehicles (**21% reduction**)
3. Energy affordability throughout Heat pumps (**22% reduction of Co2**)
4. Shift to green Hydrogen to process metals for manufacturing
5. Deploy sustainable fuels in aviation and maritime routes



- Growth in Production Capacity by 2030
- Reaching a planet **100% Green** economy by 2050
- Reducing Capex across the energy market

Source: Tesla Investor presentation 2023

# Product Line-Up



Tesla – company or its own ETF?

## Automotive



*Model 3*



*Model Y*



*Model S*



*Model X*



*Cybertruck*

## Energy



*Megapack*

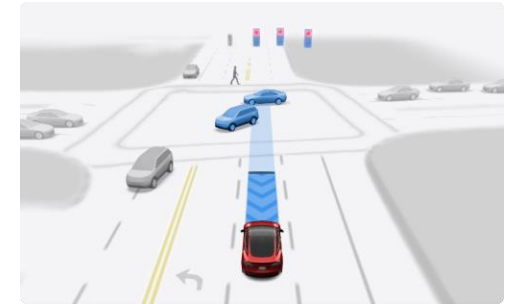


*Solar + Powerwall*

## Related Services



*Supercharger Network*



*Full Self-Driving (Supervised)*

**TESLA** | INSURANCE

*Insurance*

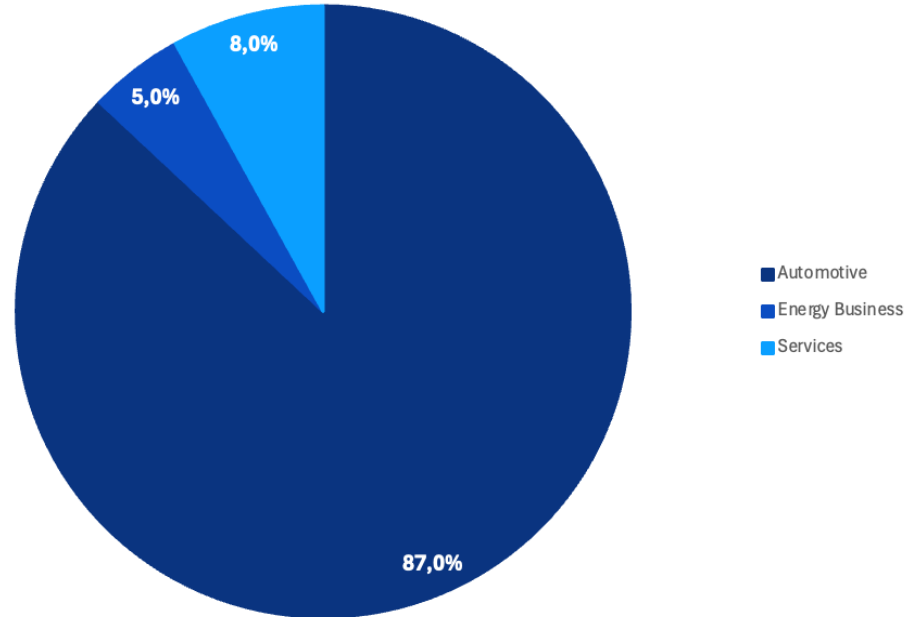


# Products and Services



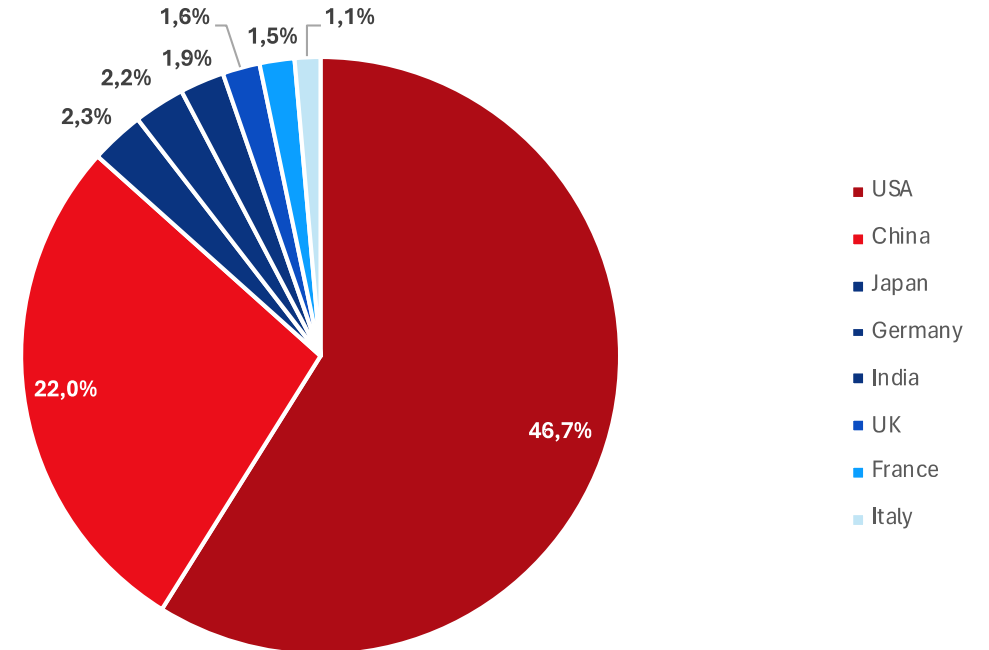
Decreasing dependency on Automotive Segment, China exposure to facilitate access to raw materials

## 2023 Revenue by Product Segment



Source: Factset

## 2023 Revenue by Region

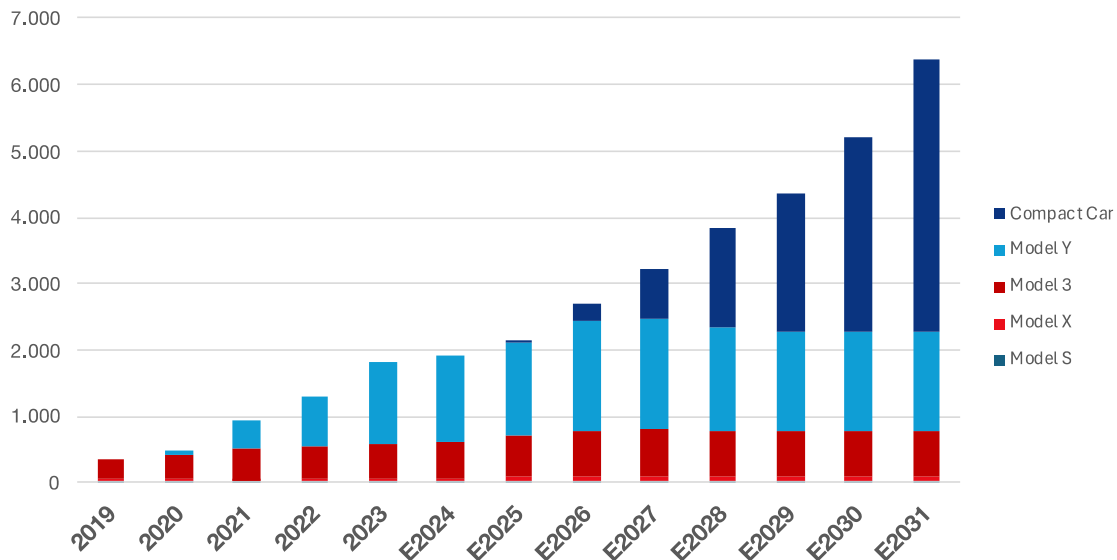


Source: Factset

# Delivery trends by vehicles

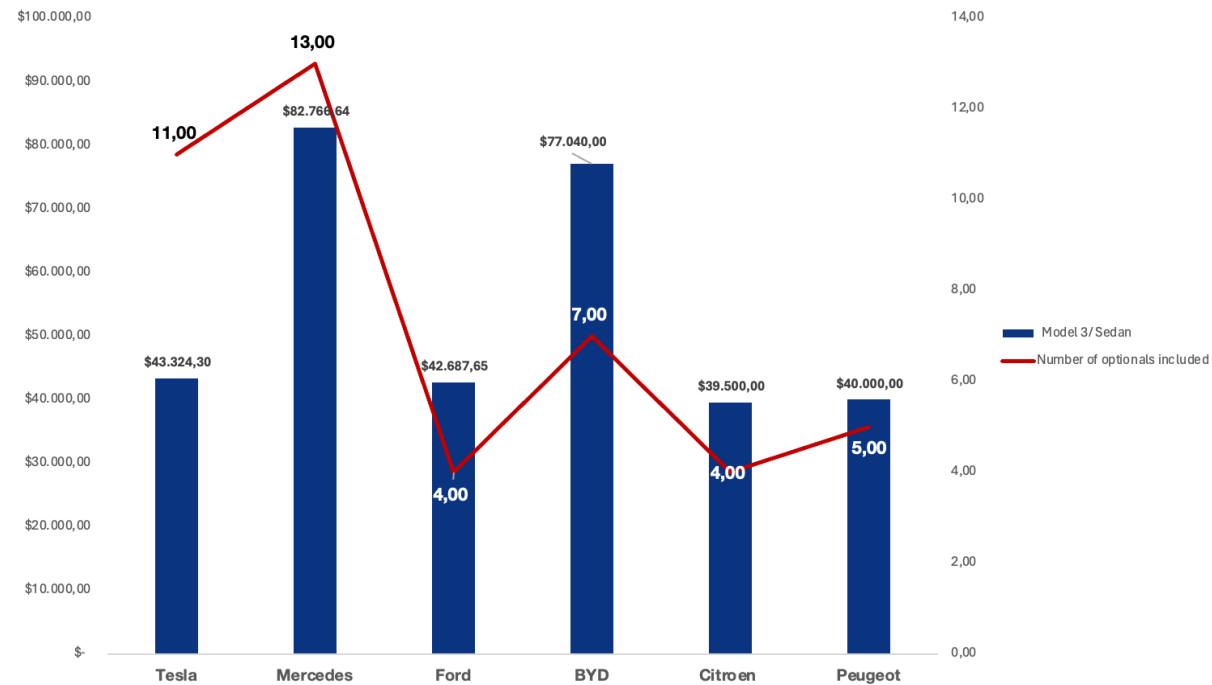


Deliveries By Model (Mln unit)



Source: Factset industry metrics

Average Ev Price vs Optional features



Source: Companies' Catalogue

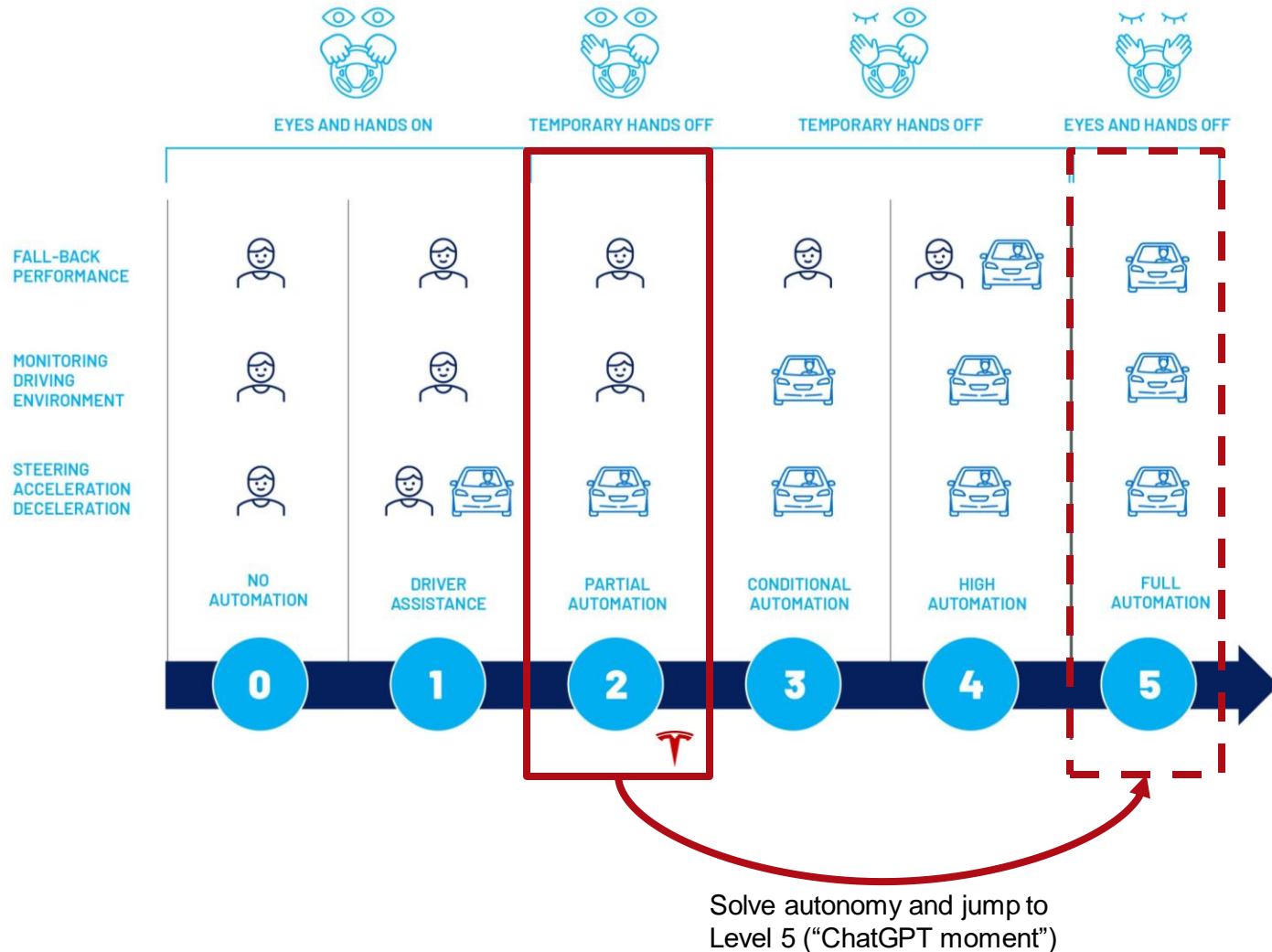
- Introduction of Compact Car in E2025 (Mass Market vehicle)
- Price cuts for all models towards E2025, reaching all time low

- Capability to offer more complete product at lower price
- Faster product availability due to greater efficiencies in production and distribution

# Progress on Full Self-Driving



Breakdown of Tesla's FSD strategy



## Autonomous Driving landscape

- **Data = Money:** Tesla is training their system with a fleet of more than 2 million cars on the road
- Tesla's approach is similar to human drivers (vision only), **no mapping** required
- FSD already used frequently by customers to drive anywhere (supervision required)
- Competitor Mercedes released first ever Level 3 System → usage extremely limited
- Chinese competitors with Level 2 assistant systems, based on lidar sensors and pre-mapping

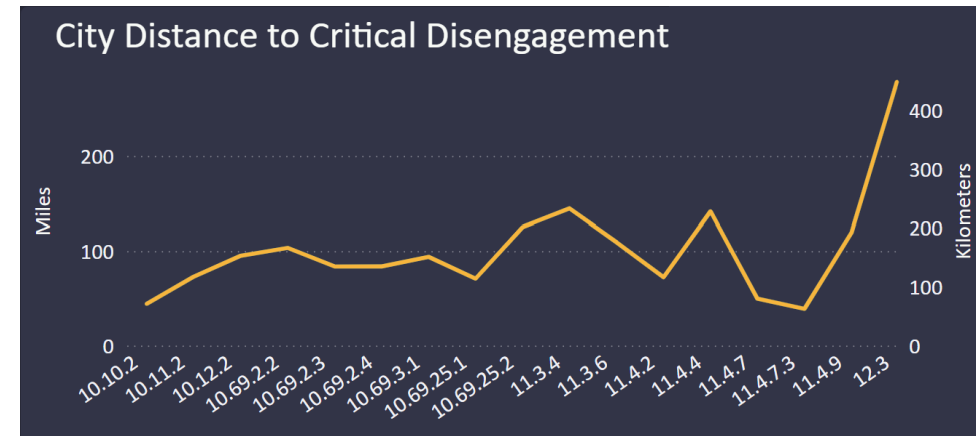
# Progress on Full Self-Driving



Breakdown of Tesla's FSD progress



- **New policy:** Every new Tesla owner receives a real-life FSD demo at their car handover
- FSD miles driven expected to reach **2 billion by October** due to exponential adoption
- According to Elon Musk FSD software training **no longer compute constrained**
- Distance to Critical Disengagement at **new highs** with introduction of Version 12.3 according to Tesla Community



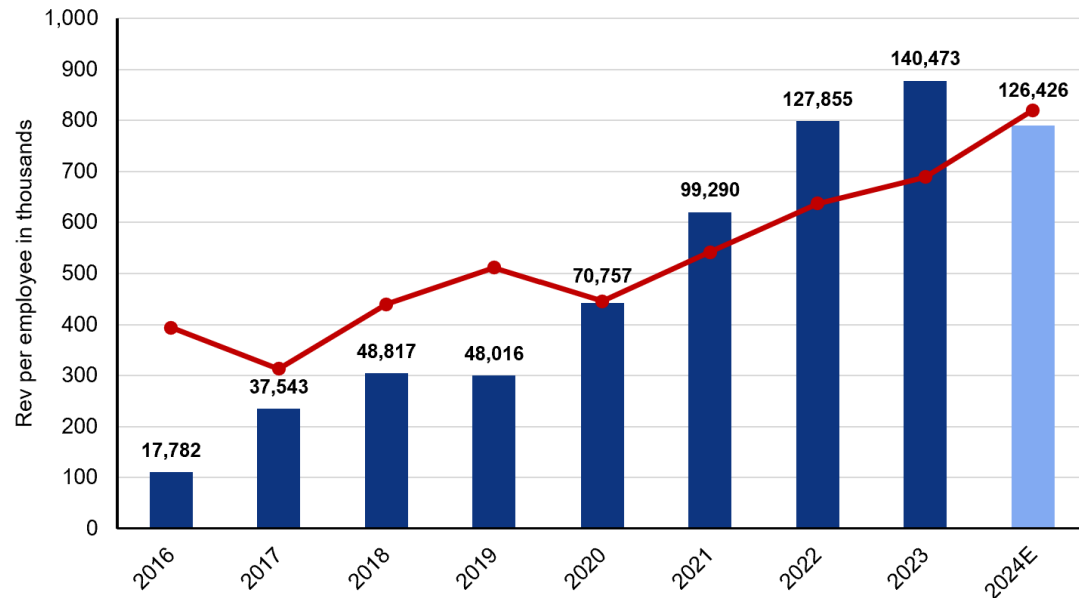
Source: X Platform

# Recent News around Tesla



Sentiment in a nosedive as stock price falls

Tesla Headcount



- Extensive **layoffs of 10%** of the workforce to increase operating efficiency after alleged “duplicating in roles” to “streamline company for the next phase of growth”
- Radical decision by Elon could signal more commitment to Tesla after being criticized by major shareholders

## Earlier this year

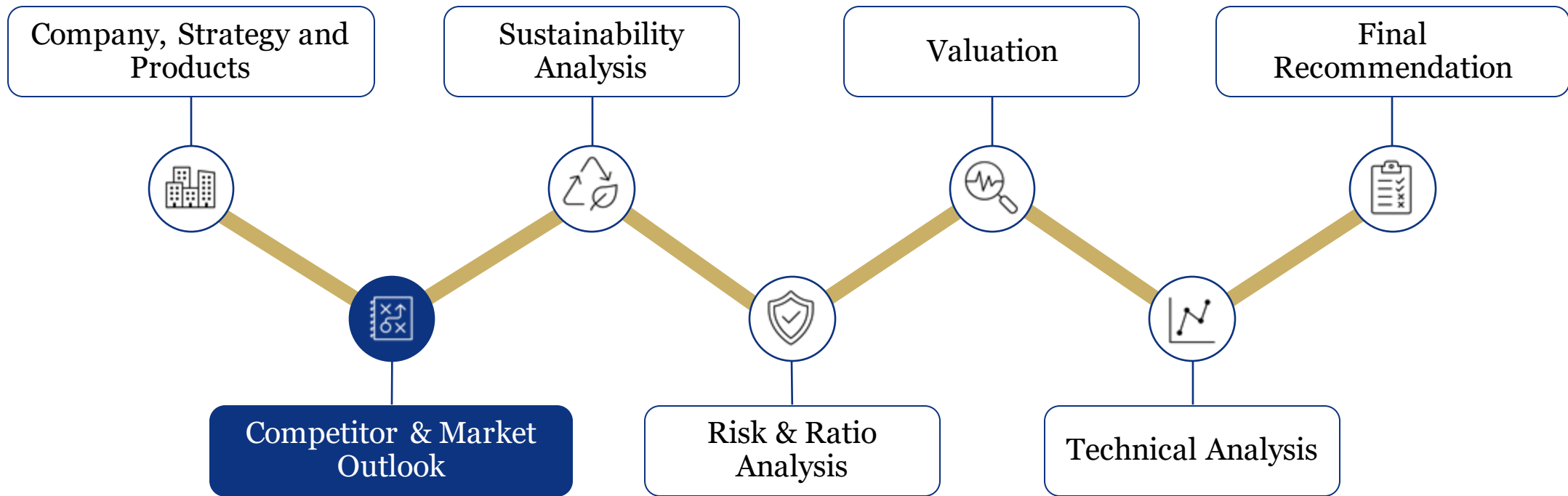
- Delaware judge voids Elon Musk’s \$56 billion compensation package
- Tesla’s Berlin factory down for days after political attack

## April News

- Q1 delivery number miss, declining YoY due to softened demand, Red Sea supply chain challenges
- Delay of Project Compact Car leaked
- Elon Musk announces Robotaxi unveil on 8<sup>th</sup> August
- Tesla scouting sites in India for potential \$2-3bn investment in new factory
- Recall of Cybertruck due to pedal part being loose

Source: Reuters





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# Competitor Analysis



Higher profitability due to superior efficiency in the production line



Mercedes-Benz

Market Cap. (bn \$)	519.74	8.94	78.67	49.23	84.63
Revenue (bn \$)	96.77	4.43	83.55	176.19 (<1%)	165.64 (<11%)
Net Profit Margin	15,5%	-122.5%	5.1%	2.5%	9.3%
Inventory Turnover	5.9x	0.7x	5.0x	9.6x	3.7x
Employees	140,473	16,790	570,000	177,000	172,425

(n) = revenue share from EV

# Market Outlook

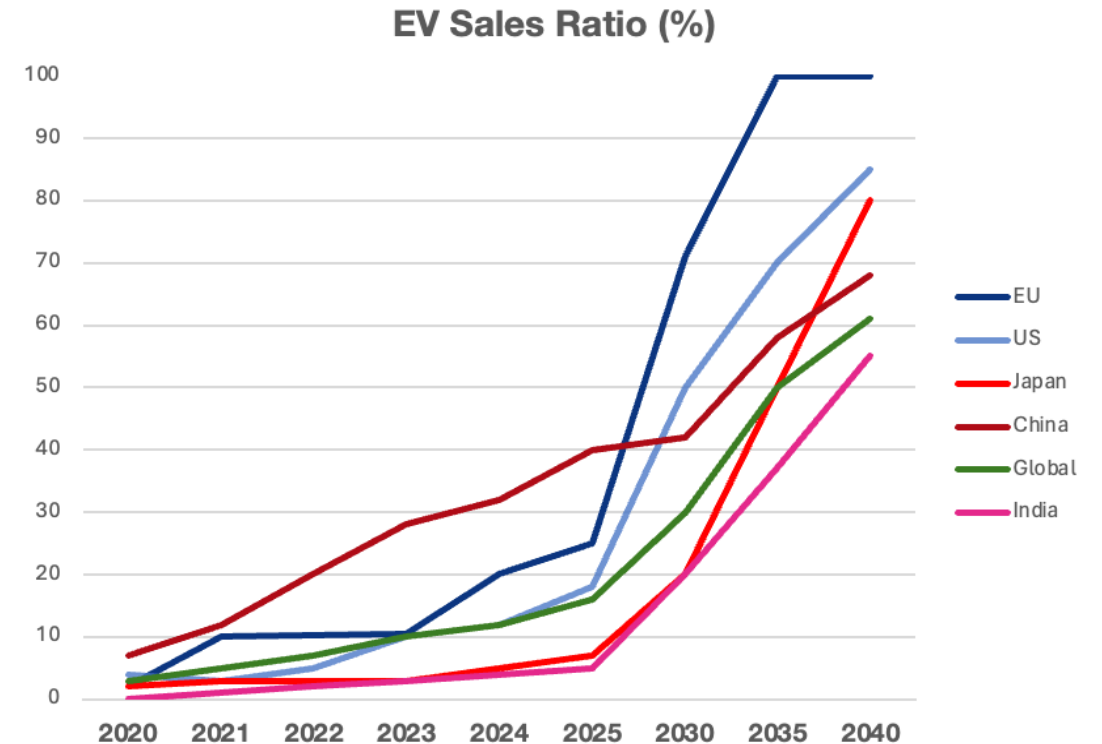


## Catalysts

- Strong Commitment by politics to Energy transition
- High incentives from governments through fiscal credits
- Increasing inflow from PE and VC in green energy sector

## Challenges

- Encouraging consumers to transition from ICE to EV
- Supply chain of raw materials for batteries
- Possible future Price wars, thus maximizing affordability to consumer



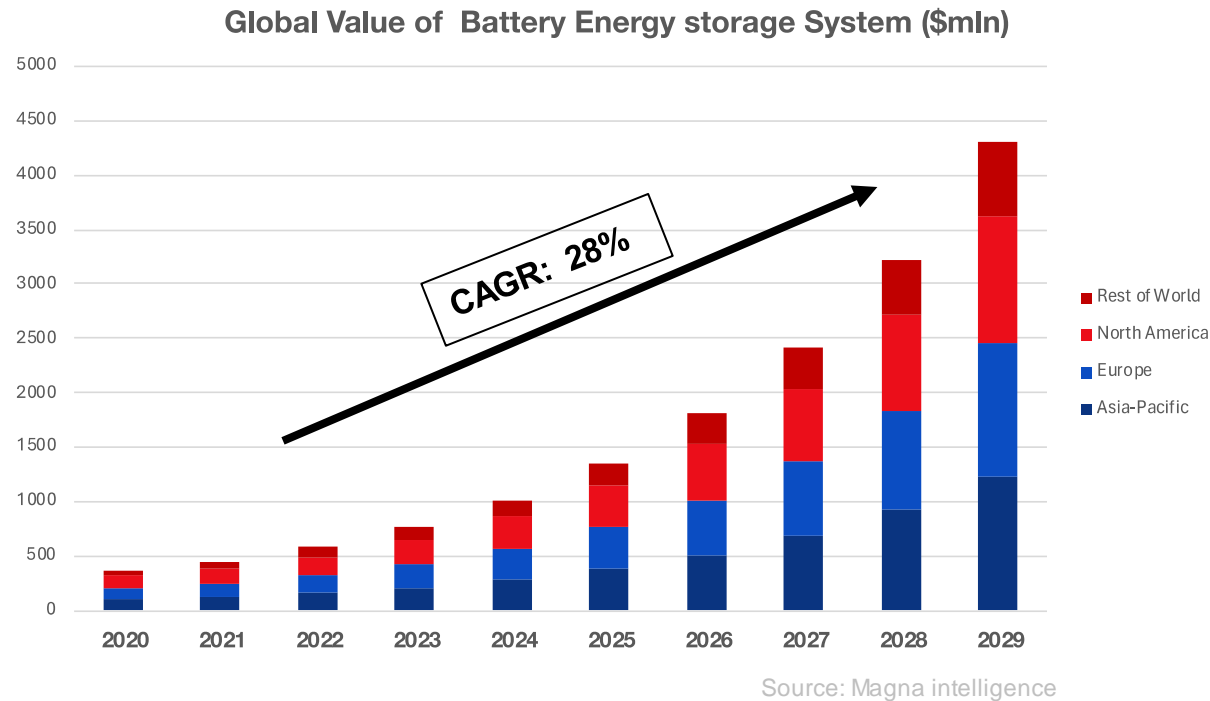
Source: GS research Global insight

# EV outlook

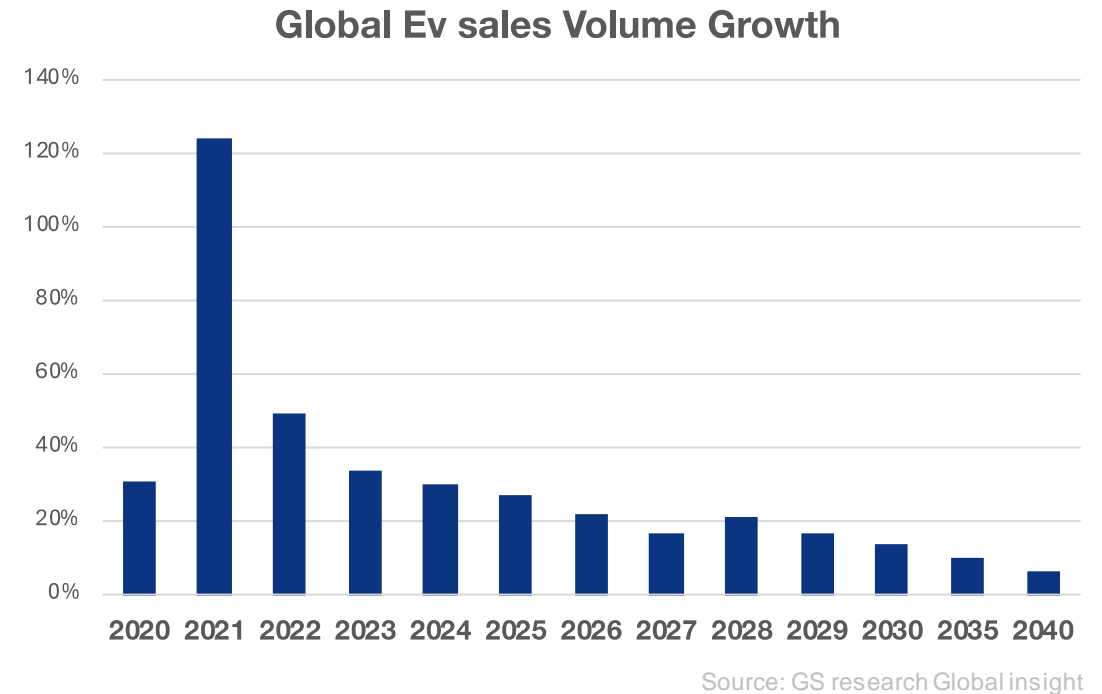


An expanding market in double digit drive Growth in all its segmentation

## Essential Component for the manufacturing

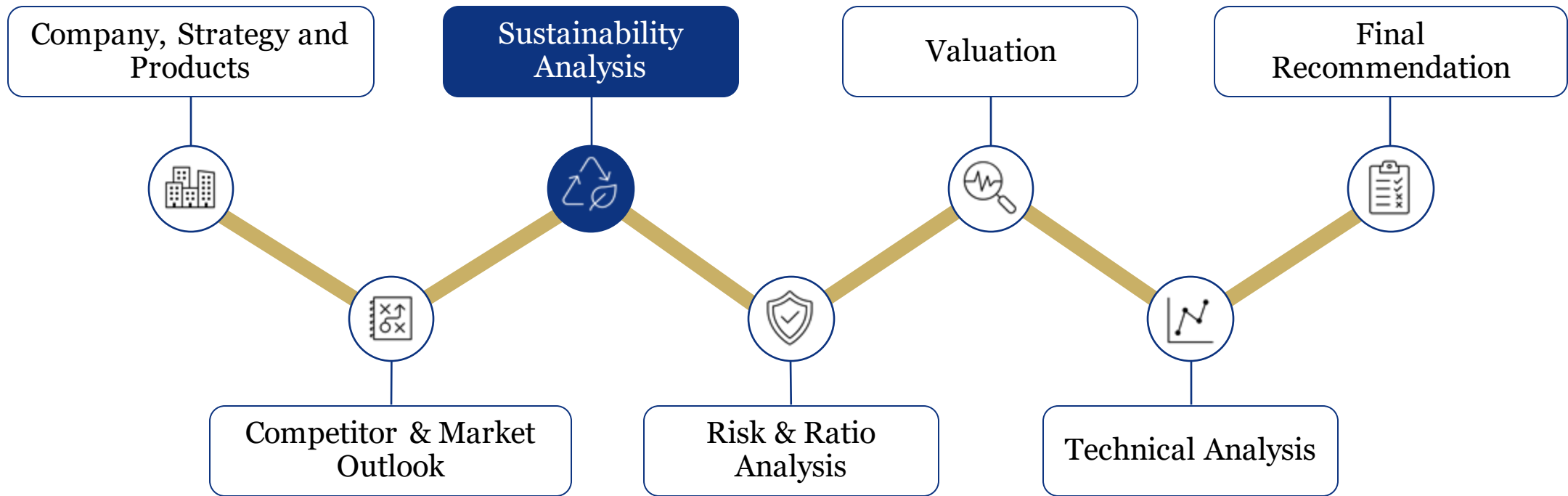


## EV Sales Volume



- Crucial for energy transitioning and geopolitical relations

- Steady DD growth → decreased by reduction in Gov subsidy



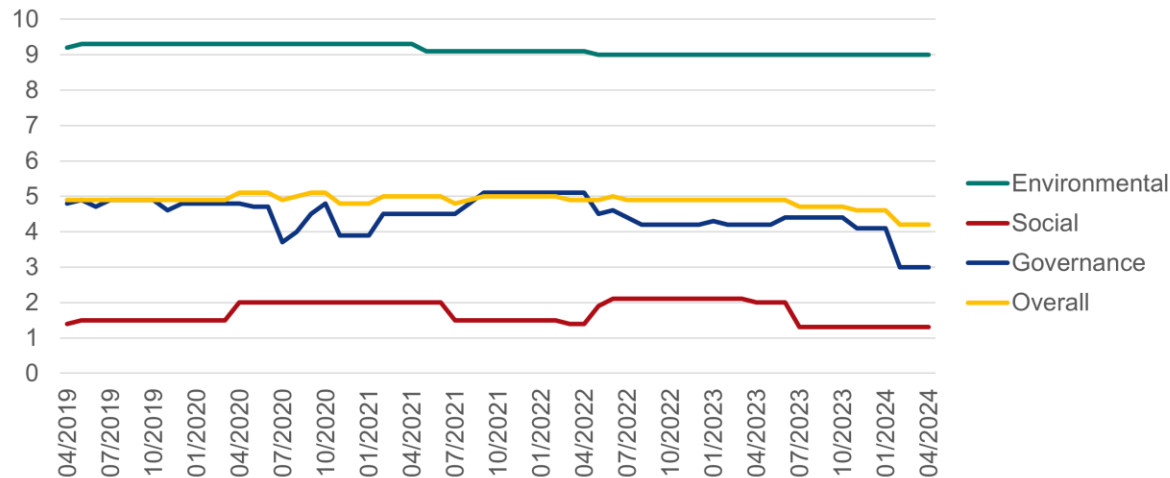
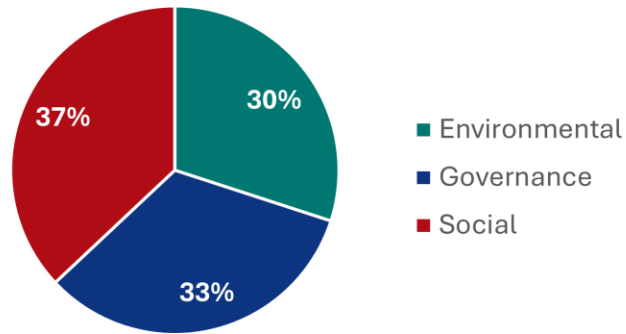


# Sustainability Analysis

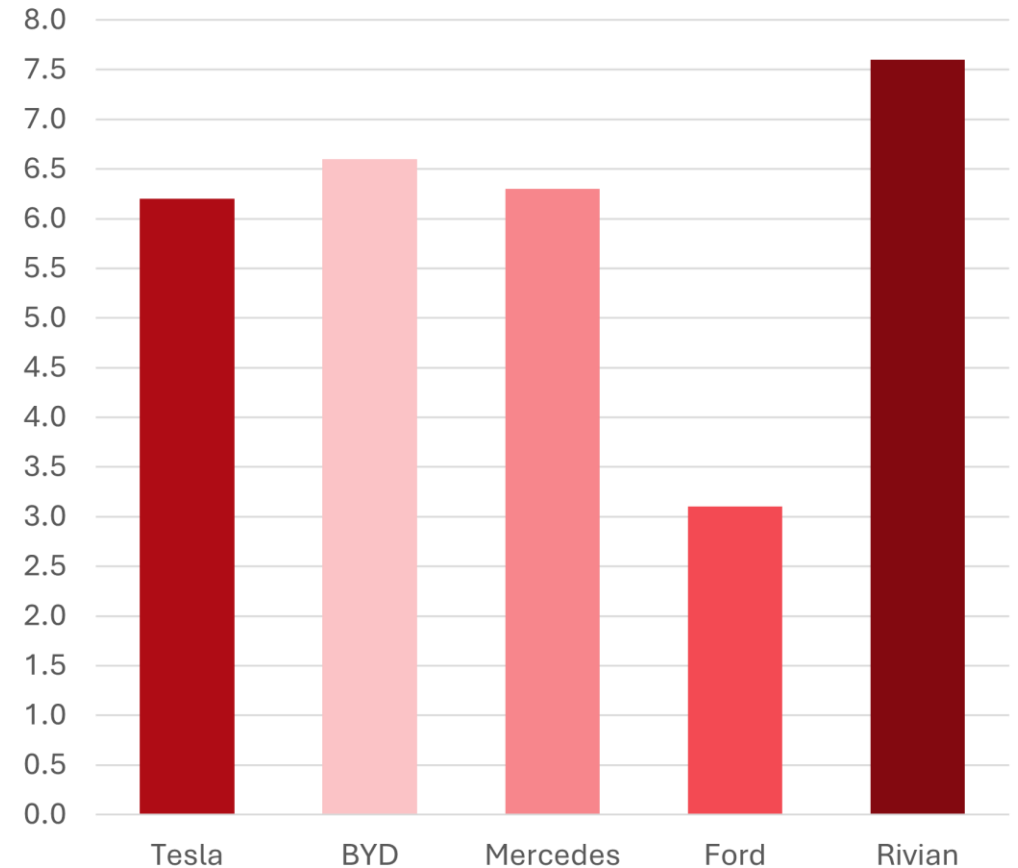


Quantitative View

## ESG Pillar Weights



## ESG Competitor Benchmark



# Sustainability Analysis



## Qualitative View



### Environment

#### Key Points:

- Carbon Emission Reductions: helped to avoid approximately **13.4 million metric tons of CO<sub>2</sub>e emissions in 2022**;
- Resource Efficiency: achieved a **15% reduction in water usage** per vehicle;
- Renewable Energy Focus.

#### Challenge:

- **Supply Chain Impact:** the impact of lithium mining for batteries remains a significant concern.
- **Resource Consumption:** high energy consumption and the use of critical minerals in manufacturing processes;
- **Recycling Needs:** enhancing the recycling of battery materials and manufacturing waste to reduce environmental footprint.



### Social

#### Key Points:

- Workforce Diversity: **men comprise 77% of the overall workforce**;
- Safety and Health: it has faced **criticisms and legal actions** related to workplace safety;
- Community Engagement: actively **engages with local communities** to support development.

#### Challenge:

- **Diversity at Senior Levels:** Men held *80% of executive roles and 70% of management roles*. Underrepresentation of women of color and Hispanic women in leadership roles.
- **Labor Practices:** allegations of harsh working conditions and inadequate responses to employee grievances.

**Result - Tesla is removed from S&P500 ESG Index**



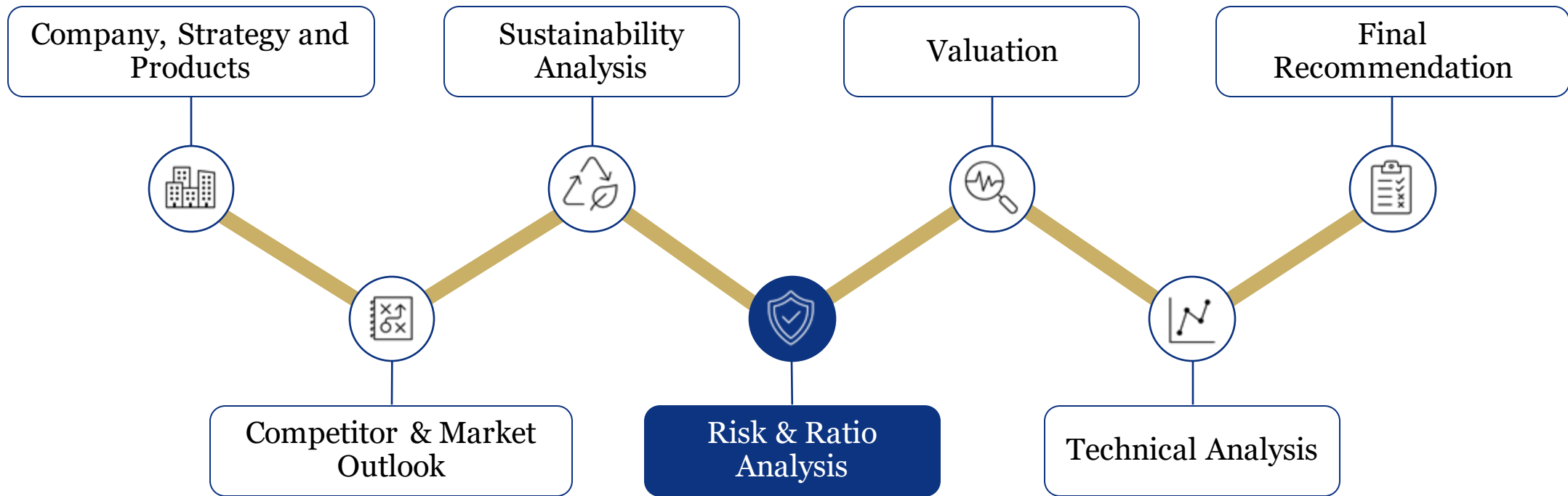
### Governance

#### Key Points:

- Transparency and Reporting: Tesla has started to improve **transparency** by releasing diversity data **after investor pressure**.
- Ethical Governance: maintains a **commitment to ethical practices**, though challenged by executive controversies.

#### Challenge:

- **Regulatory Compliance;**
- **PR and Executive Behavior:** public statements and behavior of Elon Musk that have led to fluctuations in public and investor confidence;
- **Investor Relations:** handling investor concerns regarding corporate governance practices, transparency, and the ethical implications of leadership decisions.



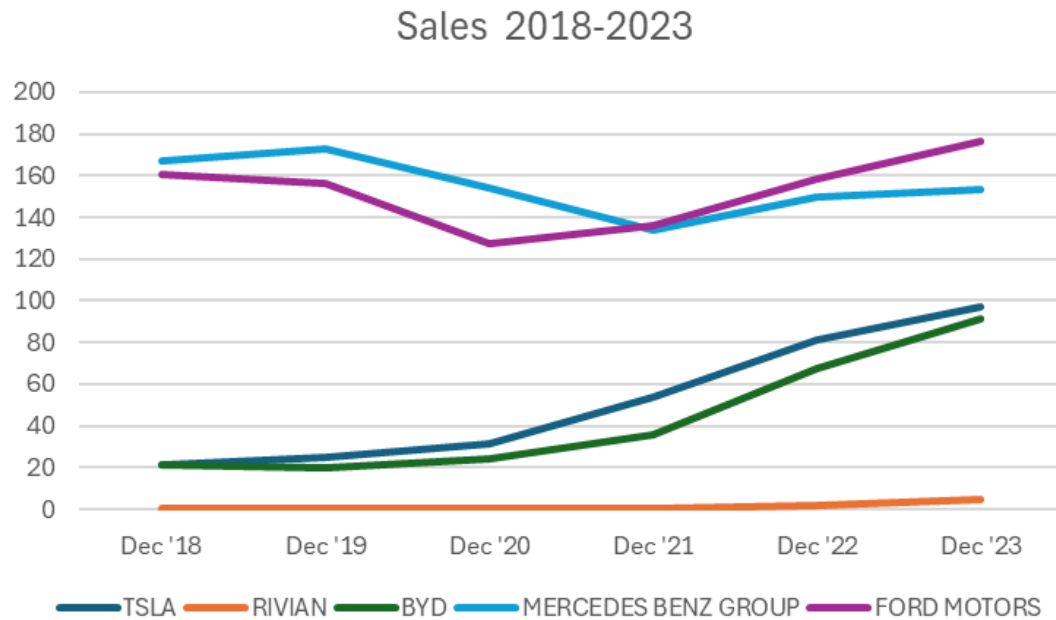
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# Ratio Analysis

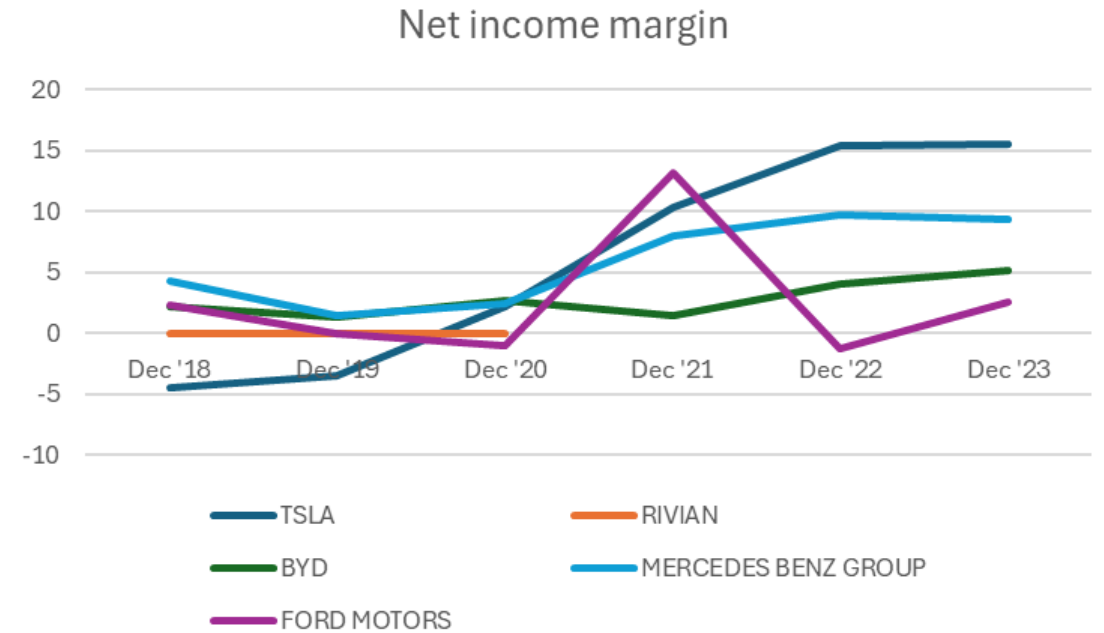


Steady EV growth, Legacy manufacturers stagnating

## Sales Growth



## Profitability



# Ratio Analysis

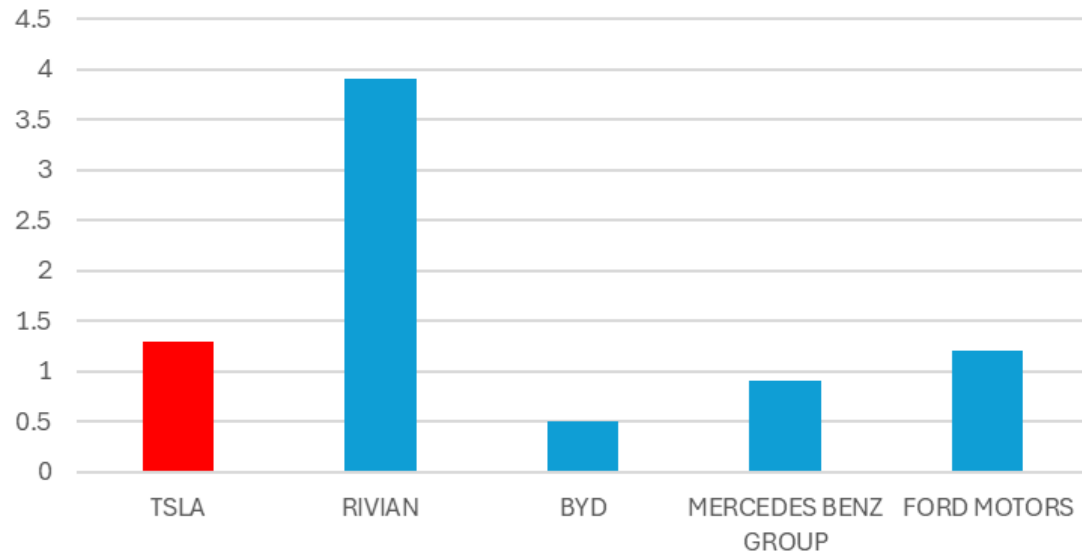


TSLA shows very strong liquidity due to low debt levels

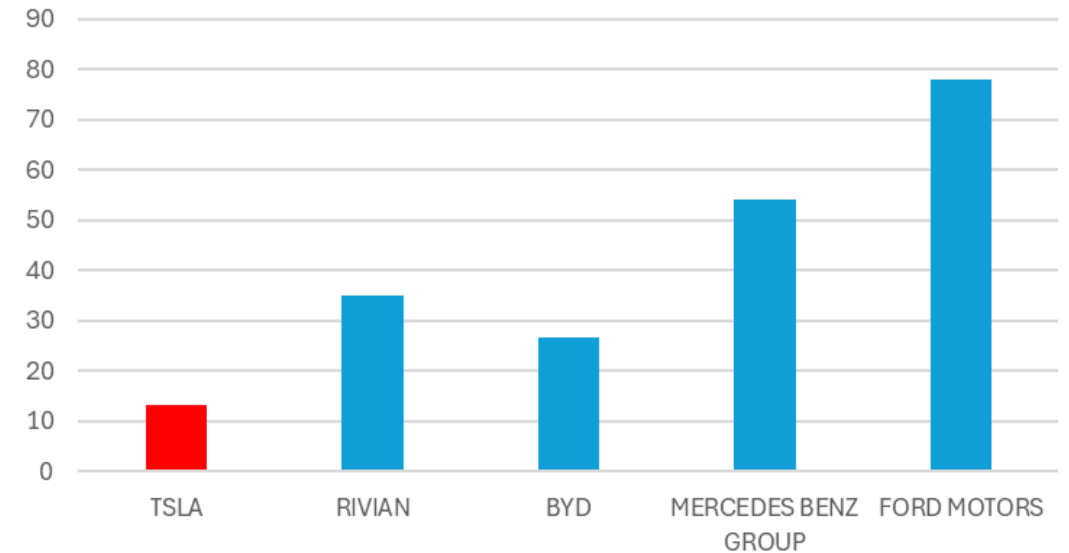
## Short-Term Liquidity

## Long-Term Liquidity

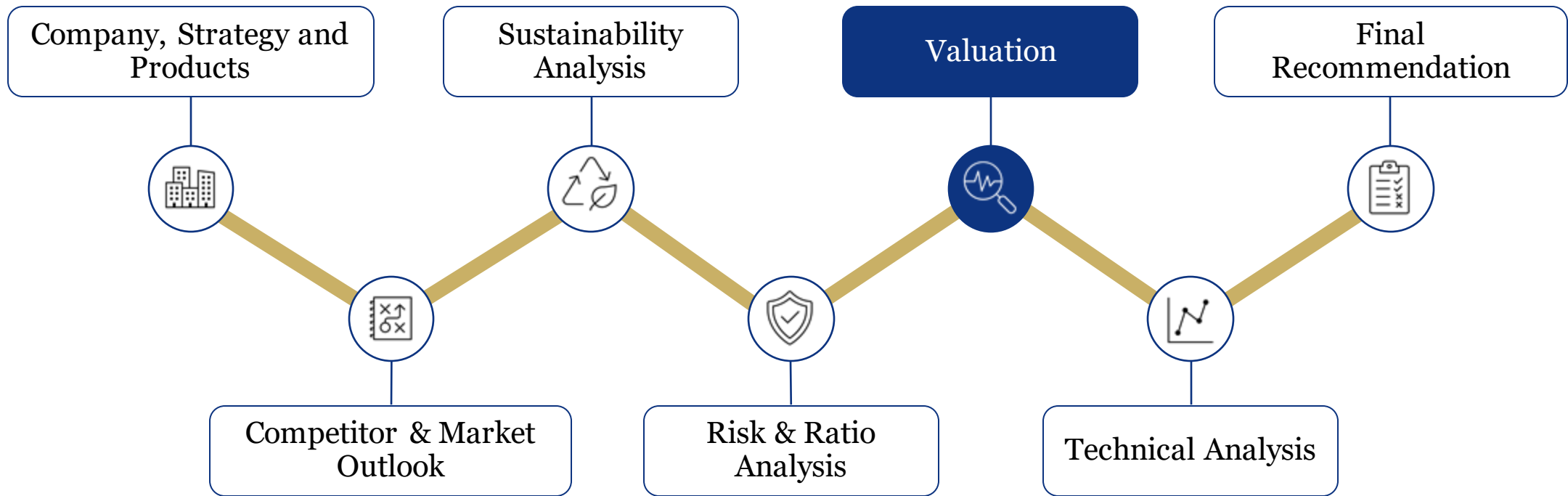
Quick ratio 2023



Tdebt%Cap2023





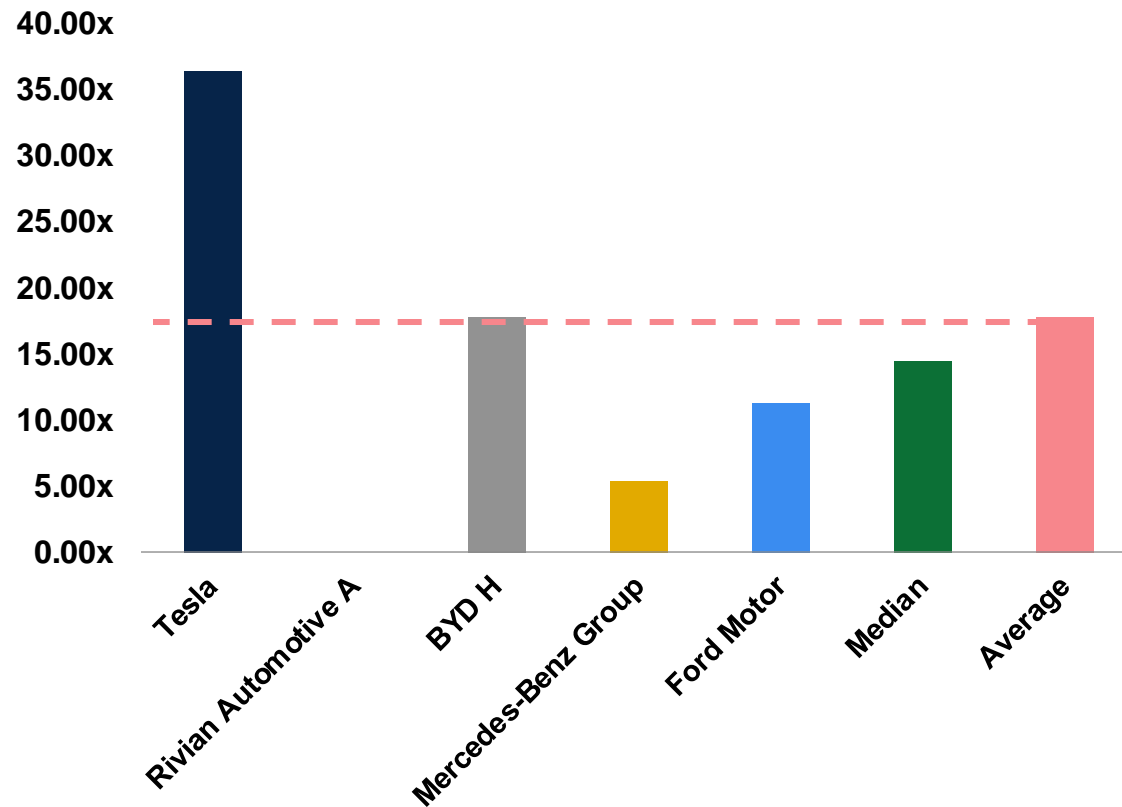


# Multiple Valuation

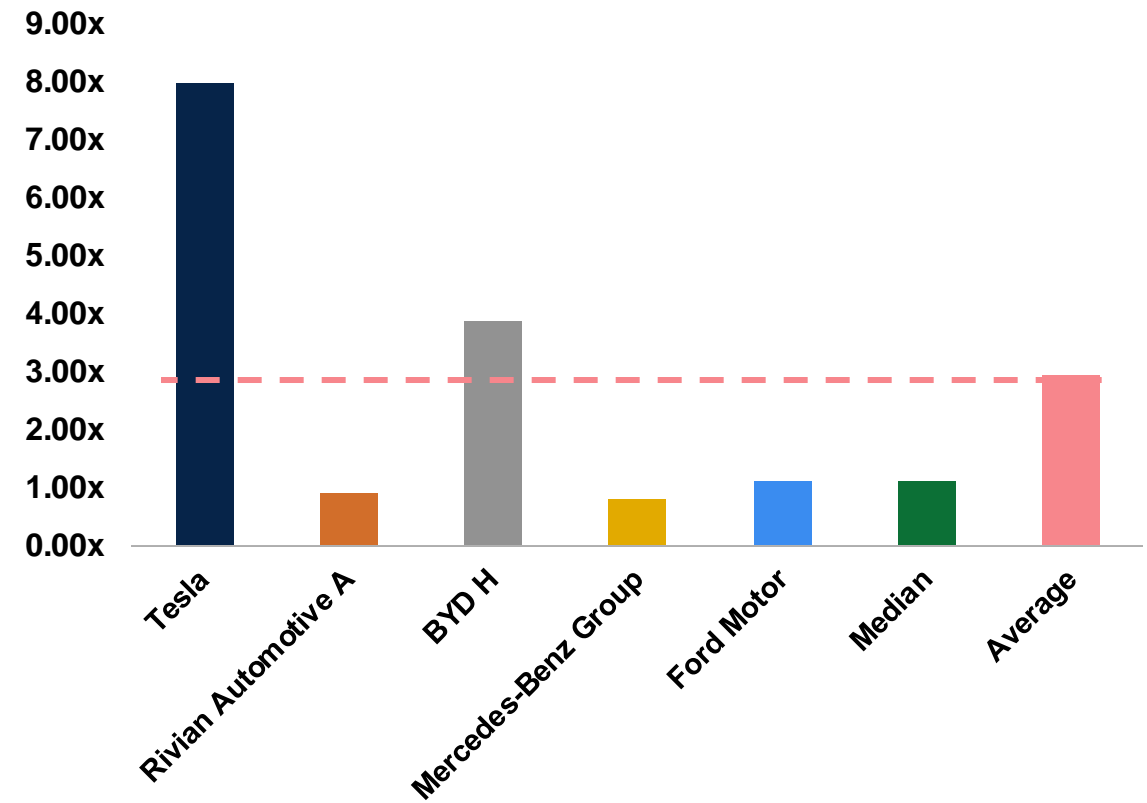


The large difference in market value of equity strongly biases the analysis

## P/E Ratio



## P/B Ratio

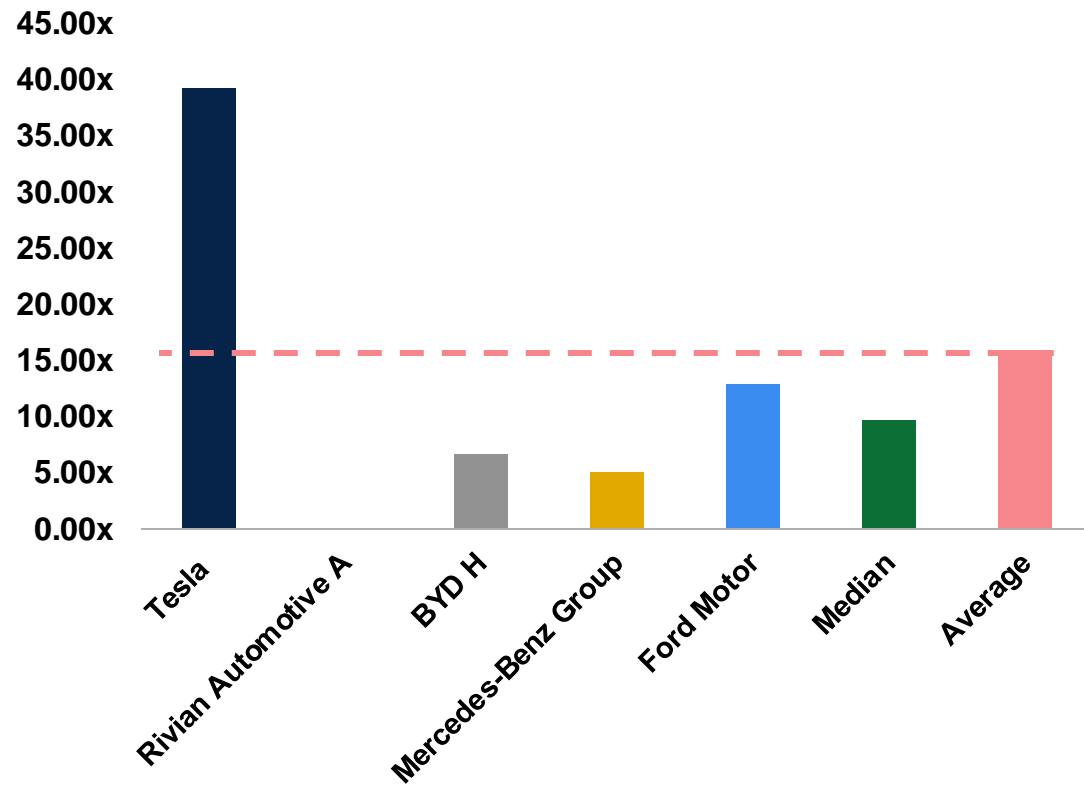


# Multiple Valuation

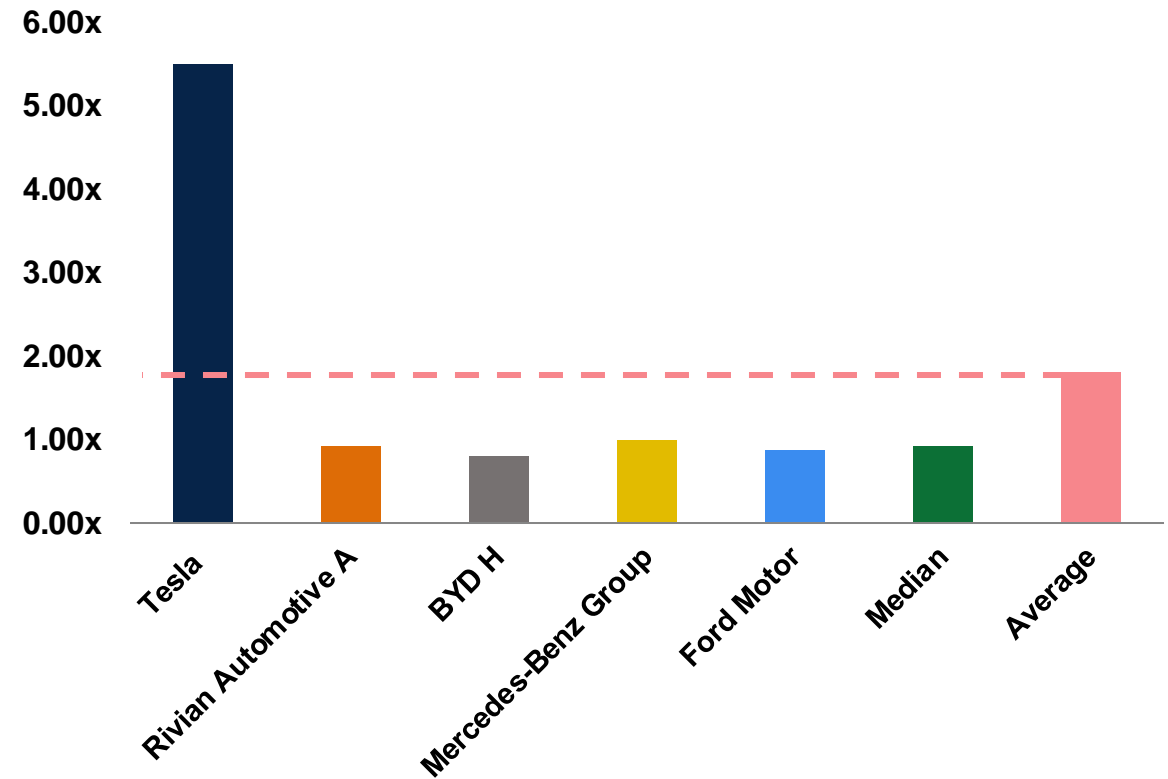


Rely on these metrics could be not wise ... Why?

## EV/EBITDA



## EV/SALES



# Analysis of three Future Scenarios



A detailed analysis of possible scenarios

## Conservative Case

- Compact Car introduced at the end of **2026**, stable ramp in deliveries to **1.4 million** in 2031
- Regulatory credits for longer due to **slower than expected** global EV adoption
- **No FSD Level 5 system** before 2031, take rate maxed out at 18%, **no licensing** to other carmakers

*Total deliveries in 2031: ~4 mln vehicles*

## Base Case

- Compact Car introduced at the end of **2025**, stable ramp in deliveries to **2.5 million** in 2031
- Government incentives regarding EV adoption to be **abolished by 2030**
- **No FSD Level 5 system** before 2031, take rate maxed out at 30%, **no licensing** to other carmakers

*Total deliveries in 2031: ~6 mln vehicles*

## Optimistic Case

- Compact Car introduced at the end of **2025**, stable ramp in deliveries to **3.5 million** in 2031
- Government incentives regarding EV adoption to be **abolished by 2029**
- **FSD Level 5 system by 2030**, Robotaxi software licensed to 500,000 cars in first year\*

*Total deliveries in 2031: ~7 mln vehicles*

\*Tesla Robotaxi estimations by Goldman Sachs

# DCF Valuation



Revenues and profitability computed by forecasting volumes of sales of each car model

DCF		2020	2021	2022	2023	2024	2025	2026	2027
Revenue % growth	<b>Conservative</b>					<b>98 708</b> 2%	<b>107 395</b> 9%	<b>125 652</b> 17%	<b>139 474</b> 11%
	<b>Base</b>	<b>31 536</b> 28%	<b>53 823</b> 71%	<b>81 462</b> 51%	<b>96 773</b> 19%	<b>103 664</b> 7%	<b>123 336</b> 19%	<b>148 003</b> 20%	<b>159 844</b> 8%
	<b>Optimistic</b>					<b>103 547</b> 7%	<b>123 221</b> 19%	<b>147 865</b> 20%	<b>173 002</b> 17%
EBIT % of sales	<b>Conservative</b>					<b>8 982</b> 9%	<b>11 491</b> 11%	<b>15 832</b> 13%	<b>19 526</b> 14%
	<b>Base</b>	<b>1 994</b> 6%	<b>6 496</b> 12%	<b>13 832</b> 17%	<b>8 891</b> 9%	<b>9 017</b> 9%	<b>14 307</b> 12%	<b>22 497</b> 15%	<b>29 092</b> 18%
	<b>Optimistic</b>					<b>9 423</b> 9%	<b>14 540</b> 12%	<b>24 989</b> 17%	<b>37 023</b> 21%

\*All figures in millions of USD

# DCF Valuation



Tax advantages lower the tax burden. D&A expenses increase as capex rises

DCF		2020	2021	2022	2023	2024	2025	2026	2027
Taxes % EBIT	<b>Conservative</b>					1 347 15%	1 724 15%	2 375 15%	2 929 15%
	<b>Base</b>	292 14,%	699 11%	1 132 8%	(5 001) -56%	1 353 15%	2 146 15%	3 374 15%	4 364 15%
	<b>Optimistic</b>					1 413 15%	2 181 15%	3 748 15%	3 553 15%
D&A % of CapEx	<b>Conservative</b>					6 108 55%	7 158 62%	8 236 69%	8 661 69%
	<b>Base</b>	2 322 72%	2 911 36%	3 747 52%	4 667 52%	5 383 53%	6 040 59%	6 838 66%	7 001 73%
	<b>Optimistic</b>					5 175 51%	6 321 57%	7 760 64%	8 953 69%

\*All figures in millions of USD

# DCF Valuation



Large Cash flows from investing push the Capex up. NWC is expected to remain negative

DCF		2020	2021	2022	2023	2024	2025	2026	2027
CapEx	<b>Conservative</b>					11 105	11 545	11 937	12 553
						11%	11%	10%	9%
	<b>Base</b>	3 242	8 014	7 172	8 899	10 157	10 237	10 360	9 591
% sales		10%	15%	9%	9%	10%	8%	7%	6%
	<b>Optimistic</b>					10 148	11 090	12 125	12 975
						10%	9%	8%	8%
Change in NWC	<b>Conservative</b>					(1 382)	(1 289)	(2 890)	(1 255)
						-1%	-1%	-2%	-1%
	<b>Base</b>	184	518	(3 908)	(2 248)	(1 451)	(1 480)	(3 404)	(1 439)
% of sales		1%	1%	-5%	-3%	-1%	-1%	-2%	-1%
	<b>Optimistic</b>					(1 450)	(1 470)	(3 401)	(1 557)
						-1%	-1%	-2%	-1%

\*All figures in millions of USD

# WACC Estimation



The cost of capital is high due to a substantial required return from investors.

<b>Debt</b>	<b>4,657</b>
<b>% Debt</b>	<b>0.8%</b>
<b>Cost of Debt</b>	<b>1.8%</b>
<b>Tax Rate</b>	<b>25%</b>

<b>Equity Value</b>	<b>549,844</b>
<b>% Equity</b>	<b>99.2%</b>
<b>Cost of Equity</b>	<b>13%</b>
<b>Risk Free Rate</b>	<b>4.6%</b>
<b>Beta</b>	<b>1.76</b>
<b>Market Risk Premium</b>	<b>4.8%</b>

## Key Considerations

- High level of bond returns, investors require more.
- Market risk premium as weighted Avg. of US and China
- 3y Beta very high
- Equity strongly prevails over debt as financing tool

## Cost of Capital

**12.95%**



# Valuation Summary



Intrinsic Valuation strongly sensitive to WACC which could vary significantly.

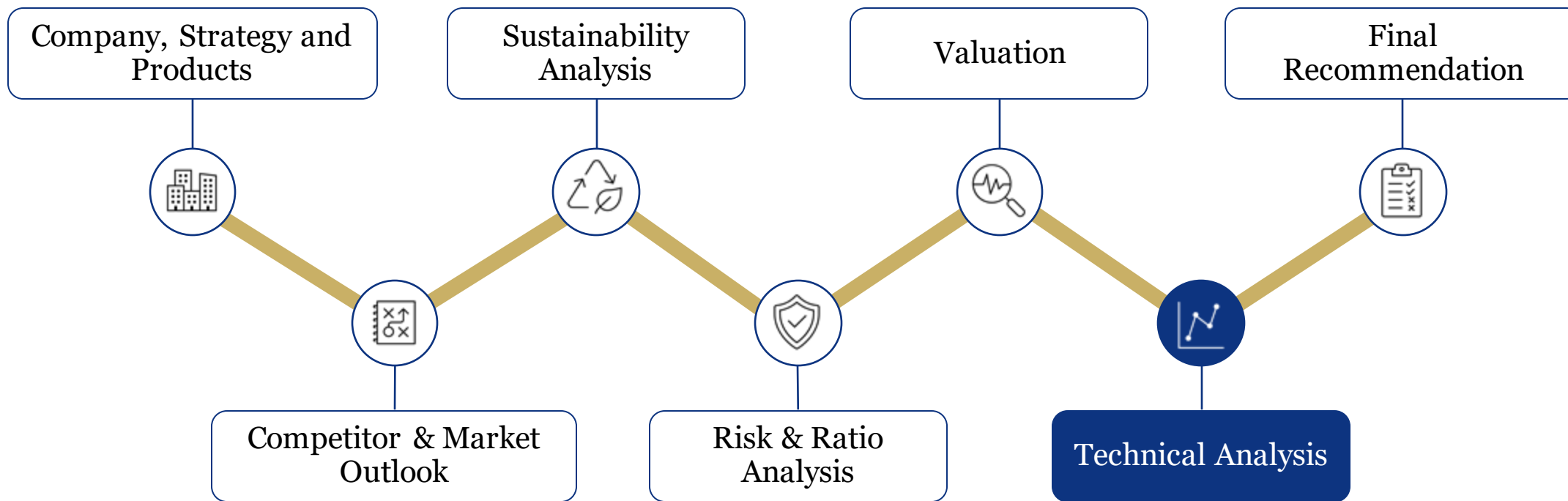
DCF	Conservative	Base	Optimistic
WACC	13,2%	13%	12%
TGR	3,5%	4%	4,5%
Implied share price	\$75,19	\$139,76	\$842,05
Scenario Weights	25%	60%	15%
	<b>\$228.96 (Upside of 56%)</b>		

## Model Assumptions

- TGR higher than what we are used to observe considering the innovative business
- Conservative and base WACC are similar as the latter is already high and notably increased recently

## Sensitivity Analysis

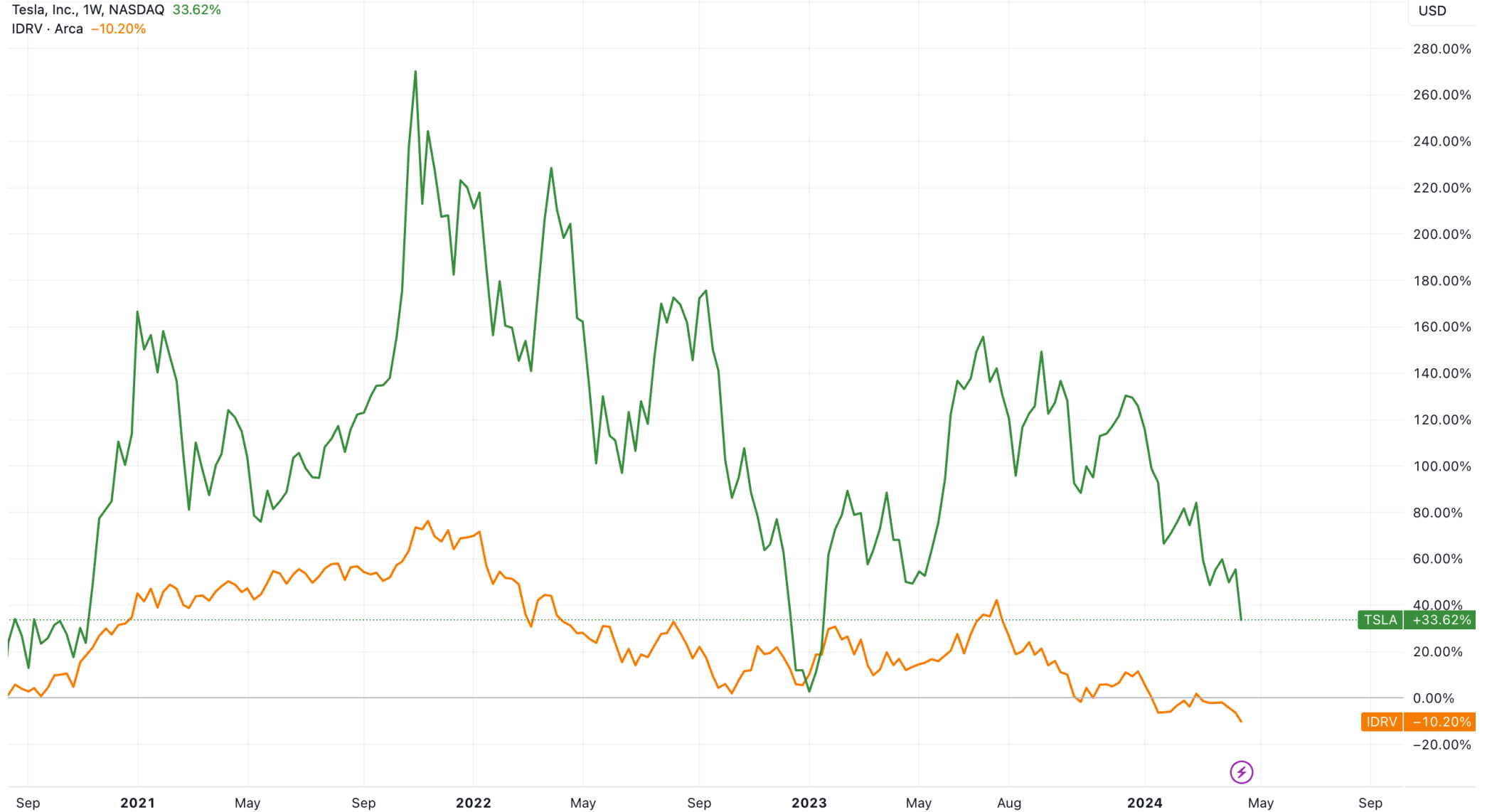
TGR/WACC	3%	3,5%	4,0%	4,5%	5%
10,45%	185,77	195,47	206,67	219,75	235,24
10,95%	171,74	179,92	189,27	200,08	212,70
11,45%	159,45	166,40	174,29	183,31	193,74
11,95%	148,60	154,56	161,27	168,88	177,58
12,45%	138,95	144,10	149,85	156,32	163,67
12,95%	130,34	134,81	<b>139,76</b>	145,32	151,57
13,45%	122,60	126,50	130,81	135,60	140,96



# Comparison with MSCI Europe Index



Tesla, Inc., 1W, NASDAQ 33.62%  
IDRV · Arca -10.20%



# Support + Bollinger Bands



Tesla, Inc., 1W, NASDAQ O170.24 H170.69 L146.22 C147.05 -24.00 (-14.03%)  
BB (20, SMA, close, 2) 199.74 263.91 135.57  
2.618 (406.20)

USD

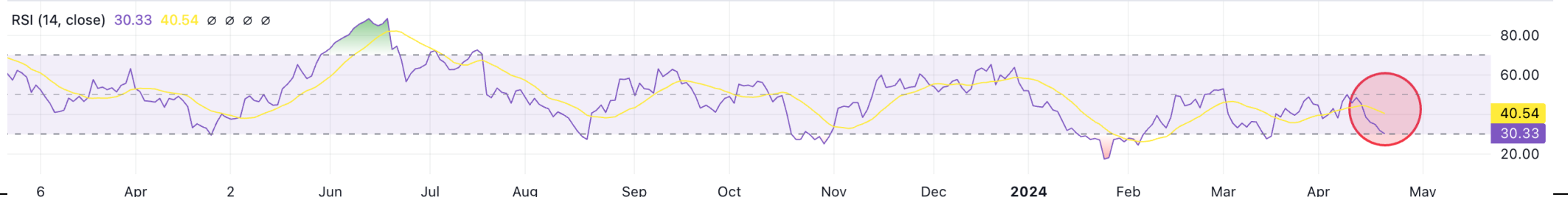
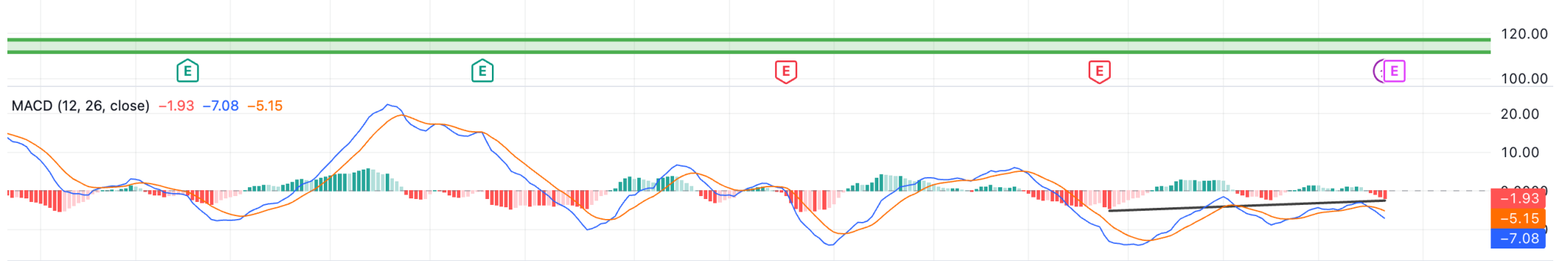


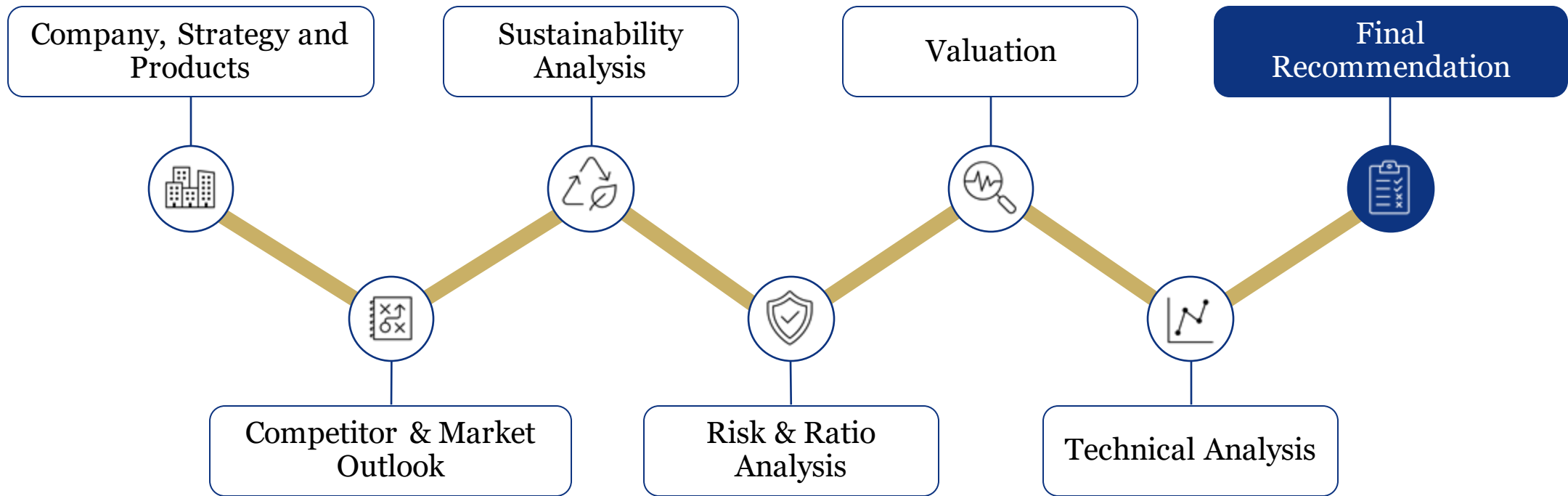
# MACD Convergence + RSI



Tesla, Inc., 1D, NASDAQ O148.97 H150.94 L146.22 C147.05 -2.88 (-1.92%)

USD





# Final Recommendation



Excellent Risk/Reward – But?!

## Summary

### Business Outlook

- Strongly positioned for future EV adoption
- \$30bn cash to fund growth projects
- Robotaxi as a once-in-a-lifetime opportunity

### Business Risks

- Short-term EV demand slowing down
- Chinese competitors causing price wars
- Full autonomous driving potentially impossible

## Recommended Action

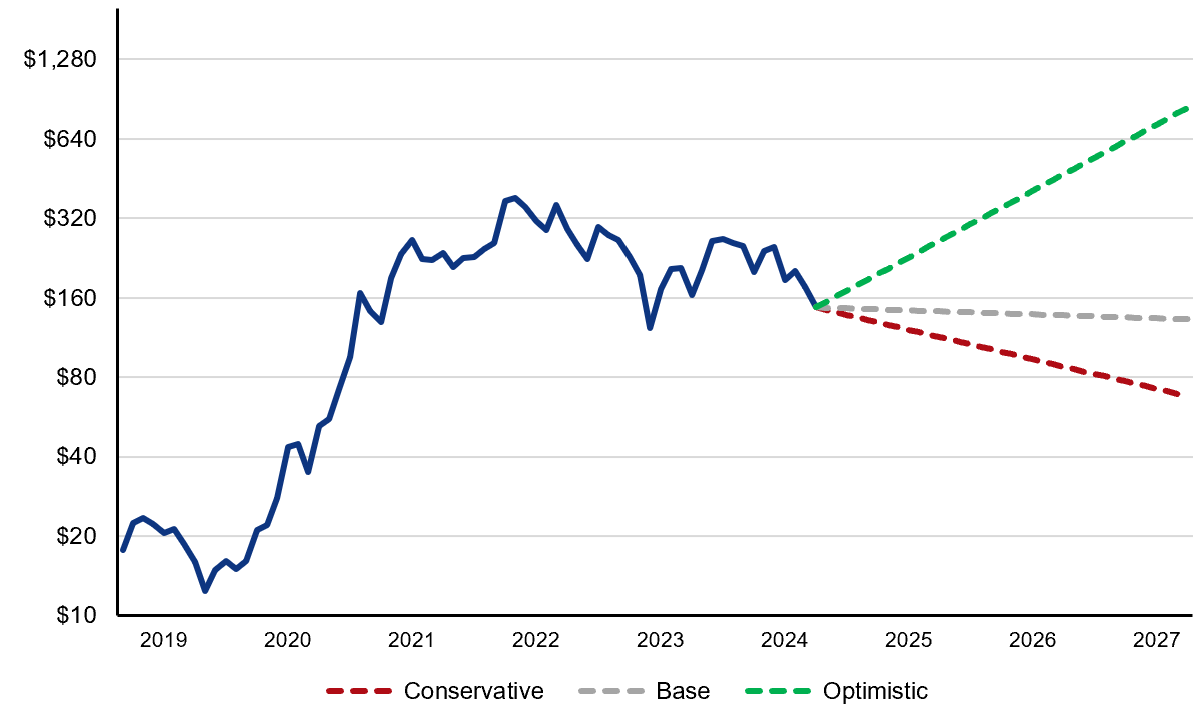
- Generally recommended to **BUY**, however, this weeks' report is crucial

### Final action:

- Monitor Q1 earnings report, reassess decision after earnings call, until then **NO ACTION**

## Forecasted Share Price Development

- Valuation suggests implied upside of **56%**



# Q1 Earnings Report

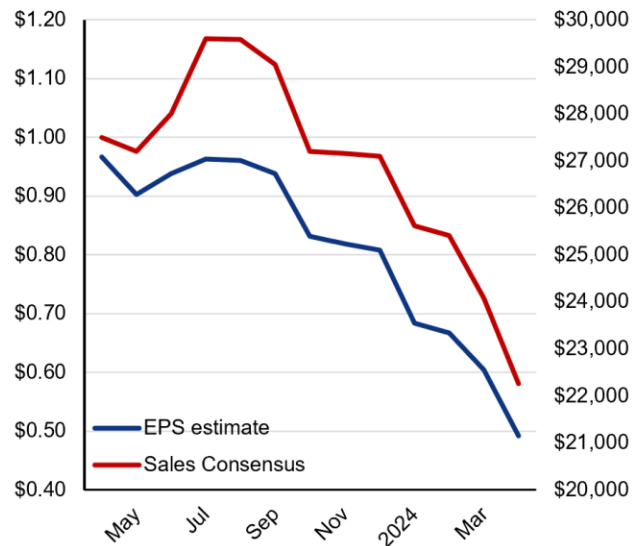


What to look out for on Tuesday

## Street expectations:

- Total revenue of **\$22.26bn**
- EPS of **\$0.49**, down 31% QoQ
- Gross margin of **17.1%**, down 50 bps QoQ

Tesla Q1 Earnings Consensus



## Information to look out for:

- **Unit delivery guidance** for the remaining year
- Information on **Pricing strategy**, have automotive margins bottomed?
- **FSD Progress**, Update on Robotaxi unveil
- Information on **layoffs**, recruitment halt
- Reason of Giga Factory Mexico **delay**, Compact Car
- Potential production facility in **India**



**Reassess investment thesis** based on above mentioned criteria after Tuesday's Earnings Call and price action in response to identify new arising risks and make a decision.



# Appendix



## Derivations: Conservative Case

	Dec '19	Dec '20	Dec '21	Dec '22	Dec '23	Dec '24E	Dec '25E	Dec '26E	Dec '27E	Dec '28E	Dec 29E	Dec 30E	Dec 31E
Deliveries Units	368	500	936	1,314	1,808	1,923	2,106	2,352	2,834	3,100	3,435	3,766	4,008
Growth (YoY%)	49.6	35.9	87.4	40.3	37.7	4.2	14.5	17.9	17.7	23.5	10.81487	9.629205	0.064078
Gross Margin Auto Ex Credits (%)	18.9	21.0	27.0	22.6	17.66	17.5	17.9	18.4	18.8	18.9	19.2	19.3	19.8
Deliveries Units Model S	34.3	28.5	22.9	43.5	23.6	33.4	43.0	36.0	35.0	35.0	35.0	35.0	35.0
Deliveries Units Model X	32.4	27.5	2.3	23.2	45.2	43.7	43.7	42.0	38.0	37.0	37.0	37.0	37.0
Deliveries Units Model 3	300.9	364.4	477.0	475.0	527.3	546.8	628.9	644.6	631.7	625.4	625.4	625.4	625.4
Average Selling Price Model S	89.4	109.0	101.5	92.0	81.0	79.0	81.0	81.0	81.0	81.0	81.0	81.0	81.0
Average Selling Price Model X	98.0	153.0	134.5	108.0	96.0	93.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0
Average Selling Price Model 3	49.8	46.8	43.0	43.0	41.4	38.5	37.4	39.5	39.5	38.5	38.0	38.0	38.0
Deliveries Units Model Y	80.0	434.1	772.1	1,212.4	1,299.1	1,390.2	1,529.2	1,529.2	1,452.7	1,598	1,757.8	1,933.581	
Average Selling Price Model Y	62.0	54.0	54.5	44.0	40.0	39.042	42	41	40	40	40	40	
Deliveries Units Compact Car							100	600	950		1140	1311	1376.55
Average Selling Price C. Car						22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Regulatory Credits Revenue	1,580.00	0	1,790.0	2,000.0	1,950.0	2,000.0	2,000.0	2,000.0	2,000.0	2,000	2,000	2,000	
Units (millions)													
Average Selling Price	56.00	51.00	48.94	53.04	44.58	42.72	43.34	41.71	40.89	40.00			
Revenue Per Unit (%)													
Automotive Revenues	28,838	46,803	70,043	84,005	81,903	87,127	100,843	111,123	113,364	121,685	131,924	140,430	
Automotive Operating Income	6,056	12,637	15,857	14,835	14,292	15,596	18,555	20,896	21,426	23,363	25,461	27,805	
COGS	22,782	34,166	54,186	69,170	67,611	71,532	82,288	90,287	91,938	98,321	106,463	112,625	
		21.0%	27.0%	22.6%	17.7%	17.5%	17.9%	18.1%	18.6%	19.2%	20.0%	20.4%	22.4%
Energy Revenue			2,918	3,621	4,894	6,118	7,516	9,073	10,758	12,525	14,314	16,052	17,657
			0.24	0.35	0.25	0.23	0.21	0.19	0.16	0.14	0.12	0.1	0.1
Services and other			3,906	5,880	7,830	10,138	12,770	15,121	17,672	20,834	24,544	28,612	32,940
			0.51	0.33	0.25	0.26	0.18	0.17	0.18	0.18	0.17	0.17	0.15
Revenue			53,627	79,544	96,729	98,158	107,413	125,037	139,553	146,723	160,543	176,588	191,028
Automotive Margin		21.0%	27.0%	22.6%	17.7%	17.5%	17.9%	18.1%	18.6%	19.2%	20.0%	20.4%	22.4%
Weight			0.87	0.83	0.81	0.81	0.81	0.80	0.77	0.76	0.75	0.74	0.74
Energy Business Margin			18.9%	21.0%	20.0%	18.0%	17.5%	16.0%	14.5%	14.0%	14.0%	14.0%	
Weight			0.05	0.06	0.07	0.07	0.08	0.09	0.09	0.09	0.09	0.09	0.09
Energy Operating Income			924.97	1284.68	1503.16	1633.07	1882.57	2003.98	2075.55	2247.32	2472.05		
Services and other margin			6.0%	24.0%	32.4%	41.3%	48.4%	54.7%	60.0%	64.3%	67.7%		
Weight			0.08	0.10	0.12	0.12	0.13	0.14	0.15	0.15	0.16	0.17	
Services Operating Income			469.80	2433.02	4132.53	6249.13	8544.58	11390.48	14729.67	18390.40	22285.71		
Weighted Operating Margin			16.8%	18.3%	19.8%	20.9%	22.3%	24.0%	25.6%	26.9%	29.4%		
R&D expenses			2,593	3,075	3,969	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500
SG&A			4,517	3,946	4,800	4,600	5,236	6,128	7,158	8,763	9,666	10,552	10,558
EBIT			7,461	8,910	11,495	15,810	19,603	21,557	26,003	31,047	37,504		
EBIT Margin			7.7%	9.1%	10.7%	12.6%	14.0%	14.7%	16.2%	17.6%	19.6%		

# Appendix



## Assumptions: Optimistic Case

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- Deliveries of Luxury Models (S/X) constant in the long run
- Deliveries Model 3 slight increase in volume until 2027, then growth partially cannibalized by Compact Car
- Deliveries Model Y increasing until 2027, growth then slowing down due to market saturation
- Price of luxury Models constant in the long run from all time low price in 2024
- Prices of Model 3/Y slight increase as demand is expected to pick up after interest rate cuts in 2025 (latest)
- Cybertruck excluded due to not expected profitability
- Compact Car introduced at the end of 2025, then stable ramp up in deliveries to eventually 4 million per year in 2031
- Compact Car, also called "\$25k car", expected to be priced at around \$25000, potentially lower in the long run
- Regulatory credits constant in light of lower as thought EV adoption, to be abolished in 2030
- Tesla Energy revenue expected to grow at a stable rate due to high order backlog and adaption by governments
- Energy Margin constant at 20%, due to higher competition and increased operating efficiency due to additional plant in Shanghai, economies of scale
- Services revenue to increase steadily to higher FSD take rate, lower prices and take rate converging to 100%
- Expectation of having FSD solved by 2030, regulatory approval included, licensing to other manufacturers
- Automotive Margin in line with FactSet estimates, bottom in 2024 due to higher efficiency in upcoming GigaFactories, revolutionary manufacturing approach of Compact Car
- Services Margin increasing substantially with almost 100% take rate FSD, since only real cost driver is R&D, approaching 80% in the long run
- R&D expenses increasing slightly due to higher software training cost, afterwards assumed to be constant
- SG&A growing along with revenue, at lower pace at revenue due to higher efficiency in processes, economics of scale
- Robotaxi Revenue from 2030 in US: 24M Tesla cars on the road, 500,000 using as robotaxi
- \$15 revenue per trip, 10 rides per day, fleet of 500,000 (Goldman Analysis <https://twitter.com/nonlineargrowth/status/1780952355187437829>)
- In 2031 extended to 5 million cars at same assumptions
- Further expansion not included in the model

# Appendix



## Derivations: Optimistic Case

	Dec '19	Dec '20	Dec '21	Dec '22	Dec '23	Dec '24E	Dec '25E	Dec '26E	Dec '27E	Dec '28E	Dec '29E	Dec '30E	Dec '31E
Deliveries Units	368	500	936	1,314	1,808	1,923	2,216	2,977	3,438	4,182	4,834	5,727	6,957
Growth (YoY%)	49.8	35.9	87.4	40.3	37.7	4.2	14.5	17.9	17.7	23.5	15.58977	18.473412	0.214782
Gross Margin Auto Ex Credits (%)	18.9	21.0	27.0	22.6	17.66	17.5	17.9	18.4	18.8	18.9	19.2	19.3	19.8
Deliveries Units Model S	34.3	28.5	22.9	43.5	23.6	33.4	43.0	40.0	40.0	40.0	40.0	40.0	40.0
Deliveries Units Model X	32.4	27.5	2.3	23.2	45.2	43.7	43.7	45.4	43.1	43.1	43.1	43.1	43.1
Deliveries Units Model 3	300.9	364.4	477.0	475.0	527.3	546.6	628.9	691.8	726.3	799.0	815.0	831.3	847.9
Average Selling Price Model S	-	89.4	109.0	101.5	92.0	81.0	79.0	81.0	81.0	81.0	81.0	81.0	81.0
Average Selling Price Model X	-	98.0	153.0	134.5	108.0	96.0	93.0	95.0	95.0	95.0	95.0	95.0	95.0
Average Selling Price Model 3	49.8	46.8	43.0	43.0	41.4	38.5	37.4	39.5	39.5	39.5	39.5	39.5	39.5
Deliveries Units Model Y	-	80.0	434.1	772.1	1,212.4	1,299.1	1,450.2	1,700.0	1,780.0	1,800.0	1836	1872.72	1910.174
Average Selling Price Model Y	-	62.0	54.0	54.5	44.0	40.0	39.0	42	42	42	42	42	42
Deliveries Units Compact Car	-	-	-	-	-	-	50,050	850	1500	-	2100	2940	4116
Average Selling Price C. Car	-	-	-	-	-	-	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Regulatory Credits Revenue	-	1,580.00	0	1,790.0	2,000.0	1,950.0	2,000.0	2,000.0	2,000.0	1000	0.0	0.0	0.0
Units (millions)	-	-	-	-	-	-	-	-	-	-	-	-	-
Average Selling Price	56.00	51.00	48.94	53.04	44.58	42.72	43.34	41.71	40.88	40.00	-	-	-
Revenue Per Unit (%)	-	-	-	-	-	-	-	-	-	-	-	-	-
Automotive Revenues	-	28,838	46,803	70,043	84,005	81,903	90,592	119,526	131,912	150,246	164,889	184,975	213,665
Automotive Operating Income	-	6,056	12,637	15,857	14,835	14,292	16,216	21,993	24,733	28,397	31,659	35,700	42,306
COGS	-	22,782	34,166	54,186	69,170	67,611	74,376	97,533	107,178	121,850	133,231	149,275	171,359
	-	21.0%	27.0%	22.6%	17.7%	17.5%	17.9%	18.4%	19.5%	21.0%	24.0%	24.3%	24.6%
Energy Revenue	-	-	2,918	3,621	4,894	6,116	7,516	9,073	10,758	12,525	14,314	16,052	17,657
	-	-	0.24	0.35	0.25	0.25	0.23	0.21	0.19	0.16	0.14	0.12	0.1
Services and other	-	-	3,906	5,880	7,830	10,138	13,683	20,828	31,146	47,456	67,760	120,906	427,216
	-	-	0.51	0.33	0.29	0.35	0.52	0.50	0.52	0.43	0.76	2.53	
Total Revenue	-	-	53,627	79,544	96,729	98,158	111,791	149,427	173,816	210,227	246,963	321,934	658,539
Automotive Margin	-	21.0%	27.0%	22.6%	17.7%	17.5%	17.9%	18.4%	19.5%	21.0%	24.0%	24.3%	24.6%
Weight	-	-	-	0.87	0.83	0.81	0.80	0.76	0.71	0.67	0.67	0.57	0.32
Energy Business Margin	-	-	-	18.9%	21.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
Weight	-	-	-	0.05	0.06	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.03
Energy Operating Income	-	-	-	924.97	1284.65	1503.16	1814.53	2151.51	2504.97	2862.82	3210.45	3531.50	
Services and other margin	-	-	-	6.0%	24.0%	36.2%	54.7%	66.4%	74.5%	79.1%	83.9%	88.3%	
Weight	-	-	-	0.08	0.10	0.12	0.14	0.18	0.23	0.27	0.38	0.65	
Services Operating Income	-	-	-	469.80	2433.02	4954.23	11384.86	20671.41	35350.58	53623.40	101455.64	377134.27	
Weighted Operating Margin	-	-	-	16.8%	18.3%	20.3%	23.6%	27.9%	33.0%	38.9%	46.5%	65.8%	
R&D expenses	-	-	2,593	3,075	3,969	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500
SG&A	-	-	4,517	3,946	4,800	4,600	4,934	5,375	5,850	6,538	7,048	7,695	7,707
EBIT	-	-	-	7,461	8,910	13,239	25,317	37,206	55,214	76,597	128,168	410,764	
EBIT Margin	-	-	-	7.7%	9.1%	11.8%	16.9%	21.4%	26.3%	31.0%	39.8%	62.4%	

# Appendix



## Assumptions: Base Case

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- Deliveries of Luxury Models (S/X) constant in the long run
- Deliveries Model 3 slight increase in volume until 2027, then slight cannibalization by compact car
- Deliveries Model Y increasing slightly until 2027, then slight decrease due to market focus shifting away from SUVs
- Price of luxury Models constant in the long run from all time low price in 2024
- Prices of Model 3/Y slight increase as demand is expected to pick up after interest rate cuts in 2025 (latest)
- Cybertruck excluded due to not expected profitability
- Compact Car introduced at the end of 2025, then stable ramp up in deliveries to eventually 4 million per year
- Compact Car, also called "\$25k car", expected to be priced at around \$25000, potentially lower in the long run
- Regulatory credits constant in light of lower as thought EV adoption, to be abolished in 2030
- Tesla Energy revenue expected to grow at a stable rate due to high order backlog and adaption by governments
- Energy Margin constant at 20%, due to higher competition and increased operating efficiency due to plant in Shanghai, economies of scale
- Services revenue to increase steadily to higher FSD take rate, lower prices in the long run
- Not expected to solve FSD as Level 5 system before 2031, no licensing to other carmakers assumed
- Automotive Margins in line with FactSet estimates, bottom in 2024 due to higher efficiency in upcoming GigaFactories, revolutionary manufacturing approach
- Services Margin increasing substantially with higher take rate of FSD, since only real cost driver is R&D, approaching 80% in the long run
- R&D expenses increasing slightly due to higher software training cost, afterwards assumed to be constant
- SG&A growing along with revenue, at lower pace at revenue due to higher efficiency in processes, economics of scale

# Appendix



## Derivations: Base Case

	Dec '19	Dec '20	Dec '21	Dec '22	Dec '23	Dec '24E	Dec '25E	Dec '26E	Dec '27E	Dec '28E	Dec '29E	Dec '30E	Dec '31E
Deliveries Units	368	500	936	1,314	1,808	1,923	2,156	2,686	3,219	3,851	4,372	5,212	6,386
Growth (YoY%)	49.8	35.9	87.4	40.3	37.7	4.2	14.5	17.9	17.7	23.5	13.5326	19.21106	0.225612
Gross Margin Auto Ex Credits (%)	18.9	21.0	27.0	22.6	17.66	17.5	17.9	18.4	18.8	18.9	19.2	19.3	19.8
Deliveries Units Model S	34.3	28.5	22.9	43.5	23.6	33.4	43.0	40.0	40.0	40.0	40.0	40.0	40.0
Deliveries Units Model X	32.4	27.5	2.3	23.2	45.2	43.7	43.7	45.4	43.1	43.1	43.1	43.1	43.1
Deliveries Units Model 3	300.9	364.4	477.0	475.0	527.3	546.8	628.9	691.8	726.3	691.8	691.8	691.8	691.8
Average Selling Price Model S	-	89.4	109.0	101.5	92.0	81.0	79.0	81.0	81.0	81.0	81.0	81.0	81.0
Average Selling Price Model X	-	98.0	153.0	134.5	108.0	96.0	93.0	95.0	95.0	95.0	95.0	95.0	95.0
Average Selling Price Model 3	49.8	46.8	43.0	43.0	41.4	38.5	37.4	39.5	39.5	39.5	39.5	39.5	39.5
Deliveries Units Model Y	-	80.0	434.1	772.1	1,212.4	1,299.1	1,390.2	1,659.3	1,659.3	1,576.4	1,497.561	1,497.561	1,497.561
Average Selling Price Model Y	-	62.0	54.0	54.5	44.0	40.0	39.0	42	42	42	42	42	42
Deliveries Units Compact Car	-	-	-	-	-	-	50,250	750	1500	2100	2940	4116	-
Average Selling Price C. Car	-	-	-	-	-	-	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Regulatory Credits Revenue	-	1,580.00	0	1,790.0	2,000.0	1,950.0	2,000.0	2,000.0	2,000.0	2,000.0	1000	0.0	0.0
Units (millions)	-	-	-	-	-	-	-	-	-	-	-	-	-
Average Selling Price	56.00	51.00	48.94	53.04	44.58	42.72	43.34	41.71	40.89	40.00			
Revenue Per Unit (%)	-	-	-	-	-	-	-	-	-	-	-	-	-
Automotive Revenues	-	28,836	46,803	70,043	84,005	81,903	88,252	112,194	124,594	136,620	145,810	163,710	190,170
Automotive Operating Income	-	6,056	12,637	15,857	14,835	14,292	15,797	20,644	23,361	25,821	27,996	31,596	37,654
COGS	-	22,782	34,166	54,186	69,170	67,611	72,455	91,550	101,233	110,799	117,815	132,114	152,516
	-	21.0%	27.0%	22.6%	17.7%	17.5%	17.9%	18.4%	19.5%	21.0%	24.0%	24.3%	24.6%
Energy Revenue	-	-	2,918	3,621	4,894	6,118	7,516	9,073	10,756	12,525	14,314	16,052	17,657
Services and other	-	-	3,906	5,880	7,830	10,138	13,587	17,616	23,410	30,343	38,213	47,766	59,706
	-	-	0.51	0.33	0.23	0.23	0.30	0.30	0.33	0.30	0.26	0.25	0.25
Revenue	-	53,627	79,544	96,729	98,158	109,355	138,883	158,762	179,485	198,337	227,529	267,535	
Automotive Margin	-	21.0%	27.0%	22.6%	17.7%	17.5%	17.9%	18.4%	19.5%	21.0%	24.0%	24.3%	24.6%
Weight	-	-	-	0.87	0.83	0.81	0.81	0.78	0.76	0.74	0.72	0.72	0.71
Energy Business Margin	-	-	-	18.9%	21.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
Weight	-	-	-	0.05	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Energy Operating Income	-	-	-	924.97	1284.68	1503.16	1814.53	2151.51	2504.97	2862.82	3210.45	3531.50	
Services and other margin	-	-	-	6.0%	24.0%	35.8%	48.2%	58.6%	65.7%	70.7%	74.6%	77.7%	
Weight	-	-	-	0.08	0.10	0.12	0.13	0.15	0.17	0.19	0.21	0.22	
Services Operating Income	-	-	-	469.80	2433.02	4867.83	8494.58	13709.04	19948.15	27031.57	35629.51	46376.94	
Weighted Operating Margin	-	-	-	16.8%	18.3%	20.3%	22.3%	25.3%	28.5%	32.7%	34.6%	36.1%	
R&D expenses	-	-	2,593	3,075	3,969	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500
SG&A	-	-	4,517	3,946	4,800	4,600	4,934	5,375	5,850	6,535	6,981	7,651	7,660
EBIT	-	-	-	7,461	8,910	12,734	21,078	28,872	37,236	46,405	58,285	75,402	
EBIT Margin	-	-	-	7.7%	9.1%	11.6%	15.2%	18.2%	20.7%	23.4%	25.6%	28.2%	

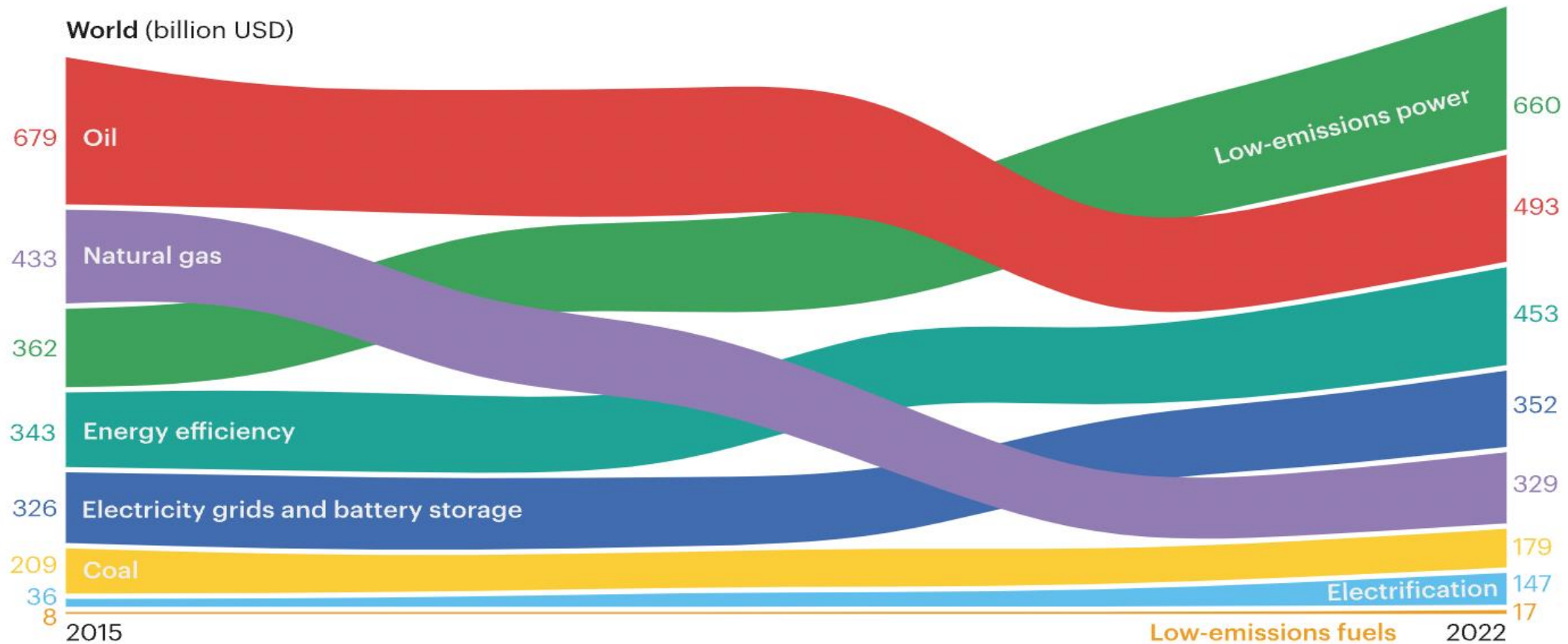
# Appendix



## Shift in global Investment towards cleaner economy

### Investment flows

The pattern of investments in recent years has started to shift the world towards a more electrified, renewables-rich energy system

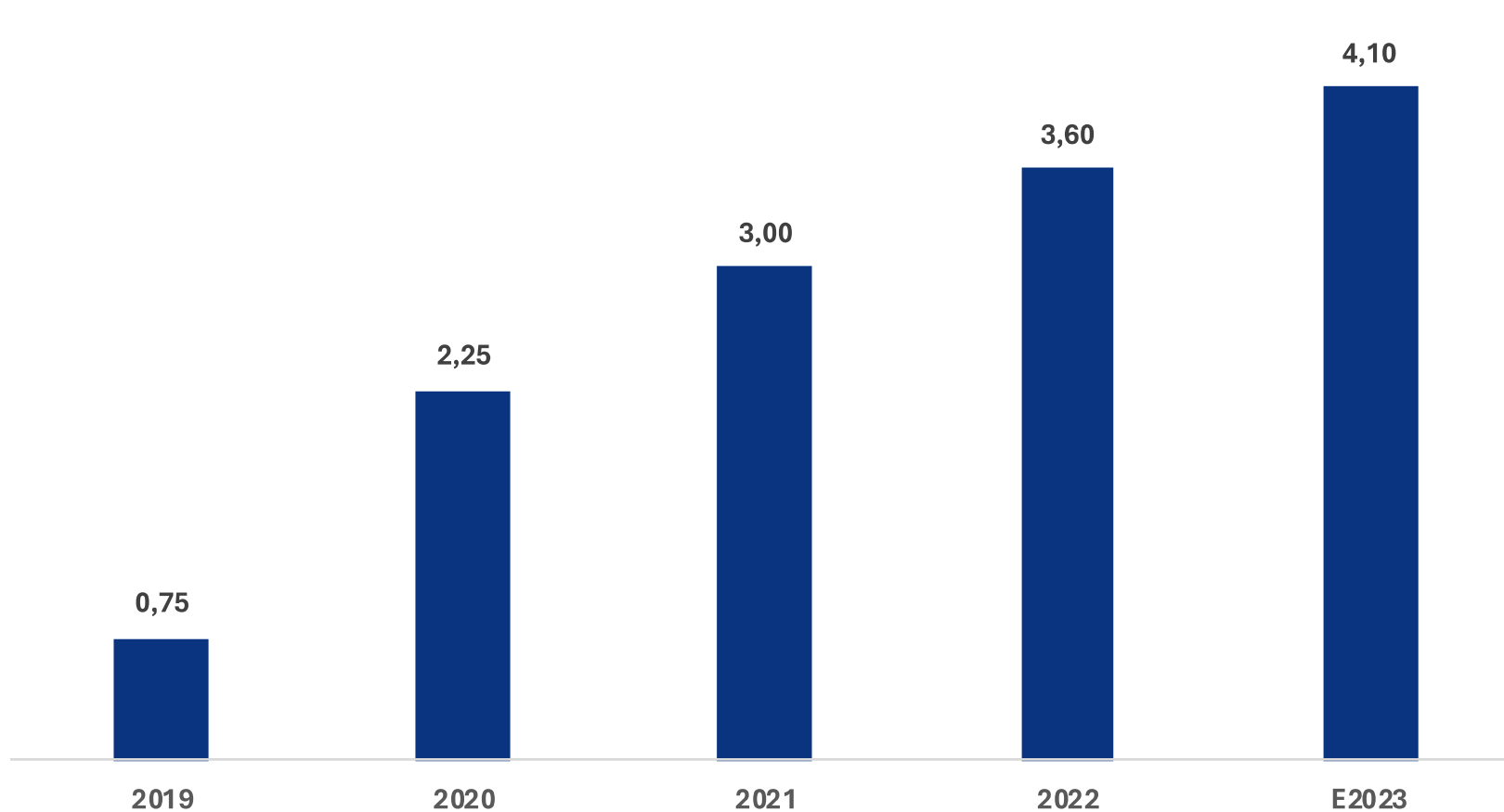


# Appendix

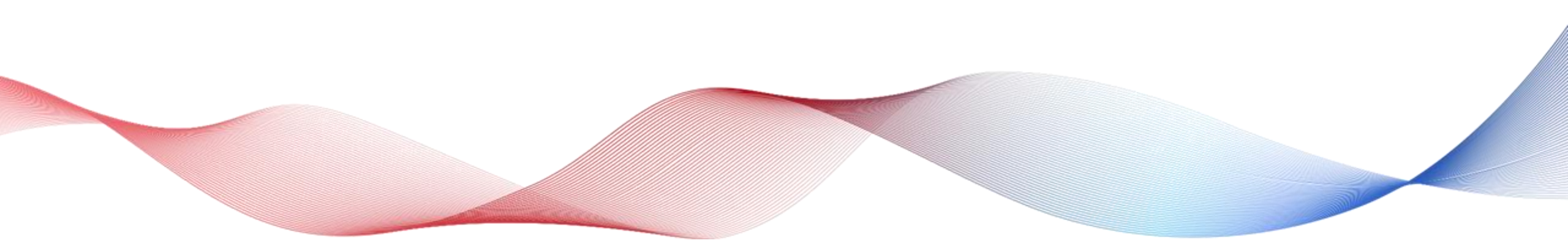


The number of applicants show the quality of company welfare and the prestigious work place

Number of Applicants (Mln)



- Tesla had 4.1 mln applicants while opening 13,000 new positions

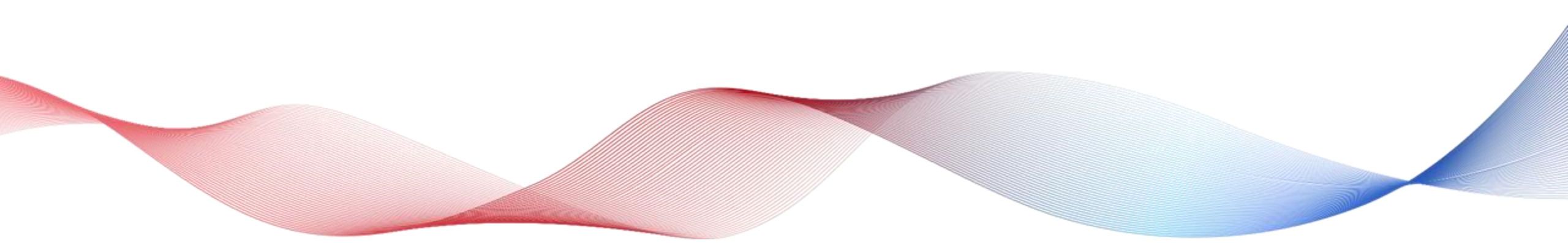


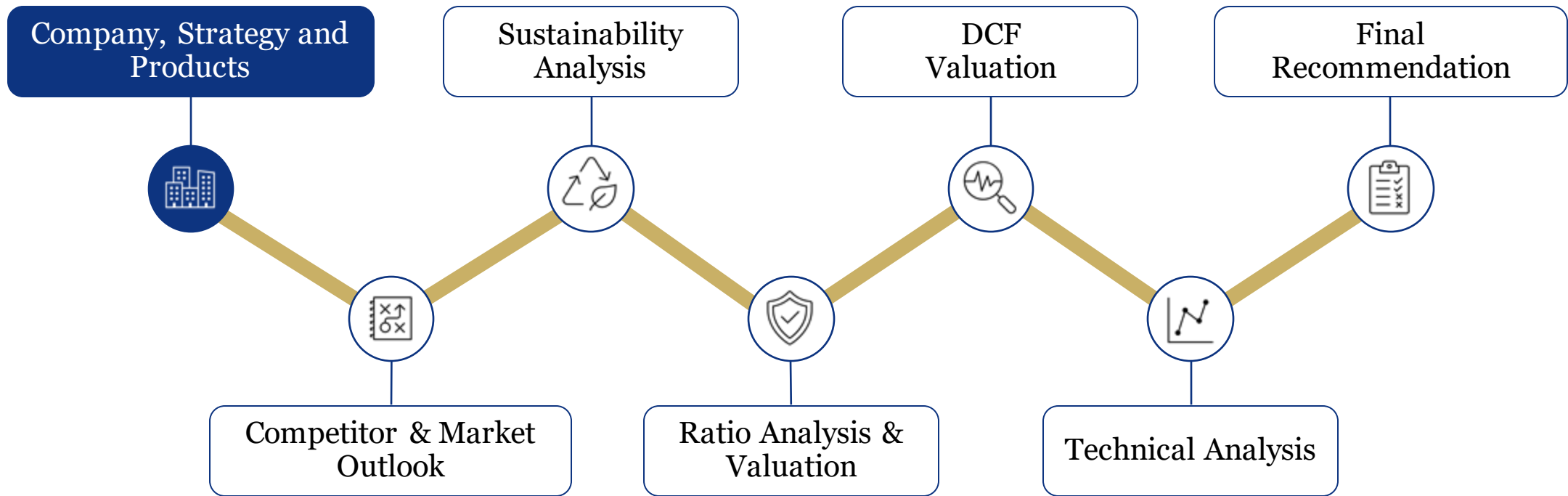
Healthcare

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**Σigma**  
Investments







# Company Overview



Vertex's goal is to develop and manufacture innovative medicines for people suffering from serious diseases, with a focus on niche markets

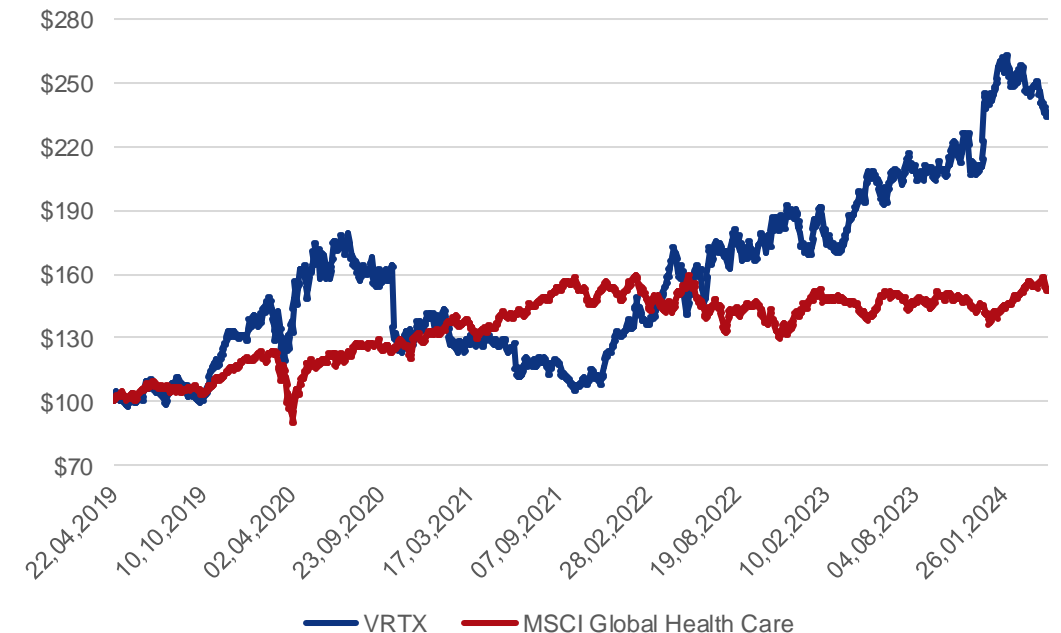
## Profile

- **Global biotech** company, specialized in **transformative drugs for serious diseases**, with a strong focus on **specialty markets**
- **Disease-Focused Portfolio**: 4 approved medicines for **cystic fibrosis (CF)** and 1 for **sickle cell disease (SCD)** & **transfusion dependent beta thalassemia (TDT)**

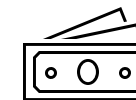
## Strategy

- **Innovate medicines in unmet needs areas** by combining advances in disease understanding and therapeutics
- Target validated pathways with predictive biomarkers for **rapid approval**
- Advance multiple compounds into early trials to select the most promising therapies

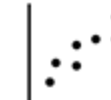
## VRTX against MSCI Global Health Care Index



Market Cap  
€ 104.6 bn



P/E Ratio  
28.57



Beta  
0.65



PEG ratio  
0.53

# Products



As the absolute Market Leader in the field of cystic fibrosis, Vertex now tries to capitalize on Diversification in other unserved markets

## Approved Treatments

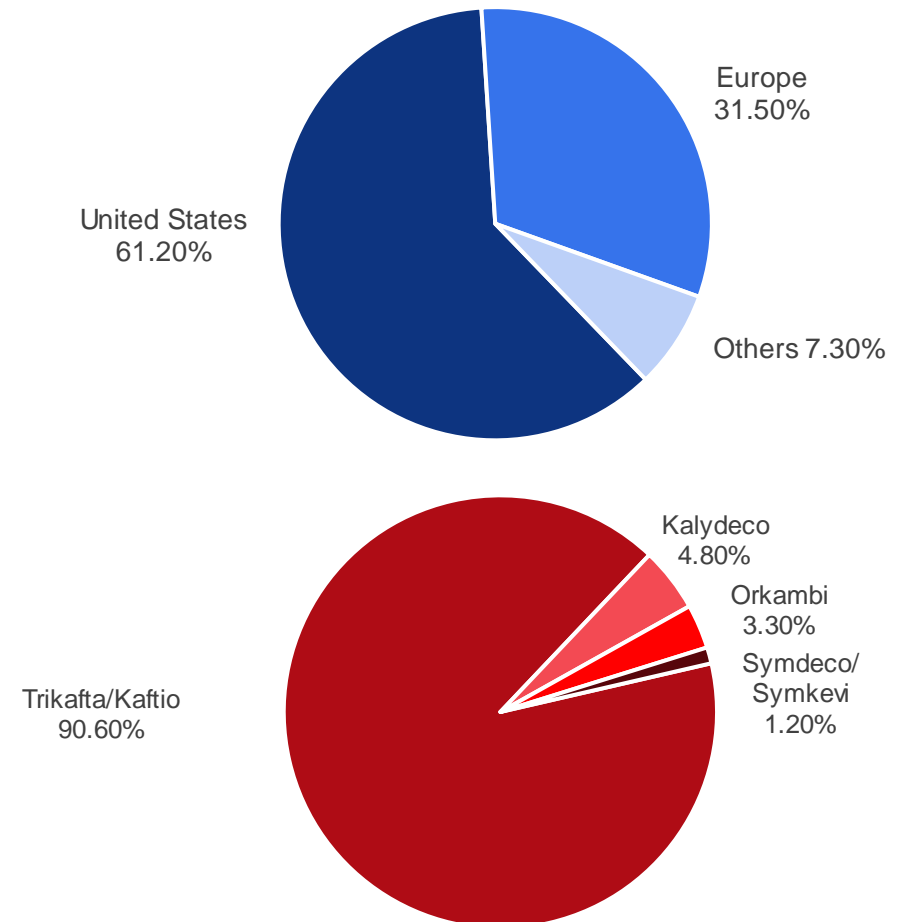
### Cystic Fibrosis:

- Life-threatening, **genetic** disease with 105k patients diagnosed
- **4 Vertex's drugs** treat nearly **75% of world's patients** in 60+ countries
- **24.4% CAGR** (2030) in CF market mainly driven by **longer life expectancy**
- Increase patient acceptance and access with label expansions and expanded reimbursement

### Sickle Cells & TDT:

- **Genetic** blood disorders requiring continuous costly treatments and with **no effective treatment** apart from stem cell transplant
- **CASGEVY a ground-breaking Crispr treatment**, was recently approved in the U.S., the E.U., the U.K. Saudi Arabia, and Bahrain

## Revenue by Region and Product



# Pipeline



Thanks to its diversified pipeline, Vertex aims to increase its treatment portfolio while conserving a niche disease approach

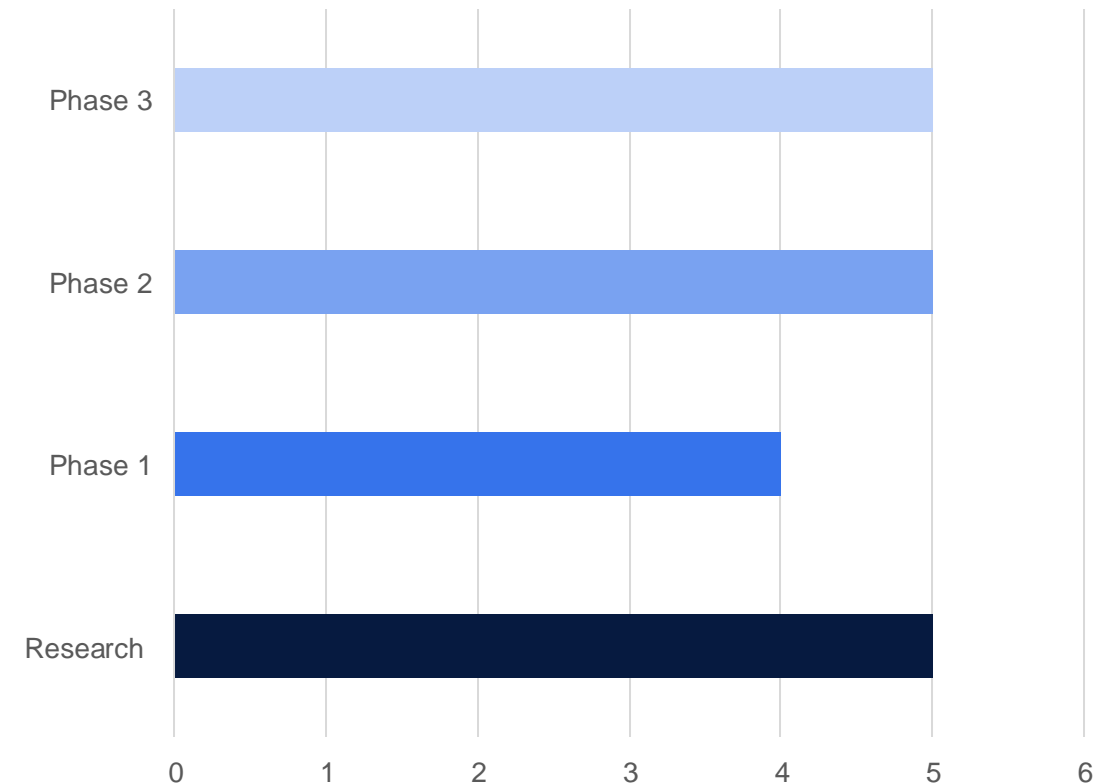
## Overview of their Pipelines

- **Focus on serious illnesses** where they can truly make a difference for patients, not just provide an additional benefit
- **Innovative technologies** like gene therapy, gene editing, editing RNA-therapeutics, and cell therapies
- Type 1 Diabetes, focusing on stem-cell-derived islet cell therapy – **Phase 2**
- CF, **mRNA vaccine** developed with Moderna (+5,000 new patients) - **Phase 2**

### Filing for approval this year 2 potential blockbusters:

- **Non-opioids Painkiller** for acute pain
- **Vanzacaftor Triple (CF)**, 6000+ new potential patients

## Different phases in the pipeline

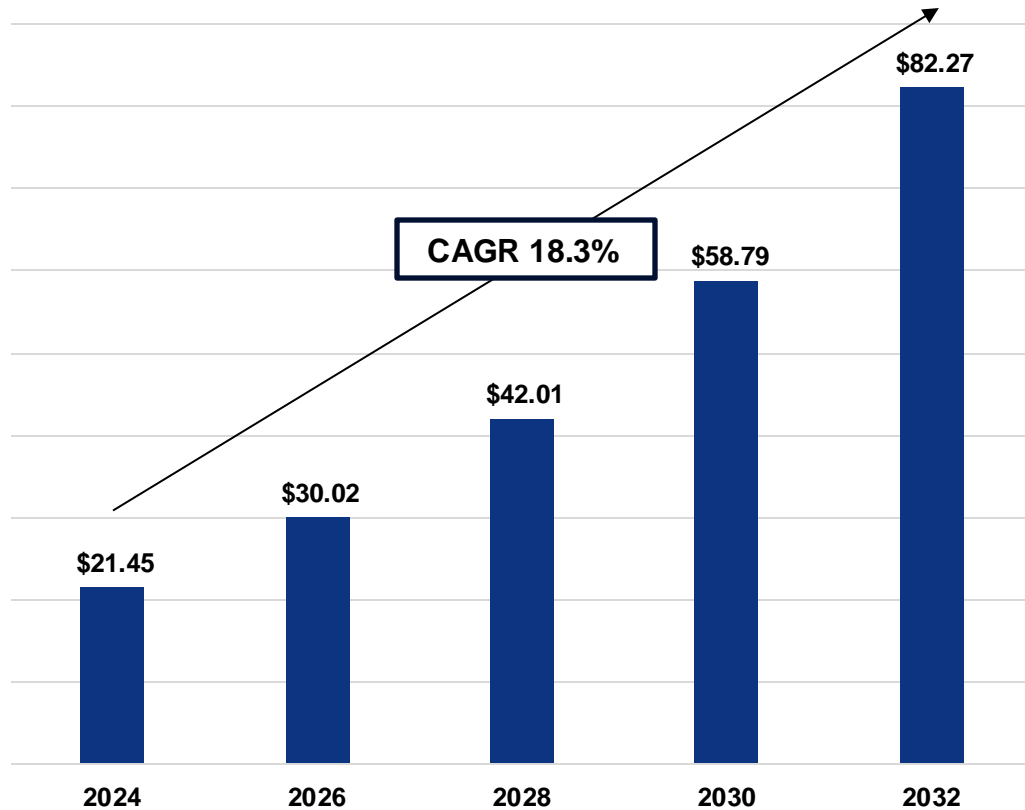


# Crispr-CAS9



Groundbreaking first CRISPR therapy approval opens immense possibilities for Vertex to become Leader in CRISPR and Gene therapies

## Cell and Gene Therapies Market Growth



## Vertex's CASGEVY gene therapy

- SCD and TDT are incurable genetic disorders, requiring frequent blood transplantation, and **threatening +200,000 lives** globally
- Vertex obtained **first marketing approval** of Nobel-winning **CRISPR technology-based therapy**, a **milestone to cure genetic diseases**
- CASGEVY could provide **DNA-editing** treatments as a potential **one-time functional cure** to +35,000 eligible patients in the US and EU
- Average treatment price of **2.2 \$M** represents a **multi-\$bn market opportunity**, but commercial success will depend on **favourable reimbursement policies**

# Non-opioids Painkillers

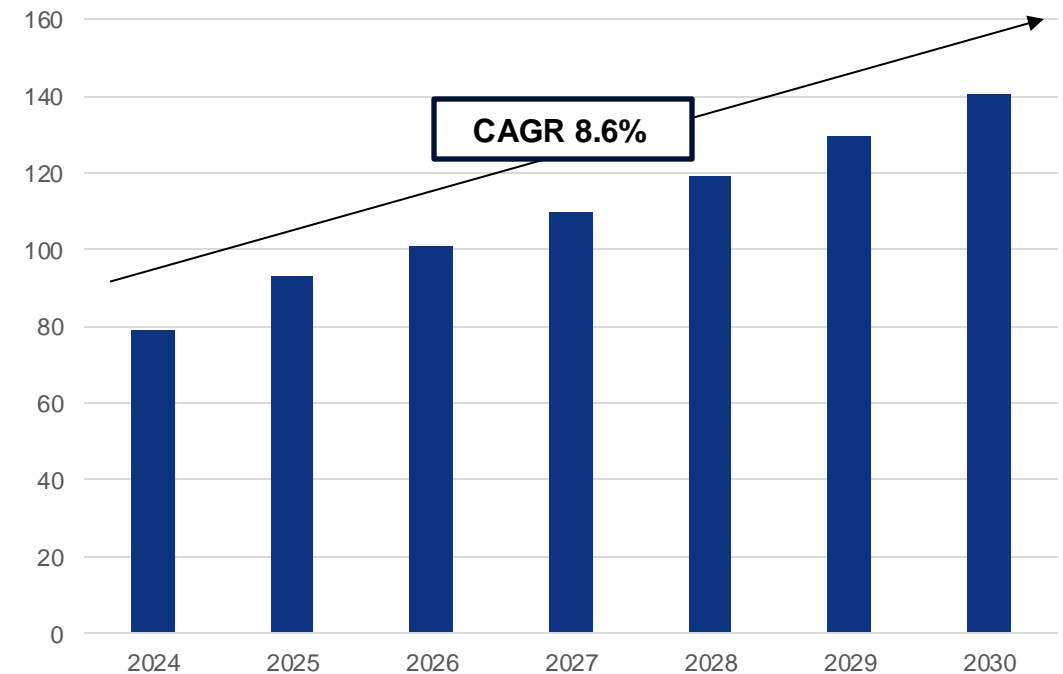


A ground-breaking drug receiving approval Before June 2024 capitalizes on a multibillion market against Opioids Addiction in the US

## Vertex's Suzetrigine Painkiller

- **Painkiller addiction** is a health plague in the US, with no other substances as effective as **opioids** for **acute and chronic pain**
- Vertex **beats giant Eli Lilly** creating first **non-opioid effective painkiller**, receiving **approval before June 2024**
- **Not fully priced by the market** as January's trial showed the drug was **not more effective than opioids**, however Vertex objective is to create an alternative **as valid but with no addiction side effect**
- Potential for **even higher revenue than estimated \$2bn annually** if approved for **chronic pain** as well (50 mil people only in US)

## Non-opioids Pain Killers Market Growth



**CAGR without considering Vertex's painkiller**








# Alpine Immune Sciences Acquisition



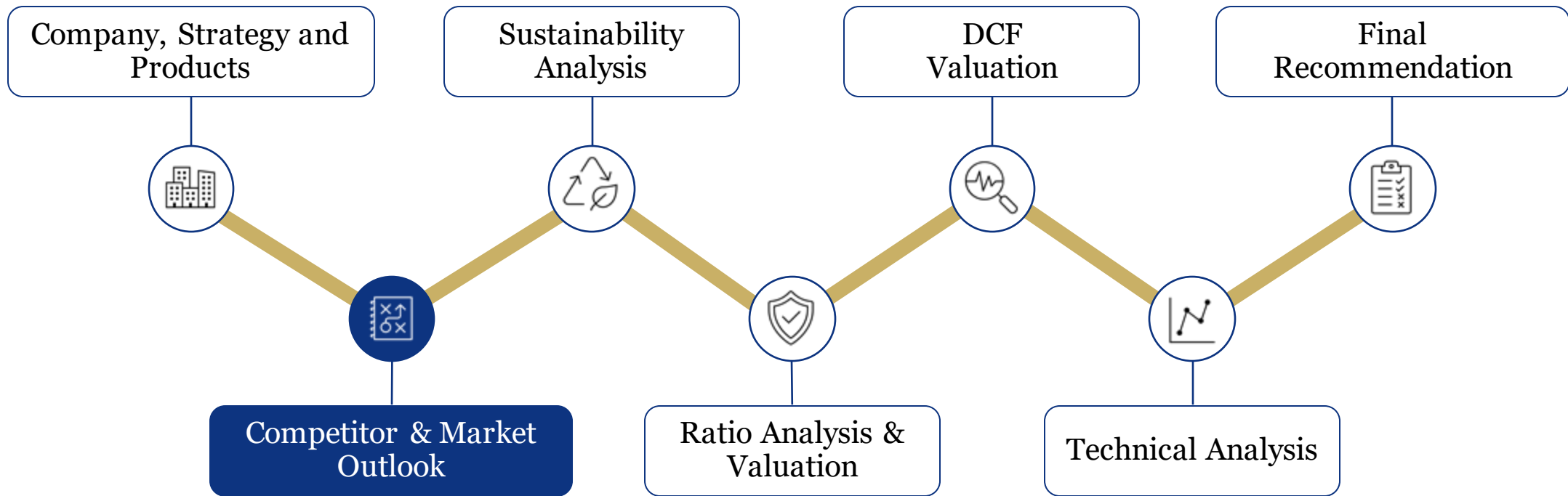
Biggest acquisition in Vertex's history set high targets for diversification in kidney and autoimmune diseases' treatments

- Vertex acquiring Alpine Immune Sciences for \$65/share in an **all-cash transaction** (\$4.9bn)
- Alpine is a US **Biotech startup**
- Kidney treatment** in Phase 2 obtains extraordinary results, and represents **multi-billion-dollar commercial opportunity** in only one of the 3 potential scopes (for only 130k US patients)
- Aligned with Vertex's vision of finding **unmet needs to treat serious illnesses**



Pove could deliver patient benefit in multiple serious diseases			U.S. prevalent patient population <sup>1</sup>
	IgAN	Immunoglobulin A nephropathy	~130K
	pMN	Primary membranous nephropathy	
	LN	Lupus nephritis	
	AAV	Antineutrophil cytoplasmic antibody (ANCA)-associated vasculitides	>150K
	ITP	Idiopathic thrombocytopenia	~150K
	AIHA	Warm autoimmune hemolytic anemia	
	CAD	Cold agglutinin disease	





# Competitor Analysis



Despite more modest sales and no dividend payment, Vertex showcases superior profitability compared to market competitors



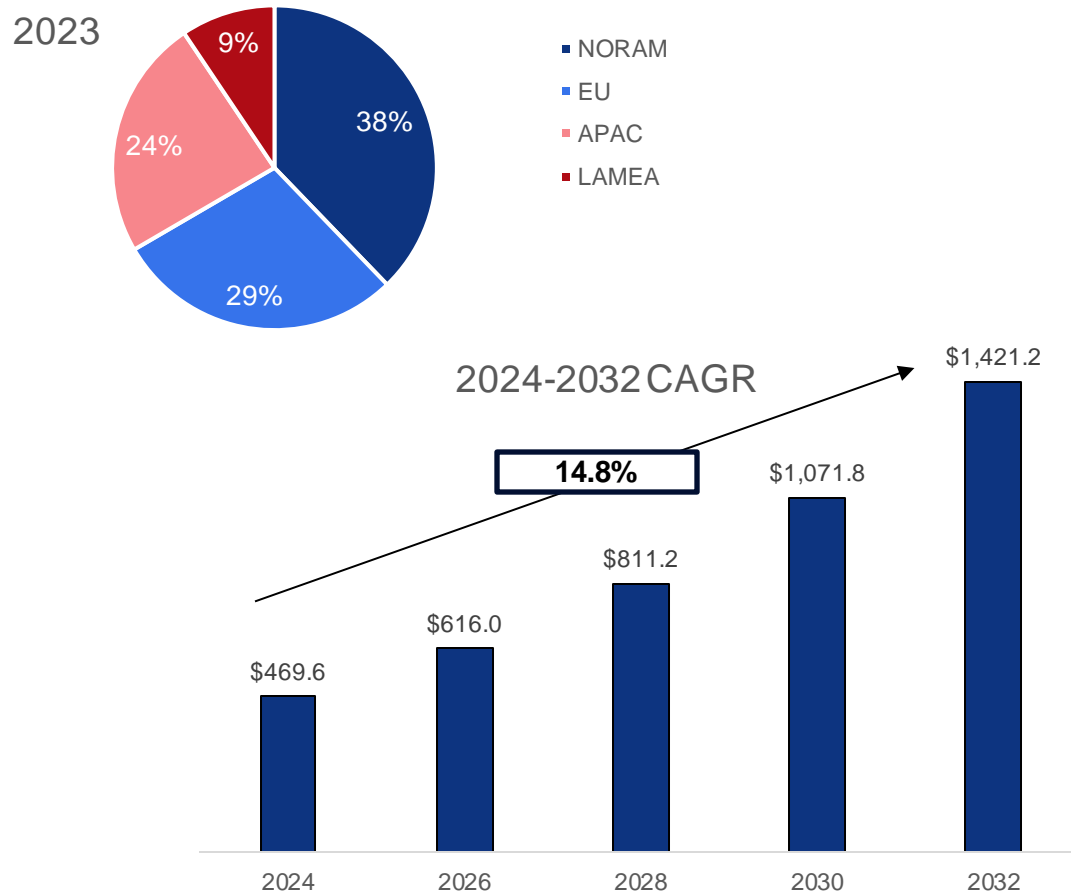
Market Cap. (bn \$)	<b>104.6</b>	168.1	74.2	713.8	317.5	143.5
Revenue (bn \$)	<b>9.84</b>	45.44	45.01	34.12	60.12	58.496
Net Profit Margin	<b>36.9%</b>	18.9%	17.8%	15.4%	0.6%	3.7%
Dividend Yield	<b>0.00%</b>	4.21%	4.83%	0.8%	2.7%	5.7%
PE ratio	<b>28.57</b>	13.68	6.58	114.92	83.3	14.13

# Market Outlook



Despite its specialty segment focus, Vertex's pipeline and liquidity are significant assets to benefit from the positive market trend

## Biopharma Revenue Dispersion & Market Size Growth

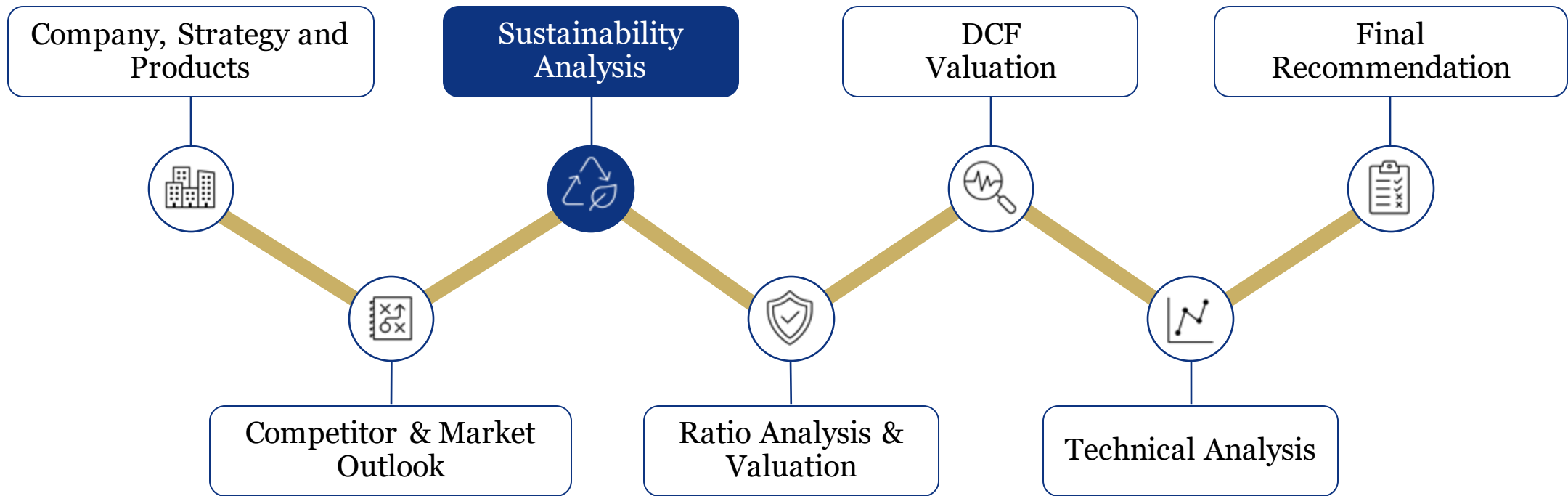


## 2024 Market Outlook

- After first approval of gene-editing therapy in 2023, **Cell & Gene (C&G)** should be the **fastest growing segment** in 2024
- Following a slower environment in 2023, **M&A and IPO** activity is expected to rebound 2024 to support **growing R&D**
- **US** expected to remain the **biggest Biopharma market** (37.79%), due to high firm concentration and favorable FDA outlook

## Vertex Strategic Position

- With the imminent marketing of CASGEVY, Vertex is favorably placed to leverage the **C&G segment** momentum
- With consistent liquidity at hand, Vertex is well disposed to grow externally and **increase its treatment portfolio**

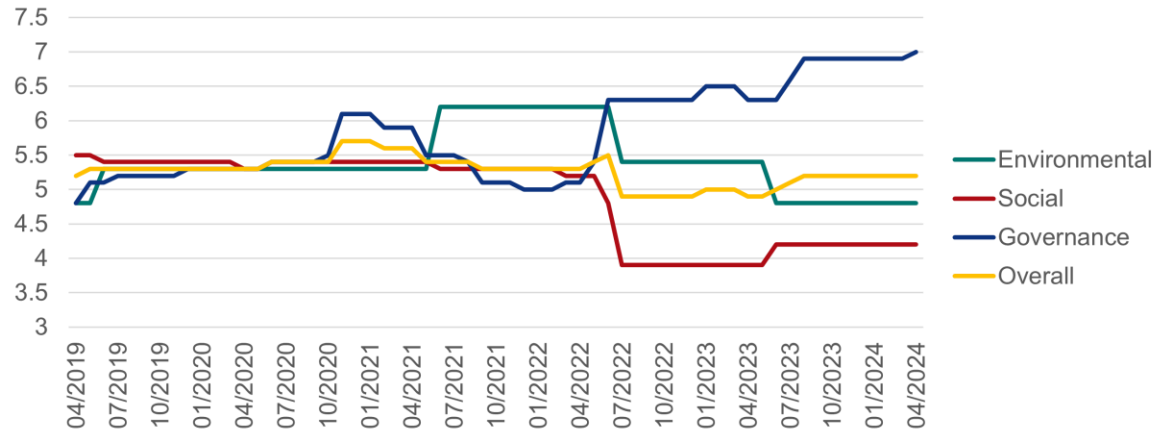
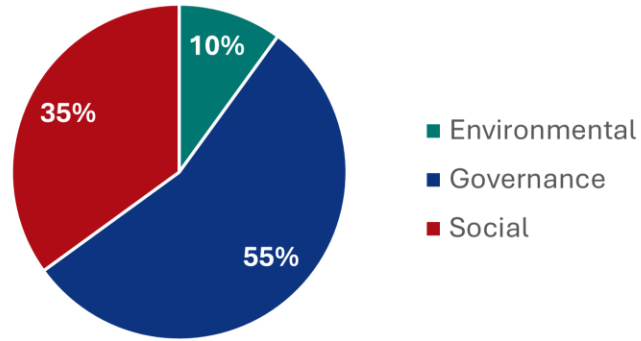


# Sustainability Analysis

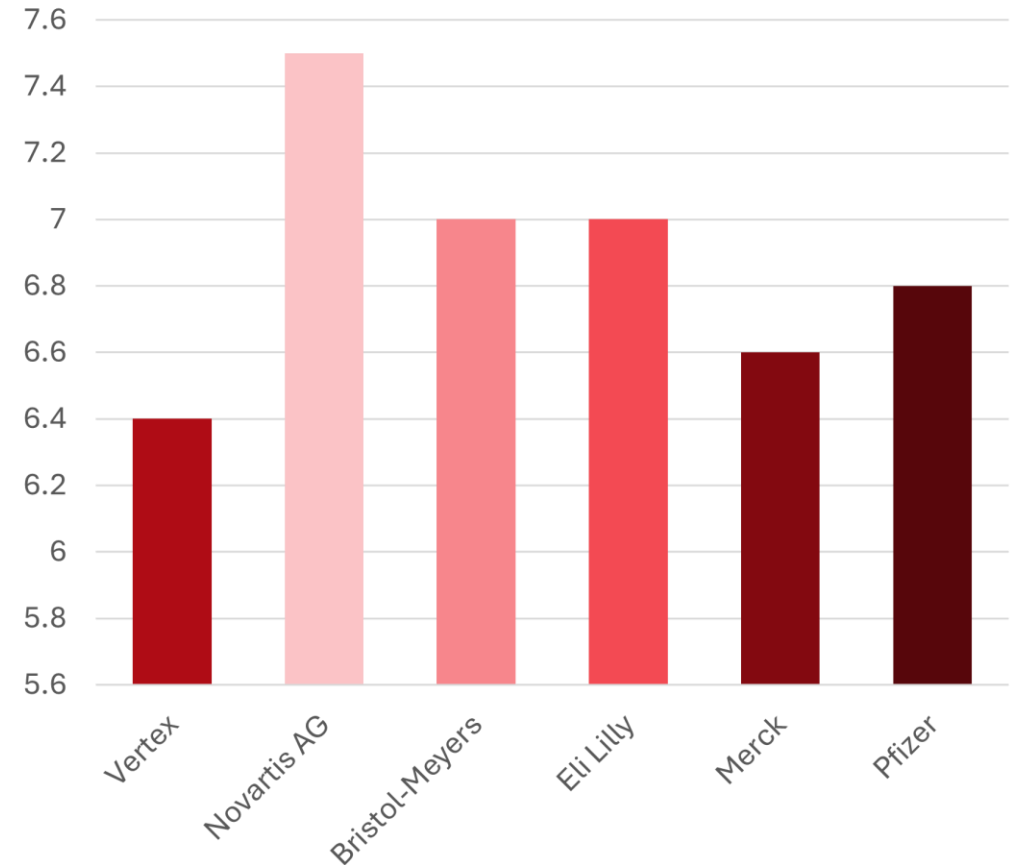


Quantitative View

## ESG Pillar Weights



## ESG Competitor Benchmark



# Sustainability Analysis



## Qualitative View



### Environment

#### Key Points:

- Greenhouse gas **reduction: 53%** in absolute **emissions** since 2014;
- Renewable energy initiatives: **100%** usage by headquarter **R&D** in the UK;
- Waste Management and Sustainability Practices

#### Challenge:

- **Resource Intensity:**

Energy consumption is **65% more** than average industrial sector; it can require between **2 to 100 liters of water** to produce 1 liter of the product

Every kilogram of product produced there **25 to 100 kg chemical waste** can be generated



### Social

#### Key Points:

- Global access to Medicines: **in 60 countries** all over the world;
- Community Engagement and Charity: contributed over **€50 million in 2023** in it;
- Employee Welfare and Inclusivity: **45%** of new hires are **from underrepresented groups**.

#### Challenge:

- **Drug Pricing and Accessibility:**

Vertex faces criticism for the **high prices** of its novel therapies, which may impact patient access and the company's social reputation.

\*Due to high drug discovery price – Vertex invest **70% of its profits back in R&D**



### Governance

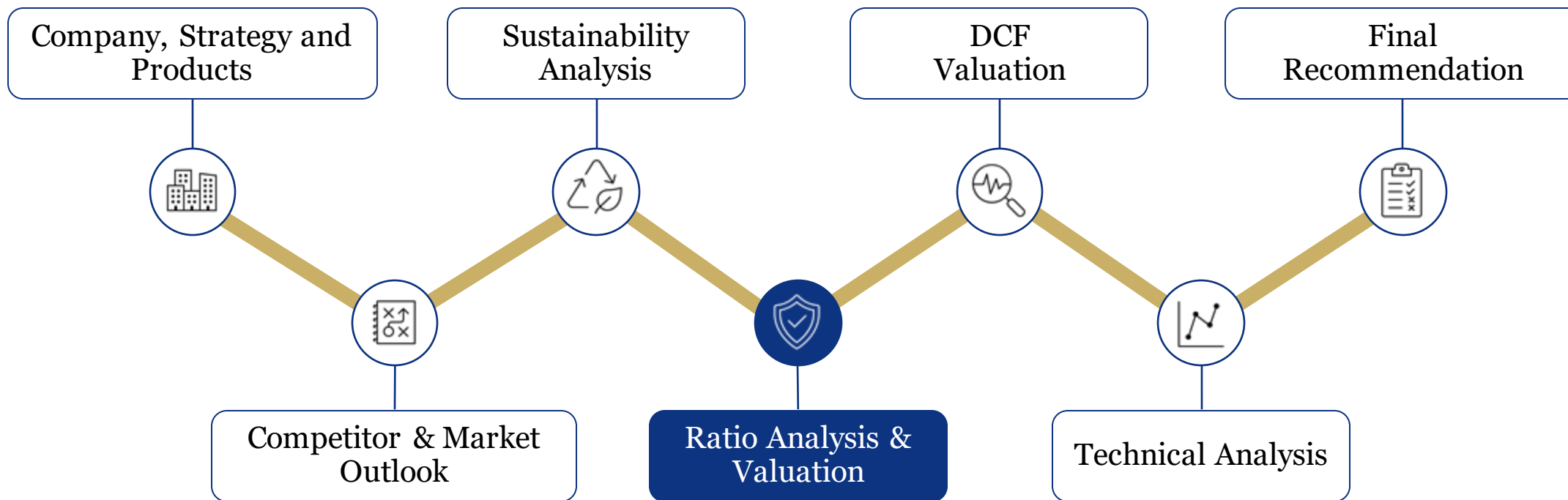
#### Key Points:

- Corporate Governance: majority independent directors, **6/11 are women**;
- Regulatory Compliance: committed to stick to countries' standards such as FDA, EMA and others;
- Transparency and Reporting

#### Challenge:

- **VX-548 scandal:**

Vertex Pharmaceuticals faced a scandal due to not fully disclosing side effects of a high-profile drug, leading to significant stock price declines and concerns about the company's transparency and risk management practices.



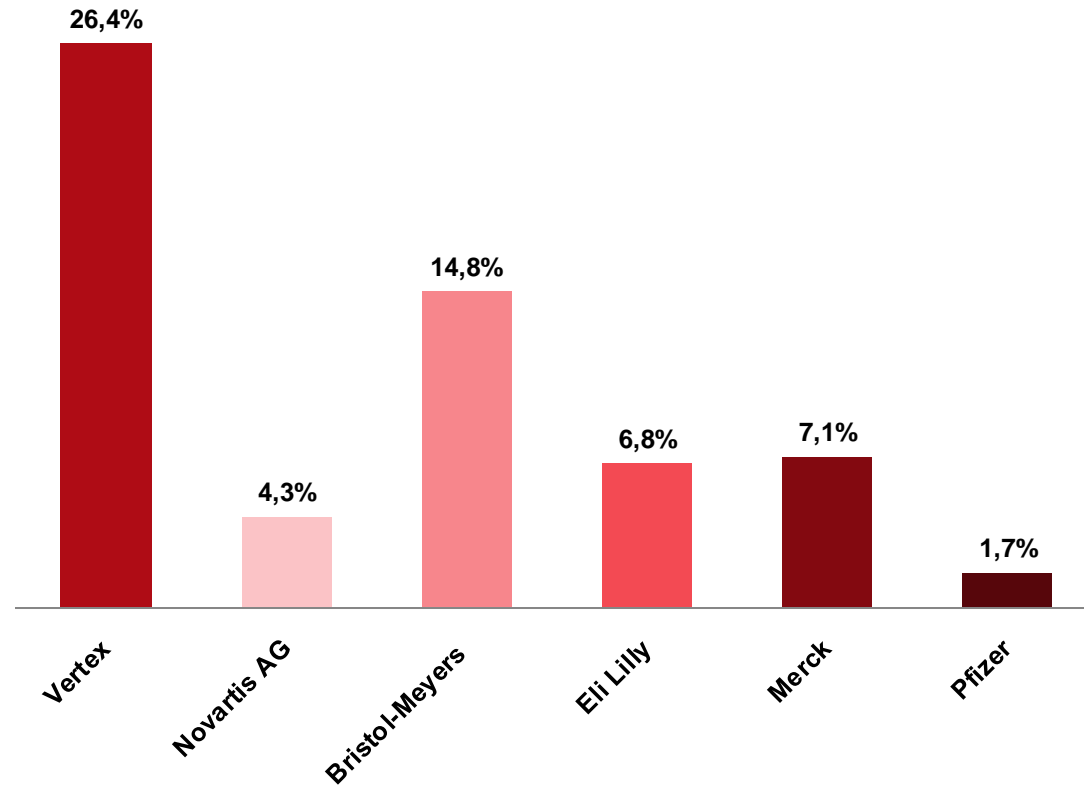
**Σigma**  
Investments

# Ratio & Margins Analysis

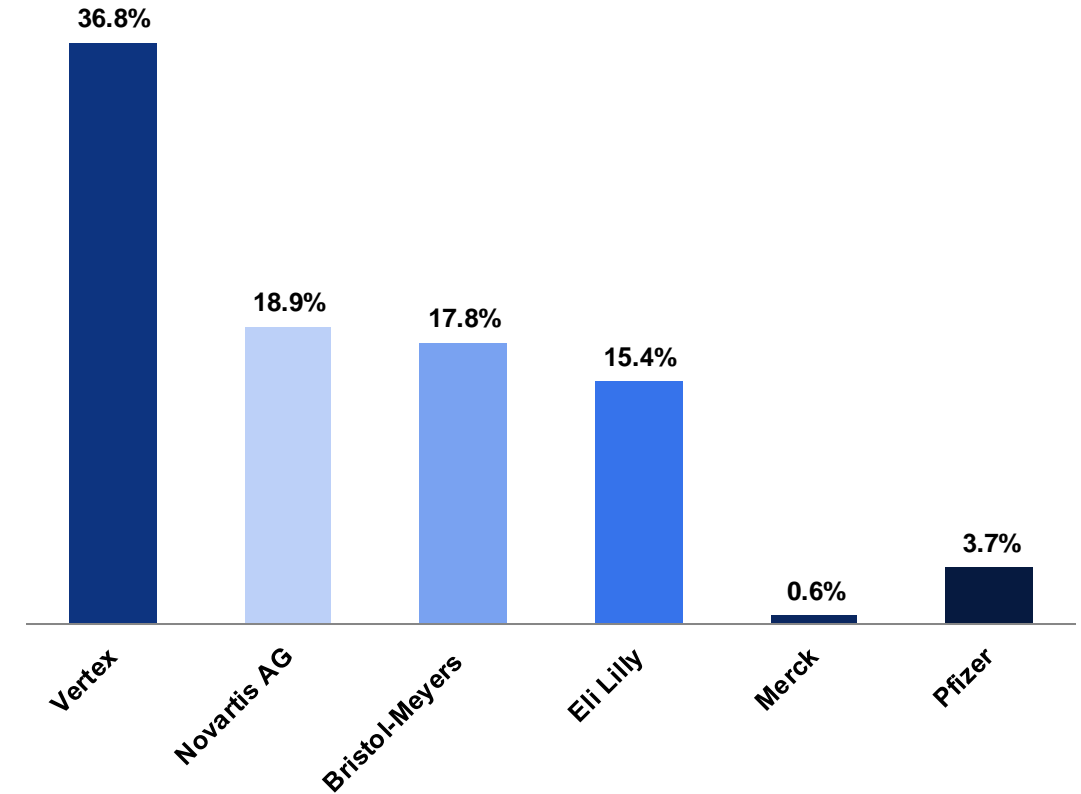


Vertex outranks competition, showcasing superior Profitability and Revenue Growth compared to competitors

## Sales Growth (5Y CAGR)



## Net Margins



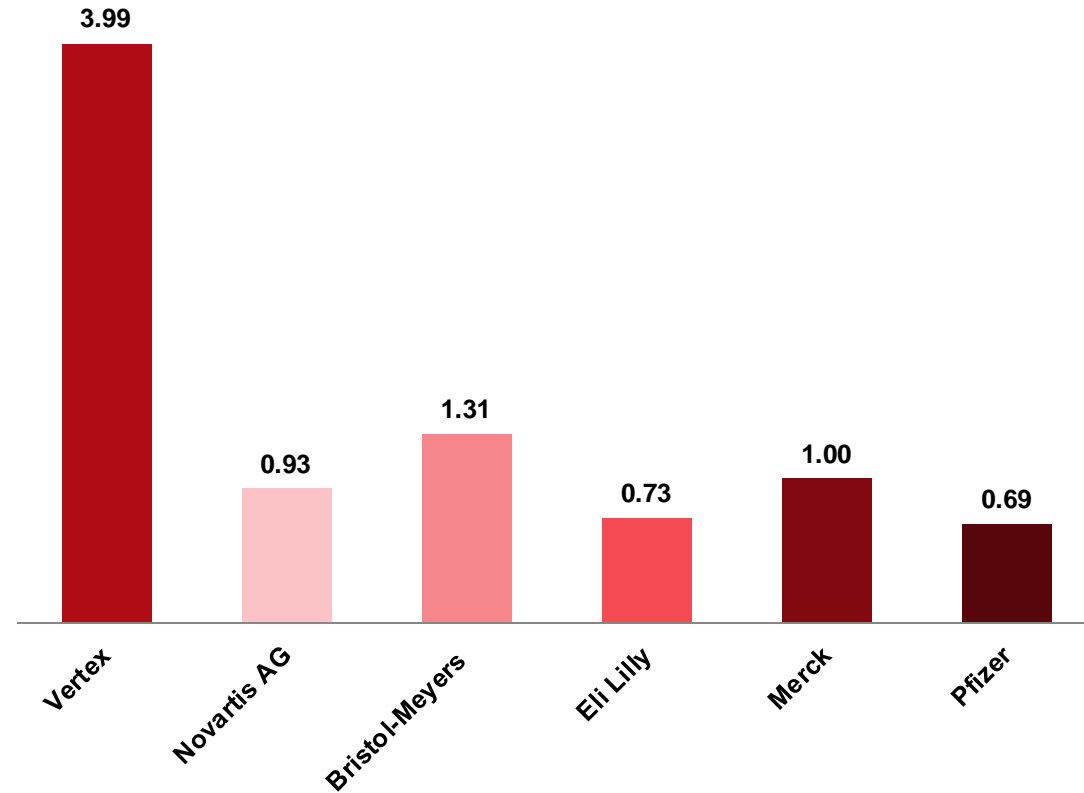


# Ratio & Margins Analysis

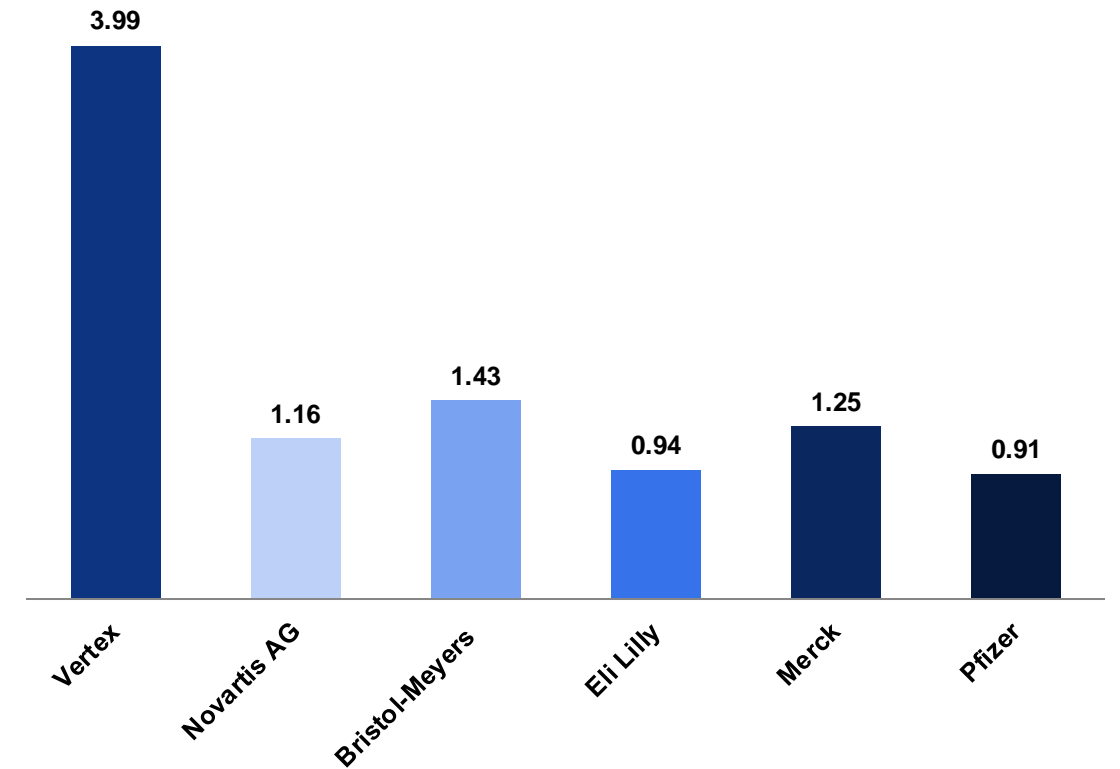


Short- and Long-Term Liquidity analysis reveals above average performance, caused by high cash levels and limited debt exposure

## Short-Term Liquidity (Quick Ratio)



## Long-Term Liquidity (Current Ratio)

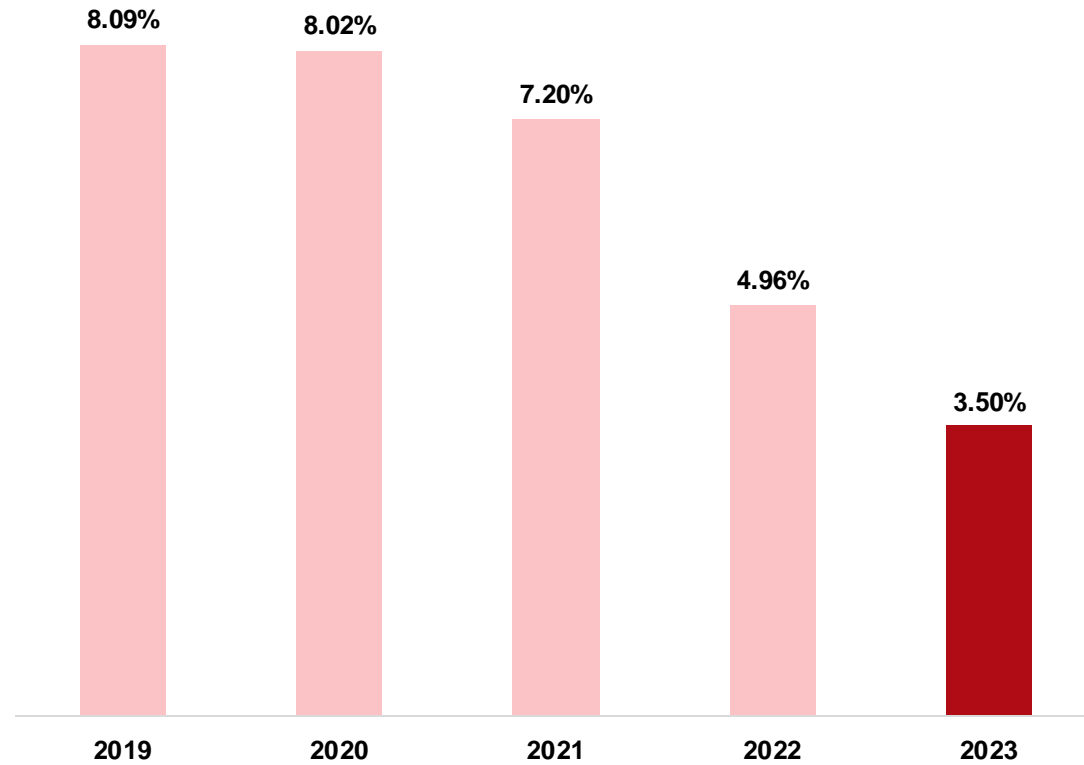


# Ratio & Margins Analysis



Vertex under-relies on debt financing to support the firm's growth, rather using growing cash piles to increase the firm's portfolio

## Debt-to-Asset (%) 5Y ratio



## Capital Structure Overview

- Declining Debt-to-Asset ratio, despite plateauing debt level explained by fast-growing cash levels and deferred tax assets
- The majority of debt and underlying interest payments represents **operating leases** for Research Center and Headquarters in Boston
- Adjusting for company-seniority, Vertex showcases an **extremely low exposure** to debt financing compared with competitors.

## Implications for Vertex

- Probable over-reliance on **cash-flows** to finance internal and external (acquisition) growth
- Potentially indicates high **managerial reluctance** to use debt financing, likely impacting negatively Vertex's valuation

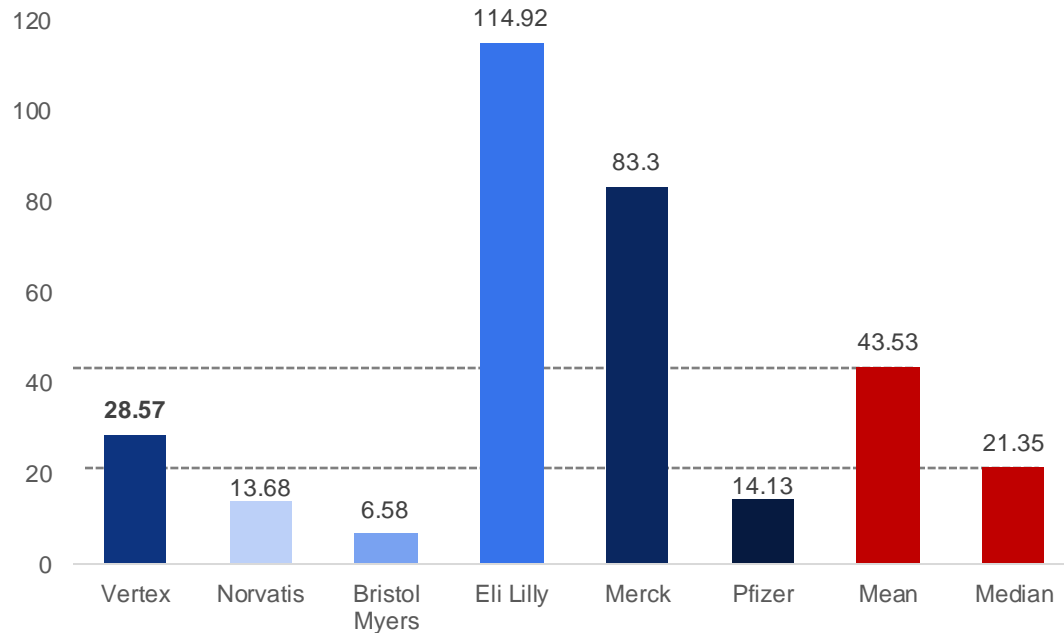
# Multiple Valuation



Despite slightly above average P/E ratio, PEG Ratio strongly indicates Vertex's Undervaluation

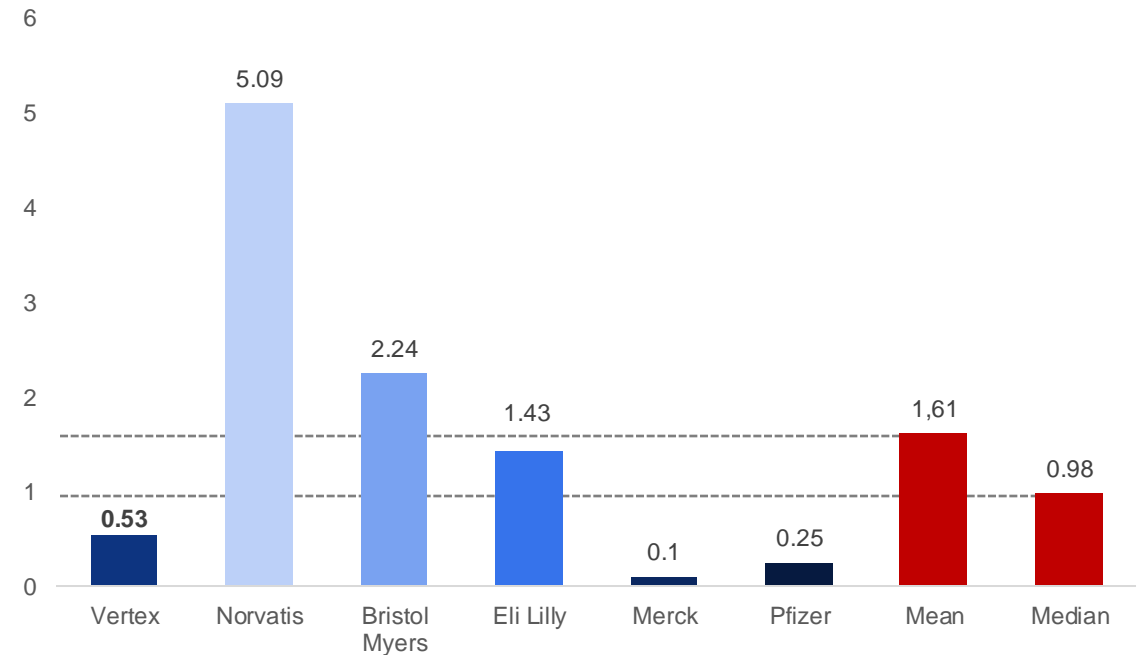
## P/E Ratio

Vertex P/E Ratio: **28.57**

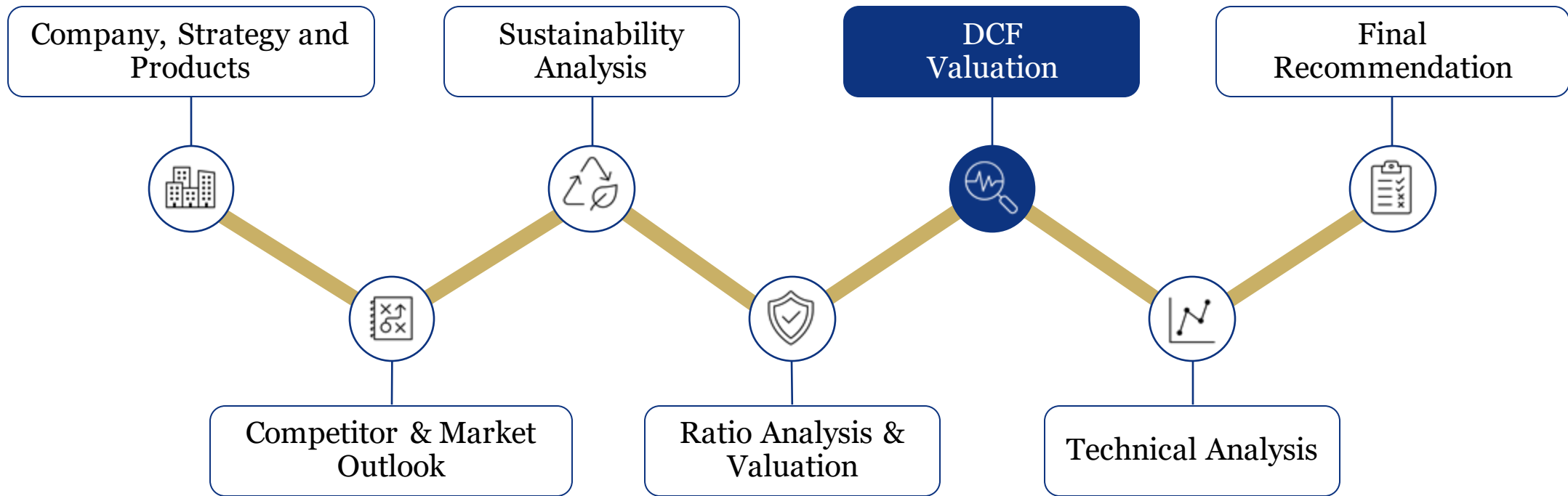


## PEG Ratio (P/E to growth)

Vertex PEG Ratio: **0.53**



PEG Ratio below 1 indicates undervaluation



# DCF Valuation



Decreasing Cystic Fibrosis sales growth is progressively offset by the commercialization of current and acquired pipeline

DCF		2020	2021	2022	2023	2024	2025	2026	2027
Revenue % growth	Conservative					10,725 9.0%	11,743 9.5%	12,918 10.0%	14,468 12.0%
	Base	6,209 50.3%	7,604 22.5%	8,748 15.0%	9,839 12.5%	10,921 11.0%	12,199 11.7%	13,724 12.5%	15,577 13.5%
	Optimistic					11,069 12.5%	12,530 13.2%	14,347 14.5%	16,571 15.5%

EBIT % of sales	Conservative					4,558 42.5%	5,014 42.7%	5,684 44.0%	6,438 44.5%
	Base	2,873 46.3%	2,809 36.9%	4,080 46,6%	4,277 43.5%	4,860 44.5%	5,453 44.7%	6,313 46.0%	7,243 46.5%
	Optimistic					5,081 45.9%	5,864 46.8%	7,001 48.8%	8,103 48.9%

\*All figures in millions of USD

# DCF Valuation



High R&D drive tax rates below the normal threshold, and Alpine's acquisition drives CapEx up

DCF		2020	2021	2022	2023	2024	2025	2026	2027
Taxes % EBIT	Conservative					843 18.5%	953 19.0%	1,108 19.5%	1,288 20.0%
	Base	405 14.1%	388 13.8%	910 22.3%	760 17.8%	854 17.8%	971 17.8%	1,136 18.0%	1,304 18.0%
	Optimistic					854 16.8%	985 16.8%	1,190 17.0%	1,378 17.0%

CapEx % of Sales	Conservative					4,933 46.0%	587 5.0%	646 5.0%	796 5.5%
	Base	260 4.2%	235 3.1%	205 2.3%	258 2.6%	4,805 44.0%	549 4.5%	618 4.5%	779 5.0%
	Optimistic					4,815 43.5%	539 4.3%	617 4.3%	795 4.8%

\*All figures in millions of USD

# WACC Estimation



Despite significantly low % Debt, Low Cost of Capital is driven by Low Beta matching business focus on Serious Illness

Debt*	<b>808</b>
% Debt	<b>0.8%</b>
Cost of Debt	<b>5.46%</b>
Tax Rate	<b>17.8%</b>

Equity Value*	<b>104,556</b>
% Equity	<b>99.2%</b>
Cost of Equity	<b>8.2%</b>
Risk Free Rate	<b>4.64%</b>
Beta	<b>0.65</b>
Market Risk Premium	<b>5.5%</b>

## Key Considerations

- Considerably **low % Debt** due to no bond issuing
- **Low marginal tax rate** due to significant **R&D incentives**
- **Low cost of equity** due to **low beta**, obtained comparing 3- and 5-year average betas against the S&P 500
- Conservative market risk premium

## Cost of Capital

**8.19%**

\*All figures in millions of USD

# Valuation Summary



Attractive implied share price upside for Base and Optimistic scenarios

FCF*	2020	2021	2022	2023	2024	2025	2026	2027
Unlevered	2,372 126.14%	2,417 1.87%	2,772 14.74%	3,694 33.22%	(264) (99.81%)	4,568 653.86%	5,272 15.29%	5,908 11.94%
Present Value					(244) (99.81%)	3,903 558.57%	4,164 6.70%	4,313 3.58%

DCF	Conservative	Base	Optimistic
WACC	8.6%	8.2%	7.9%
TGR	1.8%	2.0%	2.4%
Implied share price	\$368.54 6.5%	<b>\$483.23</b> 22.6%	\$665.52 68.8%

## Model Assumptions

- TGR reflects treatment market capacity in emerging economies
- Significantly higher FCF for Optimistic case if effective reimbursement plans for CASGEVY are developed

\*Figures in millions of USD



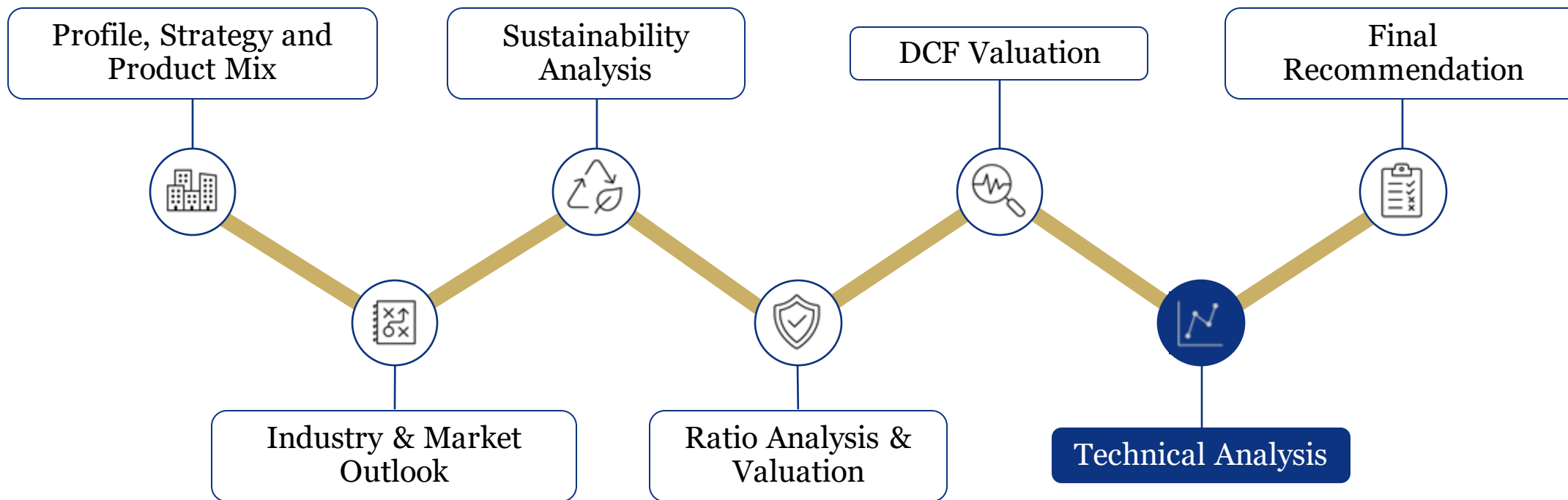
# Sensitivity Table



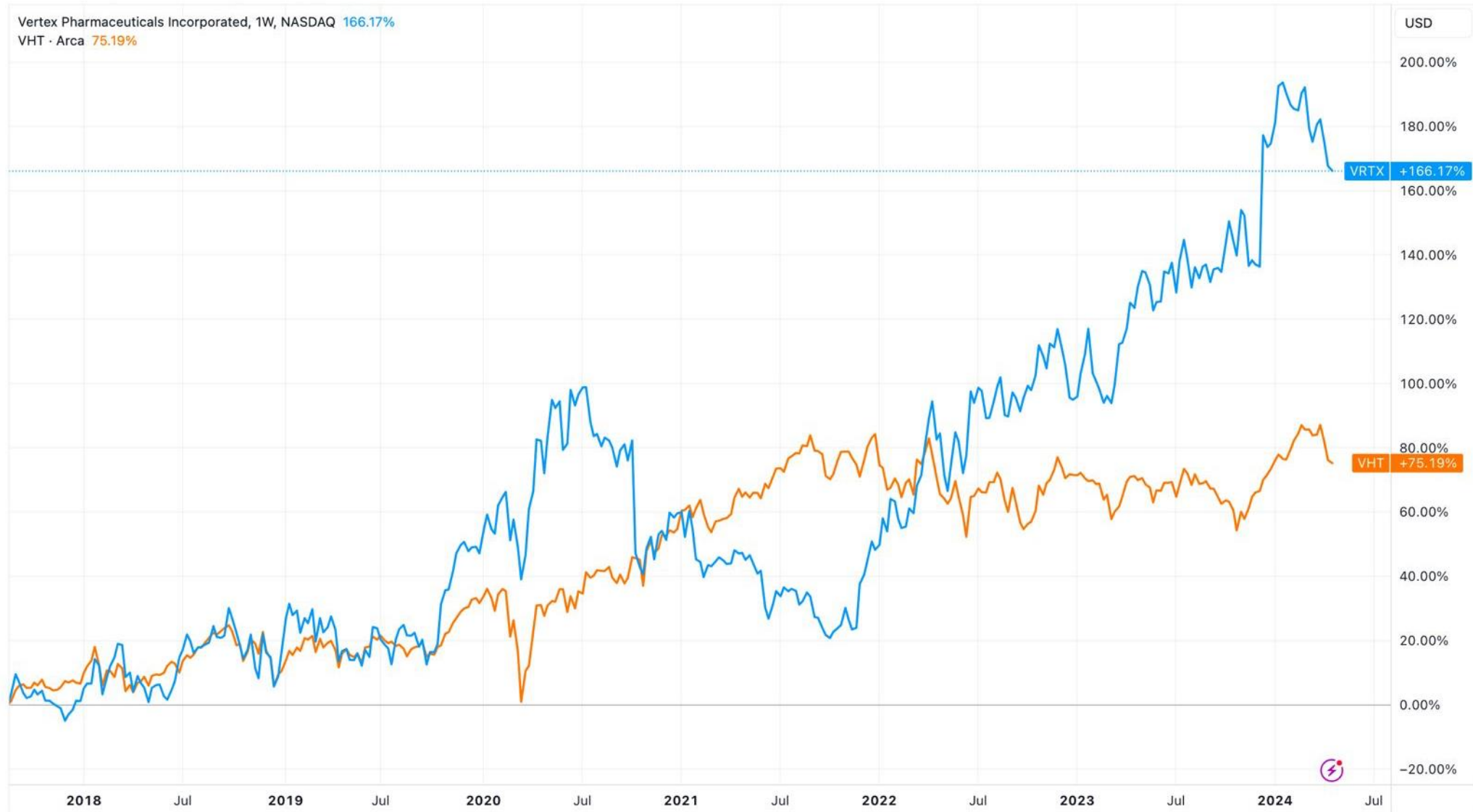
Despite variations in the share price, the prevailing implied upside remains

		TGR				
		1.50%	1.75%	2.00%	2.25%	2.50%
WACC	6.2%	\$ 664.84	\$ 691.93	\$ 722.25	\$ 756.43	\$ 795.24
	7.2%	\$ 544.14	\$ 561.04	\$ 579.57	\$ 599.98	\$ 622.56
	8.2%	\$ 459.78	\$ 471.05	\$ 483.23	\$ 496.44	\$ 510.80
	9.2%	\$ 397.59	\$ 405.47	\$ 413.90	\$ 422.94	\$ 432.65
	10.2%	\$ 349.90	\$ 355.62	\$ 361.68	\$ 368.13	\$ 374.99

\*All figures in USD



# LT Performance & Comparison with Index



# MACD & RSI: A Weak Bearish Run?

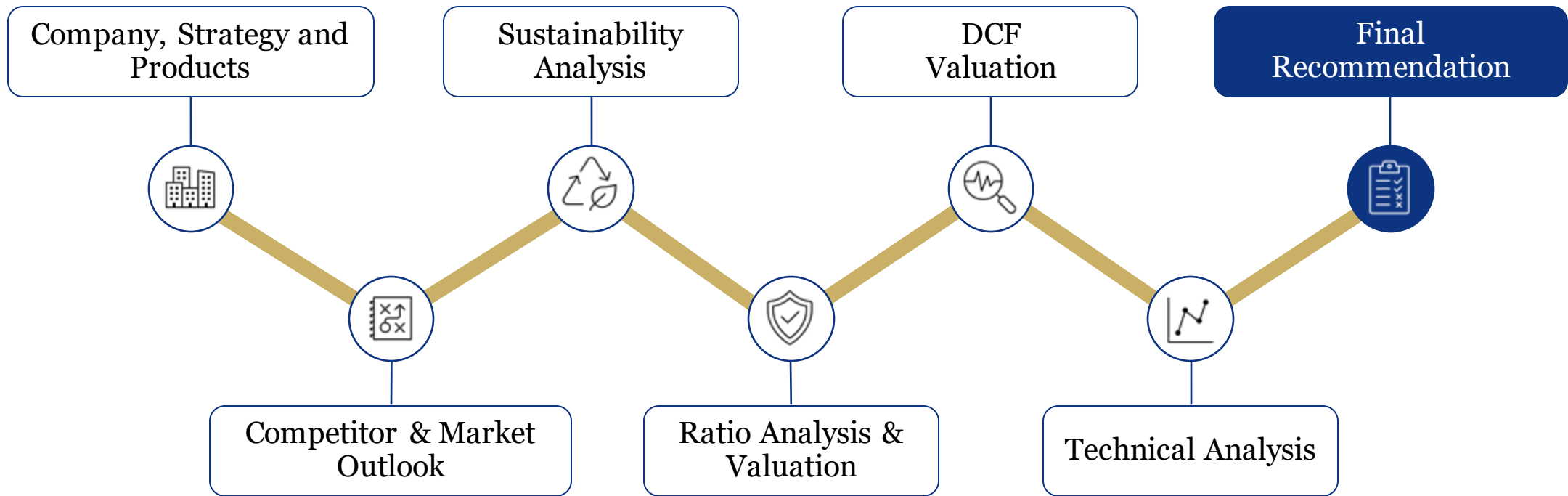


# DMI Analysis: Potential Downside Risk?



# Fibonacci & Channel: Optimal Entry Points







# Vertex in the Healthcare Portfolio

Considering Divesting from Regeneron Pharmaceuticals allows for a better Diversification in case of a buy decision for Vertex

## Regeneron Pharmaceuticals

### Company Outlook

- **US Pharmaceutical** company
- **Biotech** giant, \$98bn market cap
- Eye diseases, monoclonal antibodies, allergic and infectious diseases, cancer

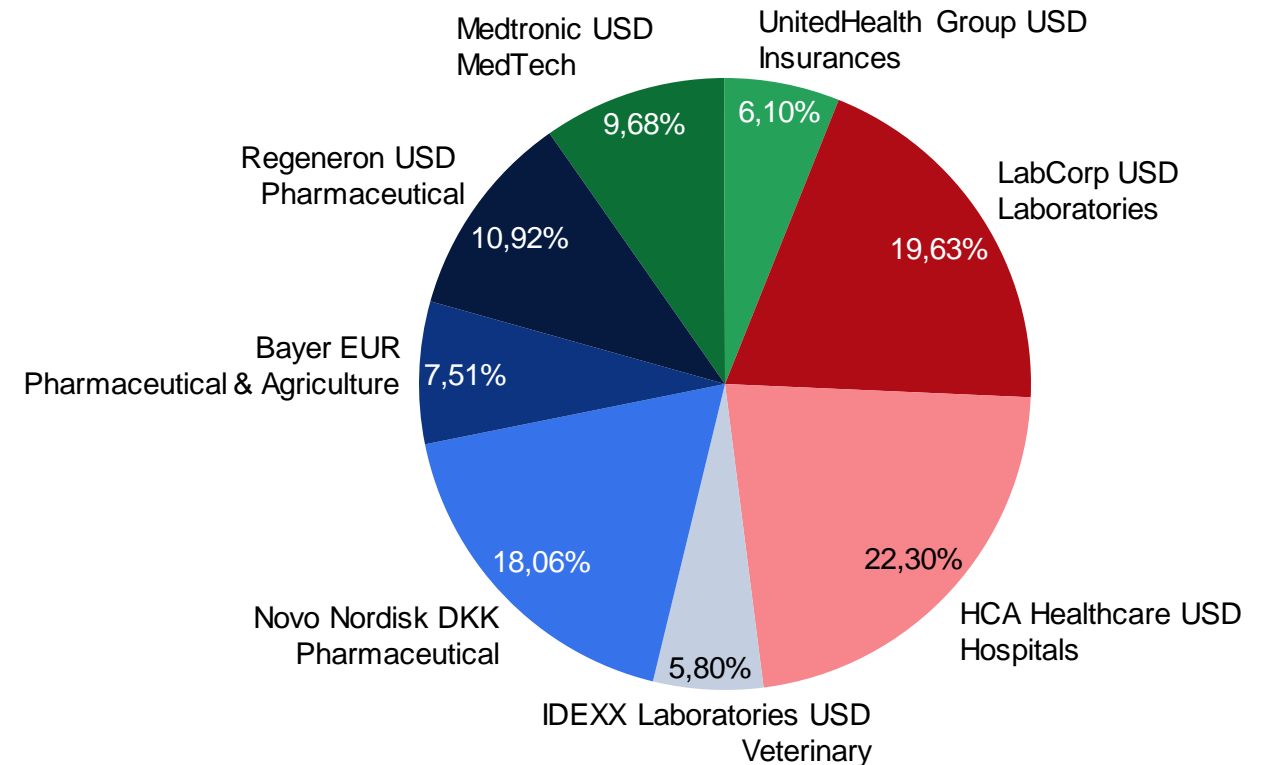
### Stock

- Current Share Price \$896.82
- Deviation from Target Price **+2%** (\$882.0)
- Total return in portfolio **+67.14%**

## Monitoring and Divestment Suggestion

- **Monitor stock** particularly close to earnings publication on May 2nd and regarding price-manipulation allegations
- Collaborate with TA to find the optimal **strategy and potential divestment timing**

## Sigma Healthcare Portfolio



**Pharmaceutical 36,49%**

**USD 74,43%**



# Final Recommendation



Vertex valuation suggests a **BUY** due to **non-priced drug's potential**, however investors should wait for the right moment

## Summary

### Business Outlook

- Strong position in **biotech niche markets** (e.g. cystic fibrosis)
- Huge **groundbreaking potential** with **non-opioids painkillers** and **Crispr**
- Successful **diversification** (e.g. Alpine's drug)

### Risks

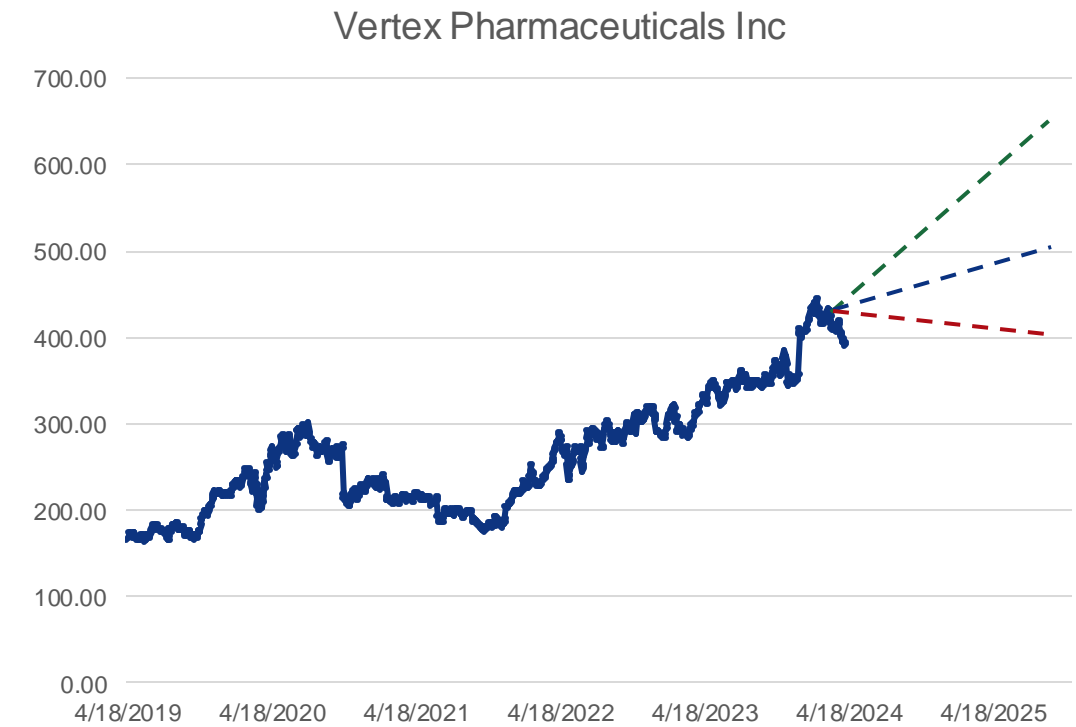
- **Crispr's** lack of coverage approval
- **Pain-killers** limited use due to **inferior performance** compared to opioids

## BUY: Monitoring and Investment

- Closely monitor **earnings publications** on May 8th with TA for potential **bullish trend**
- **Pain-killers approval** before June 2024
- **Crispr's** genetic centers and **coverage** developments

## Forecasted Share Price Development

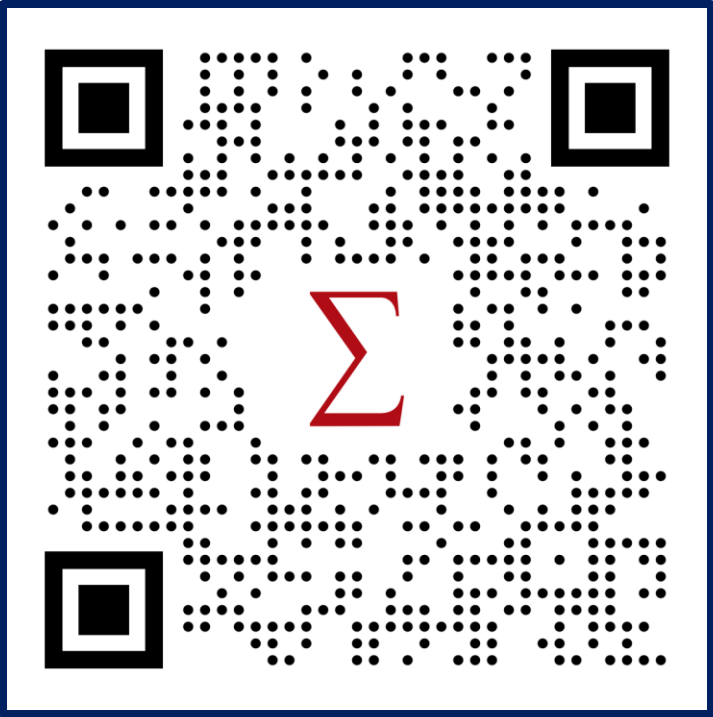
Valuation suggests implied **upside of 22.6%**



# Attendance and Voting!



Attendance



Voting

