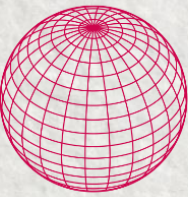


Let's understand why
Tesla owner **Elon Musk** is
no longer laughing about
BYD...

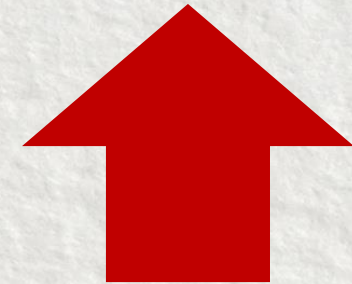


CASE  STUDY

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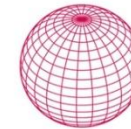
by  INVESTMENT
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Welcome to this...



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BYD: Benefitting from the booming Chinese EV market



I estimate BYD's value at RMB277 per share, implying an upside of 30% from today's price. This is derived from my DCF-based valuation using a WACC of 9.7% and a terminal growth rate of 3%.

Highlights:

- Expect sales to surge due to the rising demand and effective pricing strategies
- Lower cost for EV batteries could lead to gross margin improvements
- Strategic investments set the stage for sustainable long-term growth

Risks: Battery leakage, inadequate EV infrastructure investment, rising geopolitical tensions with China, and manufacturing factory disruptions.

Valuation table

Year end Dec	22A	23A	24E	25E	26E
PE (x)	39.9	21.0	13.9	10.2	7.5
Recurring net profit growth (%)	345.2	89.5	51.6	35.9	35.5
Recurring EPS (RMB)	5.3	10.1	15.3	20.8	28.1
Recurring EPS growth (%)	339.8	89.4	51.6	35.9	35.5
PBV (x)	11.3	11.3	9.0	8.6	8.3
BVPS (RMB)	18.8	18.8	23.6	24.6	25.4
ROE (%)	14.6	20.5	24.6	27.8	30.7
DPS (RMB)	1.1	3.1	4.6	6.2	8.4
Dividend yield (%)	0.5	1.5	2.2	2.9	4.0
Enterprise value (RMB m)	690,704	722,245	709,384	694,396	659,605
EV-to-EBITDA (x)	17.1	9.1	7.2	5.5	4.1

BYD Company Limited

Current price: RMB212

Value estimate: RMB277

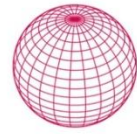
Up/(downside): 30%

Stock data

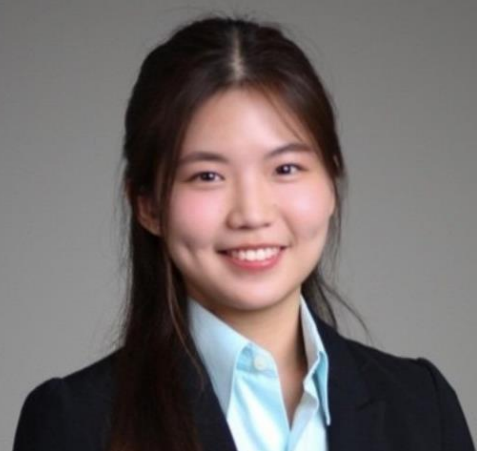
RIC code	002594.SZ
Index	.CSIH00300
CSI 300 Index (9 April 2024)	4,914.70
Market cap (RMB m)	616,755
Shares outstanding (million)	2,908
Par (RMB)	1.00



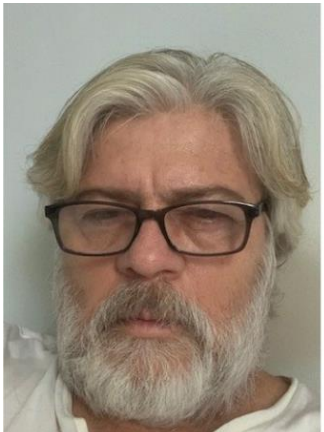
Valuation Master Class Boot Camp #13



Ashmita



Thanmika



Eduardo



Andrian

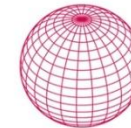


Natthanon

This report was created by my Valuation Master Class Boot Camp #13 graduates and then updated by me

REMEMBER: This is NOT investment advice or a recommendation.





BYD: Benefitting from the booming Chinese EV market

VALUATION MASTER CLASS

BYD Company Limited
Current price: RMB212
Value estimate: RMB277
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- Highlights:**
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 - Lower cost for EV batteries could lead to gross margin improvements
 - Strategic investments set the stage for sustainable long-term growth
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Valuation Table	22A	23A	24E	25E	26E
Year end Dec					
PE (x)	39.9	21.0	13.9	10.2	7.5
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Recurring EPS growth (%)	339.8	11.3	23.6	8.6	8.3
PBR (x)	11.3	18.4	9.0	24.6	30.7
BVPS (RMB)	14.6	20.5	4.6	2.9	8.4
ROE (%)	1.1	3.1	2.2	694.396	659.605
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Dividend yield (%)	690.704	722.245	709.384		
Enterprise value (RMB m)	17.1	9.1			
EV-to-EBITDA (x)					



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Boot Camp #13

VMC Student Report
Source: A. Stoltz Investment Research, G

This is not investment advice and it's not a recommendation.

To get this full report and my checklist of how I structure my valuation reports click the link in the description



How I structure my valuation reports

- 1. The Story**
Your vision of the company's future.
- 2. Industry Description**
Industry market size, key players, and growth prospects.
- 3. Revenue Breakdown**
Analysis by product, customer, and geography.
- 4. Financial Forecasts**
Projections of revenue, expenses, and profitability.
- 5. Ratio Analysis**
Assessment of liquidity, solvency, efficiency, and profitability.
- 6. Free Cash Flow Forecasts**
Profit power, investment needs, and cash flow breakdown.
- 7. Multiple Valuation**
P&L and balance sheet multiples to assess relative valuation.
- 8. DCF-Based Valuation**
Assumptions for dividend, free cash flow-based valuation.
- 9. Scenario Analysis**
Impact on fundamentals and valuation of various outcomes.
- 10. Risks**
Company, industry risks, and mitigation strategies discussed.

CASE STUDY
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by A. Stoltz INVESTMENT RESEARCH



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by

A. Stotz

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“If there are no trade barriers established, they [Chinese EV manufacturers] will pretty much demolish most other car companies in the world.”

-Musk said on a post-earnings call with analysts on 25 January 2024



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Risks

Expect sales to surge due to the rising demand and effective pricing strategies

In 2023, BYD sold more than 3m new energy vehicles (NEVs), which included battery-only vehicles and hybrids. During 4Q23, BYD sold more than 525k battery-only vehicles, surpassing Tesla's 485k units during the same period. This made BYD the world's top electric car manufacturer for the first time. Of course, demand for EVs keeps rising, with Morningstar predicting it to account for 40% of global auto sales by 2030. This is partially driven by the expected lower price of EV cars due to falling battery costs. BYD cut prices by 15% in the European market in 2023. Due to increasing demand and competitive prices, expect sales to show an annual growth rate (CAGR 2024-2028) of over 22%.

Lower cost for EV batteries could lead to gross margin improvements

Goldman Sachs predicts a significant decline in global battery prices, with an expected decrease to US\$99 per kWh by 2025, representing a 40% reduction from 2022. Falling prices of EV raw materials such as lithium, nickel, and cobalt drive this decrease. Batteries are one of the most critical and expensive components of EVs; lithium-ion (Li-ion) batteries represent most of the batteries used. According to BloombergNEF, China will be the number one global lithium-ion battery supplier by 2025. BYD was the world's second-biggest lithium-ion battery producer in 2023, holding a 16% market share. This should help drive down the cost of raw materials related to lithium-ion batteries and could lead to a gross margin above 2023's 19%.

Strategic investments set the stage for sustainable long-term growth

BYD aims to strengthen its competitive position by investing US\$14bn in developing innovative features to support the shift towards intelligent vehicles. Building on its success in Kenya, the company plans to enter the Rwandan EV market. According to Mordor Intelligence, the Africa EV market is expected to grow by 17% CAGR from 2024 to 2029. BYD recently built a factory in Hungary, making it a major player in EV cars and battery production in Europe. Europe is the second-largest EV market and is expected to grow at a 10% CAGR from 2024 to 2029. These moves should drive long-term revenue growth, enhance BYD's competitiveness, and create new market opportunities.



Background: Chinese BYD (Build Your Dreams) is a leading global technology company. It was founded in 1995 as a rechargeable battery maker, and now is a leading automaker and has business in rail transit, new energy, and electronics.

The company is one of the world's leading rechargeable battery manufacturers, with major consumer electronics manufacturers clients such as Samsung and Dell.

BYD sold 3 million cars in 2023, which, according to Visual Capitalist, made it the second-largest company in the global battery electric vehicle (BEV) market with a 17% market share, second to Tesla's 20%. It is the best-selling car brand in China, with a 35% market share, mainly from EVs. Over 70% of revenue is generated in China.

EVs charging the automotive industry's outlook



Story

Sales

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ESG

Value

Risks

Despite a broader industry slowdown, EVs are expected to be the growth driver

According to McKinsey & Company, the 2022 US\$2.8trn global auto market is projected to grow by 4% annually to reach US\$3.9trn by 2030. Despite the anticipated slowed growth of the automotive industry in 2024 due to economic headwinds and high living costs in developing regions, EV sales are expected to surge by 21% to 15m units globally, led by China. McKinsey predicted that the share of EVs in new vehicle sales could range from 10% to 50% by 2030, heavily influenced by local regulations and consumer preferences.

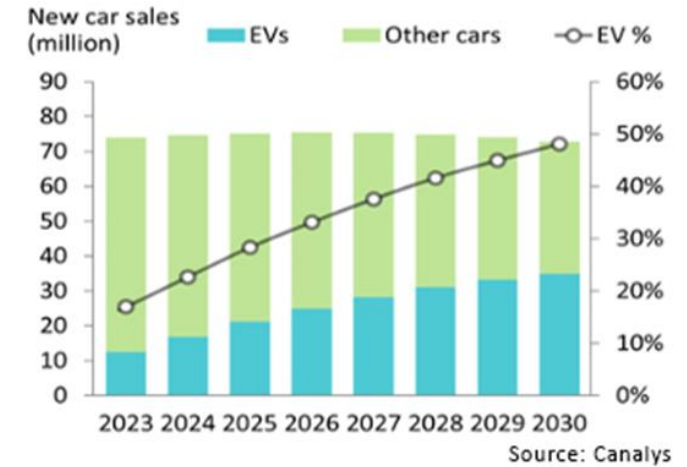
Chinese automakers are challenging the legacy players

While traditional leaders like Volkswagen and Toyota retained the top revenue spots in 2023, seven Chinese automakers disrupted the top 20 rankings, with BYD taking second place in EV market sales in the first three quarters of 2023. The Chinese automakers are leveraging lower costs, government support, and increased R&D investments to compete on price and features. This new dynamic pressures traditional players to innovate to uphold their dominance.

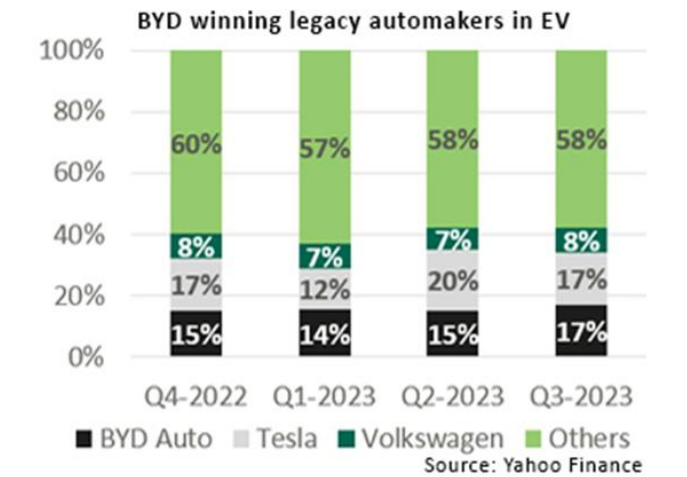
Supply chain complexity remains the top challenge, particularly for EVs

The EV battery is a true global supply chain depending on primary raw materials from countries like China, Indonesia, and Australia. This centralization makes it susceptible to disruptions. The EU's Carbon Border Adjustment Mechanism, applying a carbon tax to selected goods from 2026, is expected to increase input costs for EU carmakers. A complex and sensitive supply chain gives more leverage to the battery suppliers; an example of mitigating the bargaining power is Tesla's partnership with Panasonic. Additionally, stricter regulations around the environmental, social, and governance impact of mining could further tighten the already delicate supply chain. Securing a stable battery supply is a top priority for the industry or car manufacturers if they want to be successful.

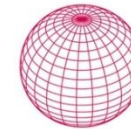
EVs are the catalyst for the market growth



BYD's EVs are leading the pack



BYD: FY4Q23 saw positive gross profit growth



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Sales

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Value

Risks

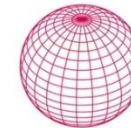
(RMB m)	4Q22	1Q23	2Q23	3Q23	4Q23	YoY (%)
Revenue	153,568	117,929	137,547	159,303	177,186	15.4
Cost of sales	(126,669)	(98,707)	(113,745)	(126,275)	(141,832)	12.0
Gross profit	26,899	19,222	23,802	33,028	35,355	31.4
SG&A	(17,528)	(14,481)	(17,620)	(21,365)	(26,361)	50.4
Other (exp)/inc	82	195	757	462	1,651	1,902.1
EBIT	9,454	4,936	6,939	12,125	10,645	12.6
Finance cost	(284)	(307)	(670)	(369)	(481)	69.2
Other inc/(exp)	(70)	292	1,525	367	731	nm
Earnings before taxes	9,099	4,922	7,794	12,123	10,895	19.7
Income tax	(1,236)	(847)	(1,113)	(1,779)	(2,186)	76.8
Earnings after taxes	7,863	4,074	6,681	10,344	8,710	10.8
Equity income	(312)	215	383	362	317	nm
Minority interest	(414)	(240)	(246)	(474)	(344)	(16.9)
Earnings from cont. operations	7,137	4,049	6,818	10,233	8,683	21.7
Forex gain/(loss) & unusual items	174	81	6	180	(9)	nm
Net profit	7,311	4,130	6,824	10,413	8,674	18.6
Recurring profit	7,160	4,063	6,819	10,259	8,681	21.2
EBITDA	9,141	5,151	7,321	12,487	10,962	19.9
Recurring EPS (RMB)	2.467	1.398	2.347	3.531	2.978	20.7
Reported EPS (RMB)	2.517	1.421	2.349	3.584	2.968	17.9
Profits (%)	4Q22	1Q23	2Q23	3Q23	4Q23	Diff (%)
Gross margin	17.5	16.3	17.3	20.7	20.0	2.4
Operating margin	6.2	4.2	5.0	7.6	6.0	(0.1)
Net margin	4.8	3.5	5.0	6.5	4.9	0.1

BYD's 4Q23 revenue was up 15% YoY due to increased sales volume.

Its gross profit grew 31% despite the increase of COGS by 12% YoY.

BYD reported 4Q23 recurring EPS of RMB2.98, which was +20.7% YoY and -15.7% QoQ.

BYD: Consensus estimates



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Risks

Analyst recommendations	Jan-24	Feb-24	Mar-24	Current
# of recommendations	32	35	35	34
1. Strong Buy	19	19	18	17
2. Buy	12	15	16	16
3. Hold	1	1	1	1
4. Sell	-	-	-	-
5. Strong Sell	-	-	-	-
Consensus recommendation	1.4	1.5	1.5	1.5

Price target rel. to current price RMB	Current price	Target price	up/(dn) %
Mean	212	291	37.4

Consensus forecast (%)	23	24E	25E	26E
Revenue growth	42.0	29.2	19.6	13.8
Gross margin	18.9	17.3	17.3	19.1
EBIT margin	6	6	6	7
Net margin	5.0	4.7	4.9	5.4

Almost 97% of analysts are bullish on BYD, with only one issuing a Hold recommendation

The consensus target price shows a significant 37% upside, which is impressive for a well-covered company like BYD

Analysts expect revenue growth to slow from 2024E to 2026E, to approximately 14% in 2026E

Consensus expects the gross profit margin to decrease slightly from almost 19% in 2023 to 17% in 2025E and rise to 19% again in 2026E

They also expect a slight increase in net margin from 5% to 5.4% in 2026E

BYD: Revenue structure



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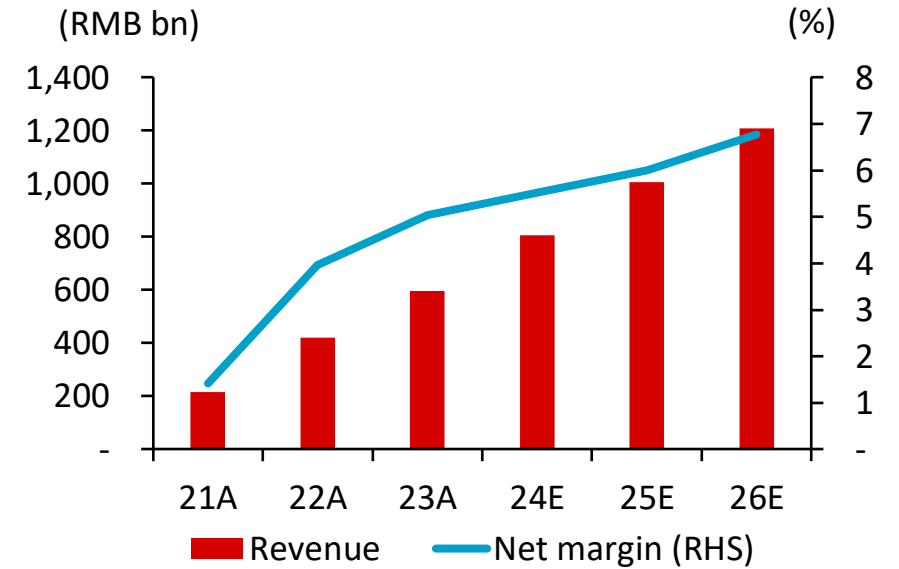
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Risks

BYD's total 2023 revenue was RMB602bn, with EVs contributing around 81%. Chinese demand now accounts for 73% of total revenue, showcasing its strong domestic presence. The remaining 27% comes from its growing overseas expansion.

BYD offers three distinct personal EV brands tailored to different market segments. Dynasty and Ocean are two of BYD's series targeting the conservative and youthful markets. Whereas Denza and Yangwang brands serve the high-end segment. The company also produces electric buses and urban rail transport, primarily for companies, universities, and local governments.

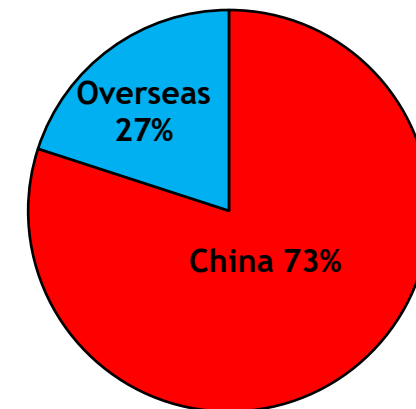
Mobile handset components, assembly services, and other products contributed 19% of sales. The company manufactures rechargeable batteries for clients such as Samsung and Dell.



Revenue breakdown, by product categories 2023



Revenue breakdown, by geography 2023



BYD: A. Stotz Profitable Growth



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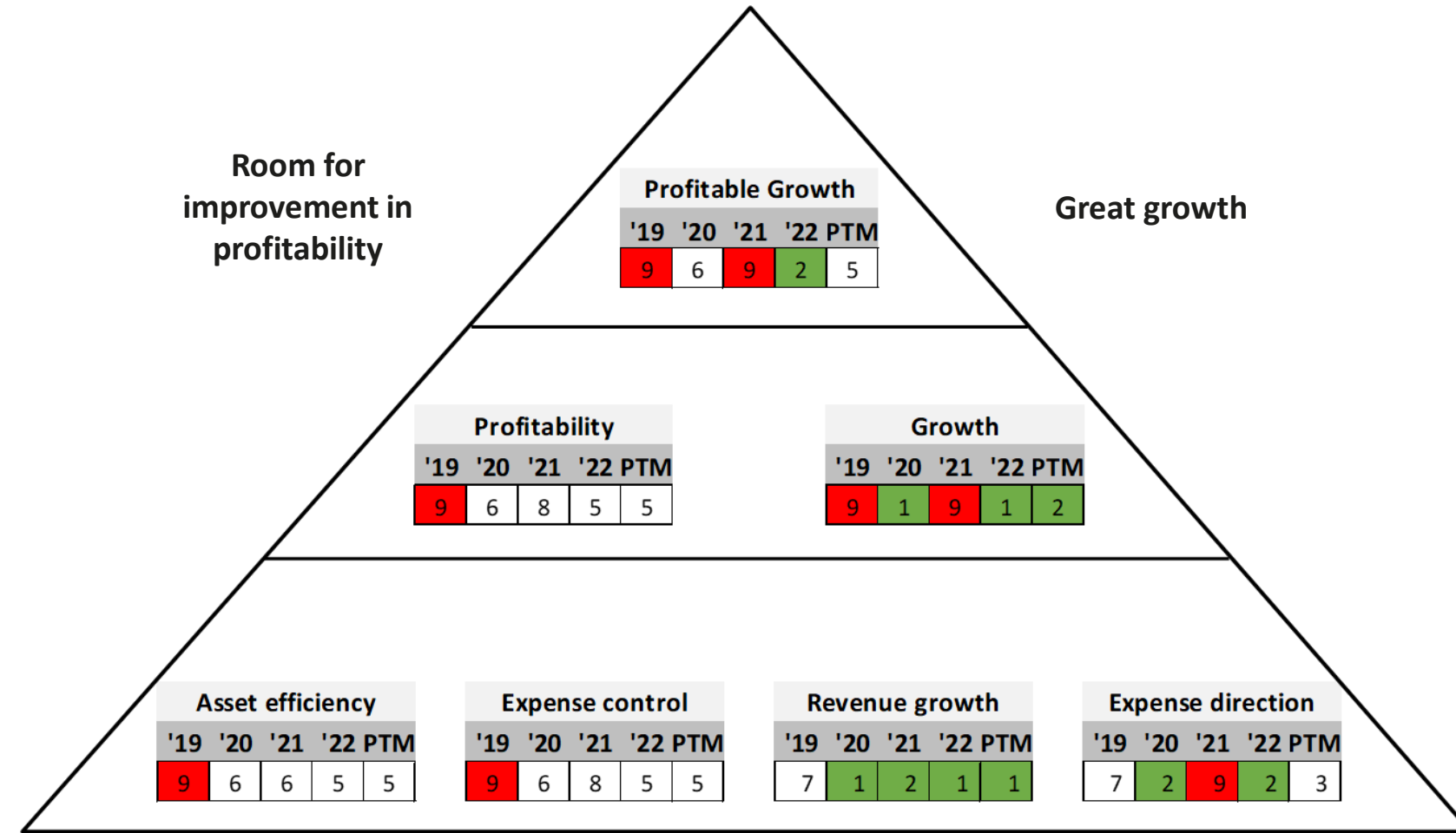
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Benchmarked against 930 large Cons. Disc. companies worldwide.

Profitable Growth almost ranked the worst among 930 large Cons. Disc. companies globally in 2021. However, in 2022, the rank grew to #2 and then dropped to #5 in the PTM.

Profitability has ranked average in the PTM. **Growth** has been volatile but improved to #1 from #9 and then slightly dropped to #2 in the PTM.

Asset efficiency improved from #9 in 2019 to #5 in the PTM. **Expense control** also moved from #9 to #5.

Sales growth has been world-class since 2020. **Expense direction** has been volatile; it slightly dropped to #3 after it had a very strong #2 rank in 2022.

BYD: Profit and loss statement



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Sales

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Value

Risks

(YE Dec, RMB m)	Actual			Forecast				
	2021A	2022A	2023A	2024E	2025E	2026E	2027E	2028E
Revenue	214,606	419,840	596,592	805,399	1,006,749	1,208,099	1,413,476	1,625,497
Cost of goods & services	(188,705)	(352,650)	(482,803)	(652,374)	(815,467)	(966,479)	(1,130,781)	(1,300,398)
Gross profit	25,901	67,190	113,789	153,026	191,282	241,620	282,695	325,099
SG&A	(21,726)	(47,897)	(84,397)	(104,702)	(120,810)	(144,972)	(169,617)	(195,060)
Other operating (exp)/inc	2,177	1,399	5,253	5,306	3,404	3,190	2,986	2,794
EBIT	6,352	20,692	34,645	53,630	73,877	99,838	116,064	132,833
Interest expense (net)	(1,276)	513	969	181	332	977	1,708	2,756
Other non-operating inc/(exp)	75	(802)	(496)	(501)	(506)	(511)	(517)	(522)
Earnings before taxes (EBT)	5,151	20,403	35,117	53,310	73,702	100,303	117,256	135,068
Income tax	(551)	(3,367)	(5,925)	(8,796)	(12,529)	(17,051)	(19,934)	(24,312)
Earnings after taxes (EAT)	4,600	17,037	29,193	44,514	61,173	83,251	97,323	110,756
Equity income/Minority interest	(1,067)	(1,777)	(26)	(90)	(789)	(1,410)	(1,493)	(1,810)
Earnings from cont. operations	3,533	15,260	29,167	44,423	60,383	81,841	95,829	108,945
Forex/Exceptionals before tax	(488)	1,362	874	-	-	-	-	-
Net profit	3,045	16,622	30,041	44,423	60,383	81,841	95,829	108,945
Earnings per share adj.								
Net profit	3,045	16,622	30,041	44,423	60,383	81,841	95,829	108,945
Less: Pref. share dividend & other adj.	(0)	-	(0)	-	-	-	-	-
Profit attributable to common shares	3,045	16,622	30,041	44,423	60,383	81,841	95,829	108,945
Add: Exceptional items after tax	(40)	(123)	(197)	-	-	-	-	-
Add: Forex loss/(gain) after tax	470	(1,028)	(534)	-	-	-	-	-
Recurring profit after tax	3,475	15,471	29,311	44,423	60,383	81,841	95,829	108,945
Recurring FDEPS (RMB)	1.2	5.3	10.1	15.3	20.8	28.1	33.0	37.5

BYD: Balance sheet - Assets



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Risks

(YE Dec, RMB m)	Actual			Forecast				
	2021A	2022A	2023A	2024E	2025E	2026E	2027E	2028E
Cash & short-term investments	55,526	71,931	118,533	112,756	140,945	169,134	212,021	243,825
Accounts receivable	46,155	55,344	74,793	96,200	120,251	144,301	168,832	194,157
Inventories	43,355	79,107	87,677	117,790	147,237	174,503	210,451	242,019
Other current assets	21,074	34,421	21,119	24,162	30,202	36,243	42,404	48,765
Total current assets	166,110	240,804	302,121	350,908	438,635	524,181	633,708	728,765
Long-term investments	11,053	22,051	25,671	26,954	28,033	29,154	30,320	31,533
Net fixed assets	94,776	198,159	288,717	327,233	366,129	398,904	426,913	453,615
Intangible assets	19,710	24,906	37,777	42,789	48,702	55,680	61,000	67,118
Goodwill	66	66	4,428	4,472	4,427	4,383	4,339	4,296
Other long-term assets	4,065	7,875	20,833	21,667	22,533	23,435	24,372	25,347
Total assets	295,780	493,861	679,548	774,023	908,459	1,035,736	1,180,653	1,310,672

BYD: Balance sheet - Liabilities and equity



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Sales

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Value

Risks

(YE Dec, RMB m)	Actual			Forecast				
	2021A	2022A	2023A	2024E	2025E	2026E	2027E	2028E
Overdrafts & short-term loans	70,942	135,669	193,724	179,422	195,220	190,954	194,558	168,353
Accounts payable	81,168	157,158	215,996	289,944	362,430	429,546	502,569	577,955
Other current liabilities	19,194	40,517	43,947	48,324	50,337	54,364	56,539	61,769
Total current liabilities	171,304	333,345	453,667	517,690	607,987	674,865	753,666	808,077
Long-term debt	12,205	10,211	30,300	25,963	23,366	21,030	18,927	17,034
Other long-term liabilities	3,546	11,442	19,229	21,536	24,120	27,015	30,257	33,887
Total liabilities	187,055	354,998	503,196	565,189	655,474	722,910	802,849	858,998
Minority interest	9,175	10,361	11,652	13,026	14,893	17,425	20,084	23,107
Paid-up capital - Common shares	63,718	64,617	64,953	64,953	64,953	64,953	64,953	64,953
Paid-up capital - Preferred shares	-	-	-	-	-	-	-	-
Retained earnings	31,475	47,794	74,520	105,628	147,912	205,222	267,540	338,387
Revaluation/Forex/Others	4,357	16,092	25,227	25,227	25,227	25,227	25,227	25,227
Total equity	99,551	128,502	164,700	195,808	238,092	295,402	357,720	428,567
Total liab & shareholders' equity	295,780	493,861	679,548	774,023	908,459	1,035,736	1,180,653	1,310,672
Book value per share adj.								
Total Equity	99,551	128,502	164,700	195,808	238,092	295,402	357,720	428,567
Less: Pref. shareholders' equity	-	-	-	-	-	-	-	-
Less: Hybrid debt & others	(45,014)	(73,862)	(110,060)	(127,275)	(166,664)	(221,551)	(268,290)	(321,425)
Common shareholders' equity	54,537	54,640	54,640	68,533	71,428	73,850	89,430	107,142
BVPS (RMB)	18.7	18.8	19	24	25	25.4	30.8	36.9

BYD: Balance sheet - Cash flow statement



Story

Sales

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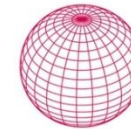
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Value

Risks

(YE Dec, RMB m)	Actual			Forecast				
	2021A	2022A	2023A	2024E	2025E	2026E	2027E	2028E
Net income	3,045	16,622	30,041	44,423	60,383	81,841	95,829	108,945
Depreciation & amortization	14,108	20,370	43,553	43,210	51,325	59,847	68,393	77,173
Calculated chg in net working capital	17,952	39,025	47,552	23,761	14,961	13,787	8,557	17,362
Other non-cash & balancing items	30,361	64,820	48,580	(5,691)	(6,825)	(8,390)	(10,795)	1,854
Operating cash flow	65,467	140,838	169,725	105,703	119,845	147,086	161,985	205,334
Capital expenditures	(36,517)	(97,189)	(121,623)	(81,000)	(88,475)	(89,756)	(89,391)	(94,893)
(Inc)/dec in other investments	(8,887)	(23,407)	(4,041)	(833)	(867)	(901)	(937)	(975)
Investing cash flow	(45,404)	(120,596)	(125,664)	(81,833)	(89,342)	(90,657)	(90,329)	(95,868)
Increase/(dec) in debt	(17,006)	(16,413)	18,073	(18,639)	13,201	(6,602)	1,501	(28,097)
Dividend paid	(2,433)	(1,553)	(3,974)	(13,316)	(18,100)	(24,531)	(33,512)	(38,098)
Change in equity	-	508	98	-	-	-	-	-
Others	35,502	(2,030)	(1,380)	2,307	2,584	2,894	3,242	3,631
Financing cash flow	16,063	(19,489)	12,817	(29,647)	(2,314)	(28,239)	(28,769)	(62,564)
Net inc/(dec) in cash & cash equi	36,125	753	56,879	(5,777)	28,189	28,189	42,888	46,902
Beginning cash	13,739	55,526	71,931	118,533	112,756	140,945	169,134	212,021
Adjustment for historic data	5,662	15,652	(10,277)	-	-	-	0	(15,099)
Ending cash	55,526	71,931	118,533	112,756	140,945	169,134	212,021	243,825



Story

Sales

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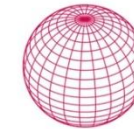
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Value

Risks

	Actual			Forecast			Recent quarters		
(YE Dec)	2021A	2022A	2023A	2024E	2025E	2026E	Jun '23	Sep '23	Dec '23
Internal liquidity (x)									
Current ratio	1.0	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.7
Quick, or acid test ratio	0.7	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.5
Working cap. mgmt (Days)									
Inventory conversion period	71	63	62	57	59	60	69	64	57
Receivables collection period	79	44	39	38	39	39	37	34	34
Days from raw mat to coll	150	106	101	95	97	99	106	98	91
Payables deferral period	124	122	139	140	144	148	138	135	130
Cash conversion cycle	26	(16)	(38)	(45)	(47)	(48)	(32)	(37)	(39)
Profitability ratios (%)									
Gross profit margin	12.1	16.0	19.1	19.0	19.0	20.0	17.3	20.7	20.0
EBIT margin	3.0	4.9	5.8	6.7	7.3	8.3	5.0	7.6	6.0
EBIT return on avg assets	2.6	5.2	5.9	7.4	8.8	10.3	4.9	8.0	6.5
Return on average assets	1.2	4.2	5.1	6.1	7.2	8.4	4.8	6.9	5.3
Financial risk (x)									
Liabilities-to-assets (%)	63.2	71.9	74.0	73.0	72.2	69.8	73.7	77.4	74.0
Debt-to-equity	0.8	1.1	1.4	1.0	0.9	0.7	1.3	0.3	1.4
Net debt-to-equity	0.3	0.6	0.6	0.5	0.3	0.1	0.7	(0.3)	0.6
Times-interest-earned	11	31	43	29	41	49	10	33	22
Effective interest rate (%)	2.6	1.1	1.0	1.6	1.4	1.5	2.3	1.3	1.5



Story

Sales

FVMR

P5F

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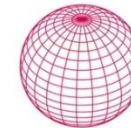
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Value

Risks

	Actual			Forecast			Recent quarters		
(YE Dec)	2021A	2022A	2023A	2024E	2025E	2026E	Jun '23	Sep '23	Dec '23
General growth (YoY, %)									
Revenue	37.8	95.6	42.1	35.0	25.0	20.0	66.7	38.5	15.4
Assets	47.1	67.0	37.6	13.9	17.4	14.0	70.9	46.2	37.6
Gross profit	(10.5)	159.4	69.4	34.5	25.0	26.3	120.7	64.2	31.4
Operating profit	(43.7)	225.8	67.4	54.8	37.8	35.1	126.7	72.9	12.6
Attributable profit	(28.1)	445.9	80.7	47.9	35.9	35.5	144.9	82.2	18.6
EPS	(30.4)	429.2	80.9	47.9	35.9	35.5	145.1	82.2	18.6
Recurring EPS	(32.0)	339.8	89.4	51.6	35.9	35.5	134.0	80.2	20.7
Du Pont analysis (%)									
Net profit margin	1.4	4.0	5.0	5.5	6.0	6.8	5.0	6.5	4.9
Revenue per RMB100 of assets	86.4	106.3	101.7	110.8	119.7	124.3	96.7	104.9	108.8
Assets/equity (x)	3.2	3.5	4.0	4.0	3.9	3.6	4.4	4.4	4.4
Return on equity	3.9	14.6	20.5	24.6	27.8	30.7	21.0	30.3	23.6
Others (%)									
Effective tax rate	11.8	15.5	16.5	16.5	17.0	17.0	14.3	14.5	20.1
Dividend payout ratio	9.1	21.4	30.7	29.9	30.0	30.0	-	-	104.0

BYD: Free cash flow data



Story

Sales

FVMR

P5F

Team

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ESG

Value

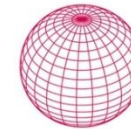
Risks

	Actual			Forecast					Fade period*	
(YE Dec, RMB m)	2021A	2022A	2023A	2024E	2025E	2026E	2027E	2028E	2029E	2030E
EBIT	6,352	20,692	34,645	53,630	73,877	99,838	116,064	132,833	133,694	130,789
<i>Est tax rate (%)</i>	12	15	16	17	17	17	17	18	20	20
NOPAT	5,602	17,492	28,942	44,781	61,318	82,865	96,334	108,923	106,955	104,631
Add: Depre & amort	14,108	20,370	43,553	43,210	51,325	59,847	68,393	77,173	79,944	82,762
Cash NOPAT	19,710	37,862	72,495	87,991	112,642	142,713	164,727	186,097	186,899	187,393
Chg in A/R	1,458	(9,189)	(19,449)	(21,408)	(24,050)	(24,050)	(24,531)	(25,325)		
Chg in inventory	(11,958)	(35,752)	(8,570)	(30,113)	(29,447)	(27,266)	(35,948)	(31,568)		
Chg in oth curr asst	(2,217)	(13,347)	13,302	(3,043)	(6,040)	(6,040)	(6,161)	(6,361)		
Chg in A/P	32,110	75,989	58,839	73,947	72,486	67,117	73,023	75,385		
Chg in oth curr liabs	(1,439)	21,324	3,429	4,377	2,013	4,027	2,175	5,230		
Less: Chg in work cap	17,952	39,025	47,552	23,761	14,961	13,787	8,557	17,362		
Less: CAPEX	(36,517)	(97,189)	(121,623)	(81,000)	(88,475)	(89,756)	(89,391)	(94,893)		
Less: Chg in invest cap									(80,315)	(83,146)
FCF to firm	1,145	(20,302)	(1,576)	30,752	39,129	66,743	83,893	108,566	106,584	104,247
FCF to equity	(17,544)	(37,828)	14,970	9,295	49,798	57,442	82,600	77,513	109,533	107,175
<i>FCF per share (RMB)</i>	0.4	(7.0)	(0.5)	10.6	13.5	23.0	28.8	37.3	36.7	35.8
<i>NOPAT growth (%)</i>	(43.4)	212.3	65.5	54.7	36.9	35.1	16.3	13.1	(1.8)	(2.2)
<i>FCF growth (%)</i>	(97.0)	(1,872.7)	92.2	2,051.1	27.2	70.6	25.7	29.4	(1.8)	(2.2)

Sources: A. Stotz Investment Research, company data, Refinitiv.

Note: *Shows the two first years of the fade period.

BYD: Relative valuation



Story

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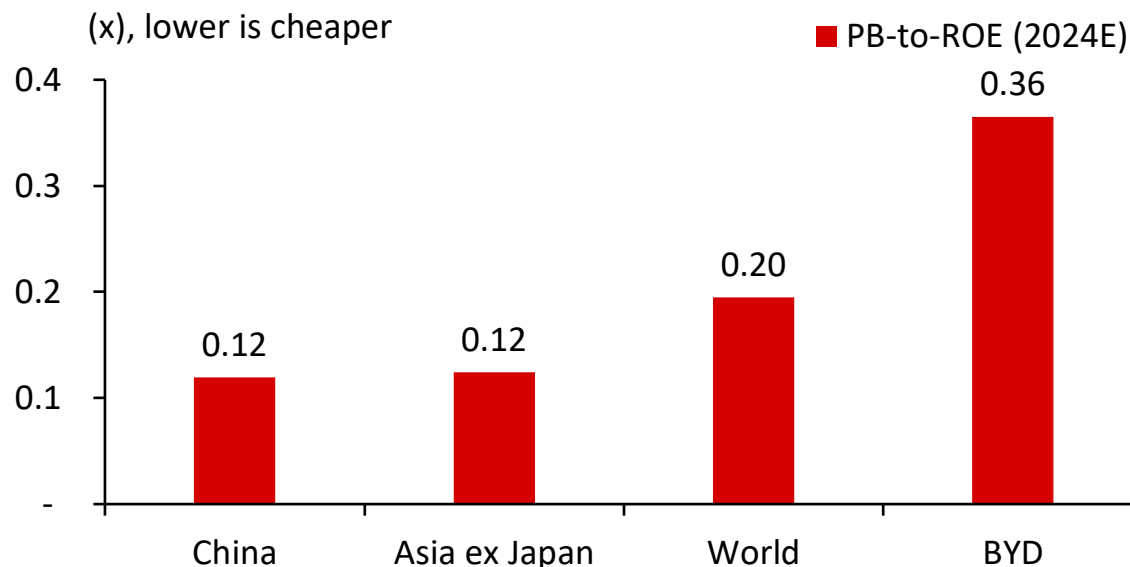
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Value

Risks



PB ratio (x)	2022A	2023A	2024E	2025E
BYD	14.1	10.2	9.0	8.6
China	2.1	1.8	1.7	1.5
Asia ex Japan	1.9	1.8	1.7	1.5
World	3.1	3.7	3.3	3.0
ROE (%)				
BYD	14.6	20.5	24.6	27.8
China	9.5	13.0	13.8	15.1
Asia ex Japan	8.9	11.8	13.6	14.6
World	13.5	16.9	17.1	17.3

On the forward 2024E PB multiple, BYD looks very expensive compared to the consumer discretionary sector in China, Asia ex Japan, and the world.

We forecast its return on equity (ROE) to be around 25% in 2024E, higher than the sector average in China, Asia ex Japan, and the world. However, when using the 2024E PB-to-ROE multiple, BYD looks overvalued relative to its Chinese, Asian, and global peers.

BYD: Relative valuation



Story

Sales

FVMR

P5F

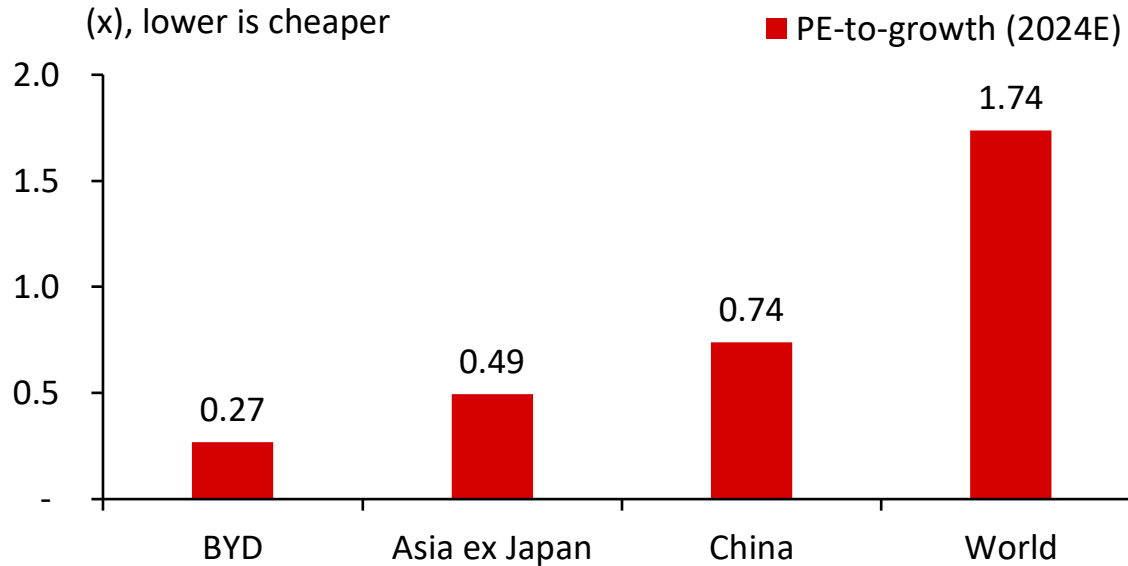
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Value

Risks



PE ratio (x)	2022A	2023A	2024E	2025E
BYD	49.9	19.0	13.9	10.2
China	22.4	13.9	11.9	9.7
Asia ex Japan	21.8	15.7	12.5	10.6
World	22.9	21.7	19.5	17.1
EPS growth (%)	2022A	2023A	2024E	2025E
BYD	339.8	89.4	51.6	35.9
China	28.2	47.2	16.2	22.6
Asia ex Japan	23.5	39.6	25.4	18.4
World	4.1	27.2	11.2	14.1

On a forward 2024E PE multiple, BYD trades at a small premium to the Cons. Disc. sector in China and Asia ex Japan but when compared to its sector globally, BYD appears cheap on a PE basis.

I expect its EPS to grow at around 52% in 2024E, much higher than the world, China, and Asia ex Japan's expected EPS growth.

When using the 2024E PEG ratio, BYD appears cheap relative to its peers in the world, China, and Asia ex Japan.

BYD: Valuation and target price



VALUATION MASTER CLASS

Story

Sales

FVMR

P5F

Team

WCB

ESG

Value

Risks

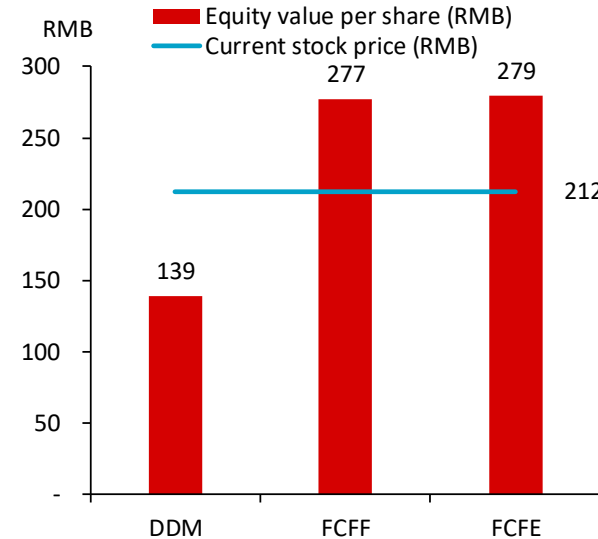
Calculation of cost of equity (COE, %) Estimate

Market: China	
Market risk-free rate	4.0
Market equity risk premium	7.0
Market return	11.0
Company beta (x)	1.3
COE	12.8

Calculation of WACC Average

Cost of debt	2.2
Average tax rate	19.0
After tax cost of debt	1.8
Cost of preferred stock	-
Debt as a % of total capital	27.7
Preferred stock as a % of total capital	-
Equity market value as a % of total capital	72.3
Weighted average cost of capital	9.7

BYD: Valuation (RMB m)	DDM	%	FCFF	%	FCFE	%
PV of cash flow in years 2024-28	84,880	21	234,400	29	181,142	22
PV of fade period	178,992	44	374,984	47	294,470	36
PV of terminal value	140,653	35	287,114	36	192,277	24
Present value of future cash flows	404,525	100	896,497	111	667,889	82
Add: Cash & ST investments	na*	-	118,533	15	118,533	15
Add: Long-term investments	na	-	25,671	3	25,671	3
Corporate value	404,525	100	1,040,701	129	812,092	100
Less: Total debt, preferred stock & minorities	na	-	(235,676)	(29)	na	-
Shareholder value	404,525	100	805,025	100	812,092	100
Number of shares (m)	2,908		2,908		2,908	
Equity value per share (RMB)	139		277		279	



I assume a risk-free rate of 4% and a 7% Chinese market equity risk premium.

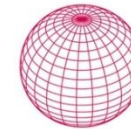
BYD has been a high-beta stock, so I forecast a beta of 1.25x. I expect its long-term capital structure to consist of 28% debt, which results in a WACC of 9.7%.

I use a terminal growth of 3% and value BYD based on its free cash flow to the firm (FCFF).

In my base case scenario, I anticipate sales growth of over 22% until 2028E, leading to a value of RMB277 per share. This represents a 30% upside compared to the current market price.

In my sensitivity analysis (on the following page), the optimistic case assumes sales growth of almost 25% until 2028E, resulting in a value of RMB294. Conversely, in the pessimistic case, sales growth is assumed to be 20%, yielding a value of around RMB260 per share.

BYD: Sensitivity analysis



Story

Sales

FVMR

P5F

Team

WCB

ESG

Value

Risks

Fundamentals (% , five year-average)				Valuation (RMB)				
BYD	EPS growth	Net margin	ROE	DDM	FCFF	FCFE	PEG	PB/ROE
What if sales growth changed by X% from base case?								
+10 (24.6%)	nm	6.3	29.2	157.7	293.6	290.7	635.9	71.2
Base case of 22.4%	nm	6.4	28.0	139.1	276.8	279.2	582.6	69.5
-10 (20.2%)	nm	6.4	26.9	122.6	260.2	268.0	531.1	67.8
What if gross margin changed by X percentage points from base case?								
+2 (21.6%)	nm	8.0	32.2	173.9	320.3	302.9	1,404.4	91.7
Base case of 19.6%	nm	6.4	28.0	139.1	276.8	279.2	582.6	69.5
-2 (17.6%)	nm	4.7	23.2	104.3	232.4	255.5	56.3	48.0
What if discount rate changed, by changing the risk factor (beta) from base case?								
+10 (Beta 1.375x, COE 13.6%)				124.9	260.7	263.5		
Base case of 1.25x (COE 12.8%)				139.1	276.8	279.2		
-10 (Beta 1.125x, COE 11.9%)				156.3	294.8	297.2		
What if terminal growth rate changed by X percentage points from base case?								
+1				149.2	302.5	300.3		
Base case of 3%				139.1	276.8	279.2		
-1				130.9	257.8	263.6		

Note: PEG and PB/ROE are based on 2024E relative to the Cons Disc sector in China.



Story

Sales

FVMR

P5F

Team

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ESG

Value

Risks

Risks of battery leakage

The pouch-type batteries that have been used in BYD best-selling hybrids have a risk of leaking. Though BYD is reportedly planning to phase out, it continues to make this type of battery to minimize disruptions to production. Its reputation and consumer trust could be severely damaged if there is a risk of leakage in its battery products. This could lead to safety concerns, product recalls, and potential legal liabilities, impacting its image and financial performance.

Lack of EV infrastructure investment

The widespread adoption of EVs also depends on developing adequate charging infrastructure. This includes access to a stable and affordable electricity supply and a network of conveniently located charging stations. Many countries are still lagging in terms of EV infrastructure investment, making it difficult for consumers to consider EVs as a viable option.

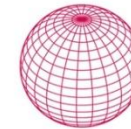
Rising geopolitical tensions with China

The recent increase in geopolitical tensions between China and other countries, such as the United States, has made it more difficult for Chinese electric vehicle (EV) manufacturers to do business overseas. Some countries have imposed tariffs on Chinese EVs, citing security concerns or unfair subsidies the Chinese government provides. These tensions also make it more difficult for Chinese EV manufacturers to build relationships with foreign partners and suppliers, especially with the increasing uneven trade balance.

Manufacturing factory disruptions

BYD's manufacturing facilities are critical to its operations. Any disruptions from natural disasters, labor disputes, supply chain issues, or regulatory compliance issues could lead to production delays, increased costs, and potential reputational damage for the company.

BYD: Benefitting from the booming Chinese EV market



VALUATION MASTER CLASS



I estimate BYD's value at RMB277 per share, implying an upside of 30% from today's price. This is derived from my DCF-based valuation using a WACC of 9.7% and a terminal growth rate of 3%.

Highlights:

- Expect sales to surge due to the rising demand and effective pricing strategies
- Lower cost for EV batteries could lead to gross margin improvements
- Strategic investments set the stage for sustainable long-term growth

Risks: Battery leakage, inadequate EV infrastructure investment, rising geopolitical tensions with China, and manufacturing factory disruptions.

Valuation table

Year end Dec	22A	23A	24E	25E	26E
PE (x)	39.9	21.0	13.9	10.2	7.5
Recurring net profit growth (%)	345.2	89.5	51.6	35.9	35.5
Recurring EPS (RMB)	5.3	10.1	15.3	20.8	28.1
Recurring EPS growth (%)	339.8	89.4	51.6	35.9	35.5
PBV (x)	11.3	11.3	9.0	8.6	8.3
BVPS (RMB)	18.8	18.8	23.6	24.6	25.4
ROE (%)	14.6	20.5	24.6	27.8	30.7
DPS (RMB)	1.1	3.1	4.6	6.2	8.4
Dividend yield (%)	0.5	1.5	2.2	2.9	4.0
Enterprise value (RMB m)	690,704	722,245	709,384	694,396	659,605
EV-to-EBITDA (x)	17.1	9.1	7.2	5.5	4.1

BYD Company Limited

Current price: RMB212

Value estimate: RMB277

Up/(downside): 30%

Stock data

RIC code	002594.SZ
Index	.CSIH00300
CSI 300 Index (9 April 2024)	4,914.70
Market cap (RMB m)	616,755
Shares outstanding (million)	2,908
Par (RMB)	1.00



Valuation Master Class Boot Camp #13

How I structure my valuation reports

1. The Story

Your vision of the company's future.

2. Industry Description

Industry market size, key players, and growth prospects.

3. Revenue Breakdown

Analysis by product, customer, and geography.

4. Financial Forecasts

Projections of revenue, expenses, and profitability.

5. Ratio Analysis

Assessment of liquidity, solvency, efficiency, and profitability.

6. Free Cash Flow Forecasts

Profit power, investment needs, and cash flow breakdown.

7. Multiple Valuation

P&L and balance sheet multiples to assess relative valuation.

8. DCF-Based Valuation

Assumptions for dividend, free cash flow-based valuation.

9. Scenario Analysis

Impact on fundamentals and valuation of various outcomes.

10. Risks

Company, industry risks, and mitigation strategies discussed.



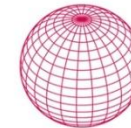
CASE STUDY

VALUATION MASTER CLASS

by

A. Stotz

INVESTMENT
RESEARCH



BYD: Benefitting from the booming Chinese EV market

VALUATION MASTER CLASS

BYD Company Limited
Current price: RMB212
Value estimate: RMB277
Up/(downside): 30%

Stock data
RIC code: 002594.SZ
Index: .CSIHQ3000
Market cap (RMB m): 4,914.70
Shares outstanding (million): 616.755



I estimate BYD's value at RMB277 per share, implying an upside of 30% from today's price. This is derived from my DCF-based valuation using a WACC of 9.7% and a terminal growth rate of 3%.

- Highlights:**
- Expect sales to surge due to the rising demand and effective pricing strategies
 - Lower cost for EV batteries could lead to gross margin improvements
 - Strategic investments set the stage for sustainable long-term growth
- Risks:** Battery leakage, inadequate EV infrastructure investment, rising geopolitical tensions with China, and manufacturing factory disruptions.

Valuation Table	22A	23A	24E	25E	26E
Year end Dec					
PE (x)	39.9	21.0	13.9	10.2	7.5
Recurring net profit growth (%)	345.2	89.5	15.6	35.9	28.1
Recurring EPS (RMB)	5.3	10.1	15.6	20.8	25.1
Recurring EPS growth (%)	339.8	11.3	23.6	8.6	8.3
PBR (x)	11.3	18.4	9.0	24.6	30.7
BVPS (RMB)	14.6	20.5	4.6	2.9	8.4
ROE (%)	1.1	3.1	2.2	694.396	659.605
DPS (RMB)	0.5	722.245	709.384	7.2	5.5
Dividend yield (%)	690.704	17.1	9.1		
Enterprise value (RMB m)					
EV-to-EBITDA (x)					

Valuation Master Class
Boot Camp #13

This is not investment advice and it's not a recommendation.

To get this full report and my checklist of how I structure my valuation reports click the link in the description



How I structure my valuation reports

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Let's understand why
Tesla owner **Elon Musk** is
no longer laughing about
BYD...

