

## BYD | Asia Pacific

# Standing out from PHEV and BEV markets; Initiate at Over-weight

Stock rating	Target Price
Over-weight	HK\$ 304.00

### Key Positive Thesis

#### BYD has been capturing sizable share in renewable EV market

The 2016-2021 CAGR of renewable energy vehicle markets from three major countries, China, US and Europe, are 54.12%, 18.30% and 59.19% respectively. 17% of the deliveries of China automobile in January is contributed by NEVs. **We can see BYD has captured a greater share in this market while the domestic sales growth of its major competitor Tesla is dropping to 25%.** The deliveries to other countries from BYD's battery electric vehicles and plug-in hybrid vehicle also reached 48317 units and 44506 units respectively, presenting a well-performed deliveries in renewable EV market. As for market cycle, renewable EV market is at the early stage of distribution phase. The business model of BYD showcases a strong and leading competitiveness in both PHEV, HEV, BEV, while its developed fundamentals can assist BYD to dominate in the market.

#### Technological innovation and brand-new production line strengthen the business model of BYD

As of 2021, **e3.0 platform is promoted on EV while DM-i and DM-p systems are established on HEV also.** Higher revenue in 1H22 is foreseeable because of huge number of DM-i sales. While the Ocean Net, especially for the Marine Life Series, have provided large potential growth to BYD, furthering the growth of market shares for EV and HEV. Marine Life Series are also targeting to a younger generation common market for an automobile under price of CN¥ 200k, and it is extending Han to CN¥ 200k to CN¥ 500k high-end market. It does consolidate the revenue for BYD even there is a high volatility in market.

#### Robust deliveries in last year solidify the market confidence on BYD

EV companies were lingered by supply shortage in Dec 21. **However, BYD showcases an effective increase to around 99000 units and reached a new record high in its history.** Although it didn't hit the expectation from company by 10000 incremental sales, it was recognized as an outstanding performance under highly uncertain market. With support from Ocean Net, BYD's unit is forecasted by 18% at 1.3 million unit in 2022. BYD is given visible growing market confidence in 2022.

#### Complete transformation to renewable EV Market.

**BYD's announcement on complete withdrawal of gasoline vehicles production showcases a dedication to electrification and business model transformation to whole renewable EV market.** Resources available can be transferred to EV production and consolidate and upgrade their business on EV. Whereas different companies are dedicated to ban the production of gasoline vehicles by 2030, BYD demonstrates a leading operation to market.

#### Functional finance consolidates a valid cashflow to BYD.

In terms of upcoming technology advancement and innovation, FCF is foreseeably negative in 1H22. **While BYD is still having a valid capital inflow amid the volatile market,** it ensured a smooth strategic operation and innovative development in 2022.

### Global Equity Team

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### BYD. Co. Ltd (1211. HK)

<b>Stock Rating</b>	<b>Over-weight</b>
<b>Target Price</b>	<b>HK\$ 304.00</b>
Shr price (20/05/22)	HK\$ 268.60
Up/downside (%)	13.26%
52-Week Range	HK\$ 138.40-324.60
Shares Out. (bn)	1.16
Mkt Cap (HK\$ bn)	HK\$ 757.48
EV (HK\$ bn)	HK\$ 672.69

### Fiscal year (12/31)

(CNY in bn)	2020A	2021E	2022E
<b>Revenue</b>	<b>156.60</b>	<b>211.30</b>	<b>281.73</b>
YoY (%)	23%	38%	61%
<b>Gross Profit</b>	<b>27.24</b>	<b>23.63</b>	<b>47.76</b>
GPM	18	11%	14%
<b>EBIT</b>	<b>10.19</b>	<b>6.57</b>	<b>12.31</b>
OPM (%)	7%	3%	4%
PBT	6.88	4.50	10.87
<b>Net Income</b>	<b>4.23</b>	<b>3.05</b>	<b>7.32</b>
NPM	3%	1%	2%
<b>Basic EPS</b>	<b>1.47</b>	<b>1.04</b>	<b>2.51</b>

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### Key Negative

#### **Cost transferal problem under inflationary environment.**

Since BYD is having a well-established vertical integration business model, **when the inflation problem is accelerated, BYD is difficult to transfer the cost to other company from upstream to downstream.** Like nickel and lithium supply, inflationary environment would push up the cost of raw materials and furthering higher cost from home supply. To maintain same margins, BYD needs to pay more attention on cost control.

#### **Fierce competition with local and global brands and PHEV market.**

As for 2022, the rise of local and foreign brands, like NIO, Lucid, Rivian and Volkswagen, and the extension from Tesla to China, create a huge pressure to BYD. While PHEV is becoming more competitive and saturated with different new launches, including WEY-Latter and UNI-K IDD. **More options are offered to clients and lower switching cost and more substitutes allow clients to buy other brands,** It creates a potential risk for BYD in losing their existing clients and furthering the loss of profit.

#### **Business of Battery and IGBT cannot expand as planned.**

Since the demand for lithium-ion battery and IGBT changes rapidly, when the growth of demand from clients decline, the company expansion on battery and IGBT production would not be operated as planned.

#### **Risks of automobile market downturn.**

The automobile market downturn, like the valuation of EV-related stocks are declined due to increased interest rate, creates a short-term price pressure to BYD. On the other hand, **chips and ships problems are prevailing and decreasing sales volume might occur in BYD as side effect brought by other local and foreign EV company.** It would further lower company sales and profit might not reach the market expectation.

#### **Initiate OW, with +13.26% upside in base case**

Based on our estimation about revenue growth of automobiles and rechargeable batteries, and 61.2% YoY of the total revenue, we see long term potential upside for BYD. We are also putting bullish on NEV market which the NEV produced would be increased from ~3.8mn to 13mn to 25E, and its corresponding 4-year CAGR is 36.1%. **We adopted the P/S multiple valuation method by considering negative net profit margin of peer comps.** Due to more conservative sentiment in auto segment, we consider the P/S multiple as **2.60x**, which is slightly discounted from its peers NIO, XPeng and Tesla. Combining above, we derived our 12 month TP of HK\$ 304 with 13.26% upside, initiated with OW.

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# Company introduction

### Business Model and Product

BYD is a Chinese manufacturing company founded by Wang Chuanfu and there are two major subsidiaries, BYD Automobile and BYD Electronic. The layout **on automobiles, battery-powered bicycles, semiconductor and rechargeable batteries** make BYD to the top manufacturer in Automobile sector.

### By its business segment:

#### Automobiles Business (53% of total 20A rev)

The Group has a well-developed past module in HEV. The release of Qin Dm-i in 2012 has established an astounding business to the Group. With regard to current business, the **product line of automobiles are divided into two main parts: Ocean Net and Dynasty Net** (Exhibit 8).

For Ocean Net, Marine Life series and Warship series are the main focuses from the Group. The Dolphin is the first vehicle in Marine Life carrying DiLink and DiPilot system. On the other side, The Destroyer 05 of Warship centres on plug-in hybrid. The existing Qin Plus PHEV, Song Plus DM-I, Han EV and Tang also construct the major deliveries for the Group.




#### Handset Components & Assembly Business (39% of total 20A rev)

Regarding to handset components & assembly business, four businesses are covered by the Group, which are smartphone & PC, new intelligent product, automotive intelligent system and healthcare products. **The Group currently dedicate to expand the intelligent product and automotive intelligent system** by new products of electronic atomizers, unmanned aerial vehicles and smart home appliances.

#### Rechargeable Batteries & Photovoltaic Business (8% of total 20A rev)

The Group's rechargeable batteries mainly include lithium-ion batteries and iron batteries products, which are widely used in mobile phones, electronic tools and other portable electronic devices. During the Year, the Group's traditional battery business achieved steady growth. In respect of photovoltaic business, **the Group actively explored the global market and achieved steady growth in sales revenue.**

Exhibit 8: BYD Automotive Segment Products Highlight

Net	Series	Type	Demonstration	Details	Power	Price (in thousand)
Ocean	Marine Life	Dolphin Model		As for release of e-platform 3.0, Dolphin model is the first sedan made with latest Blade Battery, DiLink, DiPilot. 2700mm wheelbase, Horizontal Tailight and panoramic sunroof are designated to target current young generation.	Electric	102.8 - 130.8
Ocean	Warship	Destroyer 05		A plug-in hybrid sedan carrying BYD's DM-i power blade battery and EHS electric hybrid system in Snapdragon 1.5L engine with thermal efficiency of 43.04%. 12.8-inch self-adaptive suspension pad and 8.8-inch LCD instrument panel.	Hybrid	119.8 - 155.8
Ocean (Formerly e-Network)		e2		Made with Latest Blade Battery and ESP9.3. Designed as 'Dragon Face, decent radiator grille with panoramic sunroof' with 401 km long traveling range and VtoL.	Electric	95.8 - 121.8

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# EV Industry Summary

Exhibit 11: Automobile sales by region (mn)

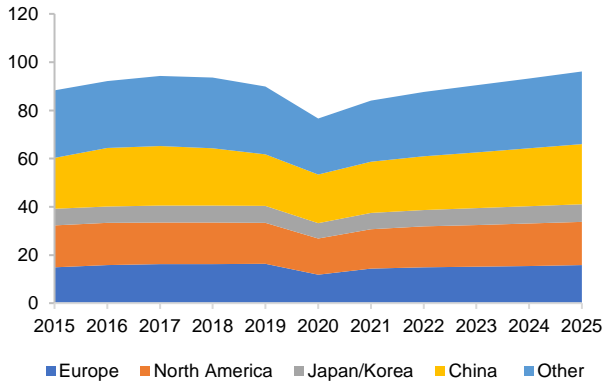


Exhibit 12: EV sales by region (mn)

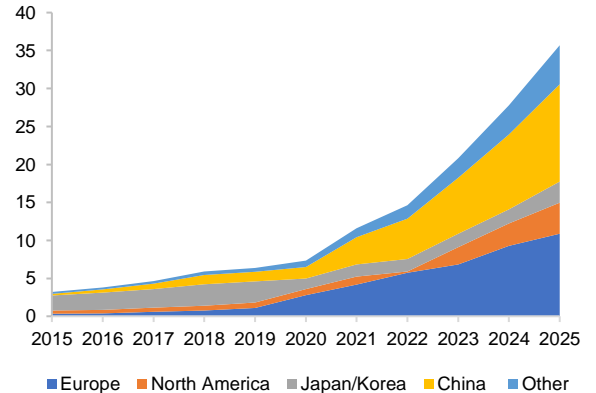


Exhibit 13: EV Penetration by region (%)

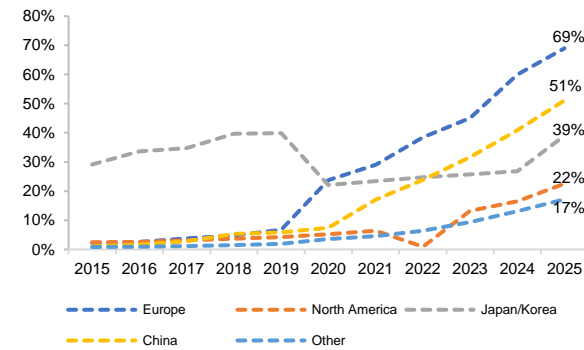


Exhibit 14: China NEV (BEV, PHEV, HEV) sales units (mn)

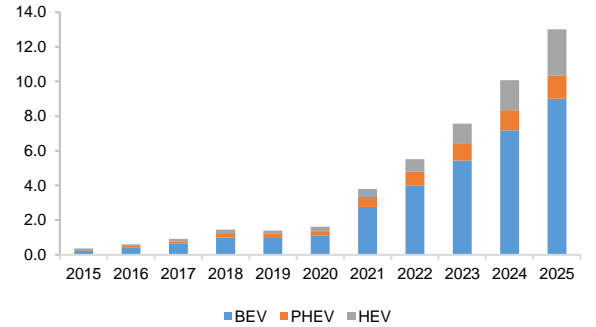


Exhibit 15: China EV Market Share (1H21)

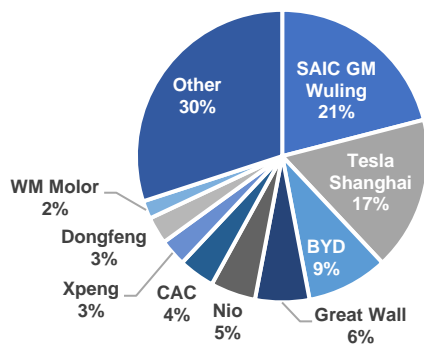


Exhibit 16: China PHEV Market Share (1H21)

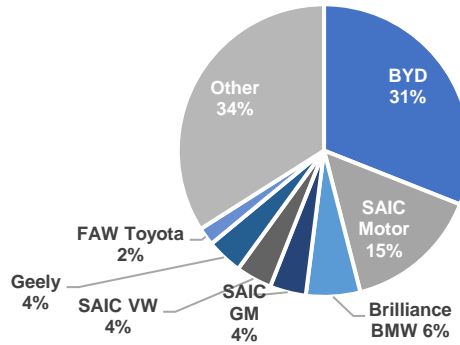


Exhibit 17: China HEV Market Share (1H21)

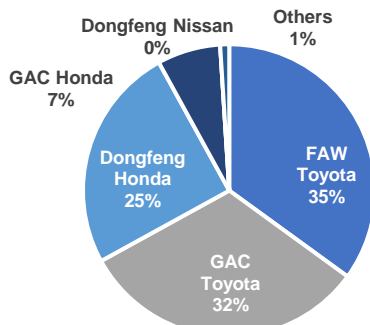
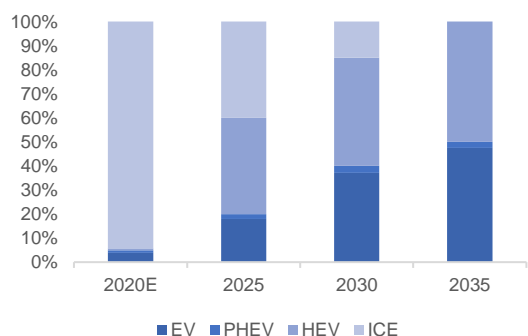


Exhibit 18: China government targeted PV sales



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## Appendix

## BYD 2015A – 2023E Financial Summary

## Margins and Assumptions (%)

Revenue Growth YoY	40.2%	29.1%	2.4%	18.6%	0.0%	26.0%	37.7%	61.2%	30.3%
<b>Gross Margin</b>	<b>15.3%</b>	<b>19.0%</b>	<b>17.5%</b>	<b>14.8%</b>	<b>14.8%</b>	<b>17.8%</b>	<b>11.2%</b>	<b>14.0%</b>	<b>15.1%</b>
Other OI/ Sales	3.3%	1.6%	2.4%	3.7%	3.0%	2.2%	1.9%	1.9%	1.9%
SE / Sales	3.7%	4.2%	4.8%	3.9%	3.6%	3.3%	2.9%	3.4%	3.6%
G&A / Sales	4.4%	3.7%	3.0%	3.1%	3.5%	2.9%	2.7%	3.0%	3.0%
R&D / Sales	2.6%	3.2%	3.6%	4.1%	4.6%	4.9%	3.5%	4.7%	4.9%
Other OE/ Sales	0.7%	0.6%	0.5%	0.7%	1.0%	2.3%	0.8%	1.0%	1.0%
<b>Operating Margin</b>	<b>7.2%</b>	<b>8.9%</b>	<b>8.0%</b>	<b>6.6%</b>	<b>5.2%</b>	<b>6.6%</b>	<b>3.1%</b>	<b>3.78%</b>	<b>4.5%</b>
Effective Tax rate	17.3%	16.6%	12.5%	18.9%	12.8%	12.6%	12.2%	12.2%	12.2%
Minority Interest's share	10.0%	7.8%	17.3%	21.8%	23.8%	29.6%	23.2%	23.2%	23.2%
<b>Net Margin</b>	<b>3.6%</b>	<b>4.8%</b>	<b>3.7%</b>	<b>2.1%</b>	<b>1.1%</b>	<b>2.6%</b>	<b>1.4%</b>	<b>2.14%</b>	<b>2.7%</b>
Associate's Investment Income %	0.8%	4.0%	7.5%	6.9%	1.3%	1.2%	1.3%	1.3%	1.3%
JVs Investment Income %	-16.1%	-35.4%	-11.1%	-9.9%	-14.0%	-4.5%	-2.3%	-4.0%	-4.0%
Finance Costs	1,517	1,800	2,343	3,481	3,487	2,518	1,347	1,828	2,074
Total Debt	37,643	42,267	56,511	64,693	75,978	51,271	39,771	41,481	43,190
Interest rate	4.5%	4.5%	4.7%	5.7%	5.0%	4.0%	3.0%	4.5%	4.9%

## BYD's NEV Peers Comps – Key Financials (%)

Metrics	Tickers	Sales YoY			Gross Margin			EBITDA Margin			Net Margin		
		21A	22E	23E	21A	22E	23E	21A	22E	23E	21A	22E	23E
<b>Forecast Year</b>		<b>38%</b>	<b>59%</b>	<b>27%</b>	<b>11%</b>	<b>13%</b>	<b>14%</b>	<b>10%</b>	<b>8%</b>	<b>8%</b>	<b>1%</b>	<b>2%</b>	<b>3%</b>
BYD CO LTD-H	01211.HK	38%	59%	27%	11%	13%	14%	10%	8%	8%	1%	2%	3%
TESLA INC	TSLA.US	71%	62%	33%	25%	28%	28%	22%	23%	23%	14%	16%	16%
NIO INC - ADR	NIO.US	122%	74%	72%	19%	18%	20%	-7%	-7%	0%	-8%	-9%	-1%
XPENG INC-ADR	XPEV.US	259%	103%	68%	12%	14%	17%	-27%	-16%	-5%	-21%	-16%	-6%
SAIC MOTOR-A	600104.CH	5%	8%	8%	12%	13%	13%	8%	5%	5%	3%	3%	3%
GREAT WALL MOT-H	02333.HK	32%	30%	25%	16%	17%	17%	7%	8%	8%	5%	5%	5%
GEELY AUTOMOBILE	00175.HK	10%	28%	20%	17%	17%	18%	10%	9%	9%	5%	5%	6%
AVG Excl Target		83%	51%	38%	17%	18%	19%	12%	11%	9%	7%	7%	8%

## BYD's NEV Peers Comps – Multiples (x)

Metrics	Tickers	P/S			EV/S			EV/GP			EV/EBIT		
		21A	22E	23E	21A	22E	23E	21A	22E	23E	21A	22E	23E
<b>Forecast Year</b>		<b>3.4x</b>	<b>2.1x</b>	<b>1.7x</b>	<b>3.4x</b>	<b>2.1x</b>	<b>1.7x</b>	<b>30.2x</b>	<b>16.1x</b>	<b>12.2x</b>	<b>108.7x</b>	<b>63.7x</b>	<b>44.3x</b>
BYD CO LTD-H	01211.HK	3.4x	2.1x	1.7x	3.4x	2.1x	1.7x	30.2x	16.1x	12.2x	108.7x	63.7x	44.3x
TESLA INC	TSLA.US	14.0x	8.7x	6.5x	13.8x	8.6x	6.4x	54.7x	30.3x	22.9x	114.1x	50.1x	36.4x
NIO INC - ADR	NIO.US	4.1x	2.4x	1.4x	3.3x	1.9x	1.1x	17.5x	10.8x	5.6x	-26.6x	-18.2x	-52.6x
XPENG INC-ADR	XPEV.US	5.7x	2.8x	1.7x	5.2x	2.5x	1.5x	41.5x	17.8x	9.0x	-16.5x	-14.0x	-21.1x
SAIC MOTOR-A	600104.CH	0.2x	0.2x	0.2x	0.3x	0.3x	0.3x	2.7x	2.4x	2.2x	17.0x	7.8x	6.7x
GREAT WALL MOT-H	02333.HK	1.5x	1.2x	1.0x	1.8x	1.4x	1.1x	10.9x	7.9x	6.2x	49.9x	25.7x	18.7x
GEELY AUTOMOBILE	00175.HK	1.1x	0.9x	0.7x	0.9x	0.7x	0.6x	5.2x	4.1x	3.3x	29.6x	15.3x	11.4x
AVG Excl Target		4.4x	2.7x	1.9x	4.2x	2.6x	1.8x	22.1x	12.2x	8.2x	52.7x	24.8x	18.3x

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