### CMB International Securities | Equity Research | Company Update



#### 招商银行全资附属机构 A Wholly Owned Subsidiary Of China Merchants Bank

# BYD (002594 CH)

## Benefit from the outperformance of LFP

BYD delivered outstanding auto sales in Dec. NEV sales reached 29K with flagship Han EV shipment exceeded 12k units in Dec. NEV sales volume had accounted for 44% of total auto sales in 2020. Looking ahead in 2021E, we still see several positive catalysts for BYD from 1) new DM EV model to boost sales; 2) cooperation with DiDi to take the lead in the ride-hailing renewable cycle; 3) power battery capacity expansion to support EV sales; and 4) semiconductor segment spin-off to release business value. We revised up BYD's TP by 31% to RMB293.2. **Reiterate BUY rating.** 

- NEV sales speeded up in Dec. BYD announced that total auto sales volume achieved 56K units in Dec, +30% YoY/+4%MoM.In Dec, NEV reached 29K, +120%YoY (NEPV 28K/+157%YoY, NECV 1K/-48%YoY). Delivery of Han continued to climb with a total of 12K units in Dec, up 19.6%MoM. The annual cumulative sales volume was 427K units/-7%YoY, in line with CMBI expectation.
- China NEV sales growth to accelerate in 2021E. We expect that the sales volume of NEV in China will continue to rise at a high speed in 2021E. Given 1) the strong NEV pipeline among all major OEMs; 2) the product recognition from retail consumers; 3) the beginning of the first round of replacement cycle in ride-hailing business; 4) the gradual introduction of LFP version for existing models, we expect the penetration rate of NEV will exceed market expectations. Specifically, we expect the penetration rate of NEV to reach 7% in 2021E, with a corresponding sales volume of 1.92mn units, representing an increase of 57% (1.66mn NEPV/260K NECV).
- NEV sales volume to increase 99% in 2021E. We estimate BYD's NEV market share declined to 15% in 2020, due to epidemic impacts and late release of new vehicle model. Starting from 2021, BYD will use a brand new logo and launch several new models including Qin Plus (based on the latest super hybrid DM-i platform), Song Pro DM, etc. We expect those measures will boost its NEV sales. At the to-B end, we expect the cooperation model D1 between BYD and DiDi to take lead in the ride-hailing renewable cycle. We estimate D1 to have 66K units shipment in 2021E. As we believe the Company's NEV sector to maintain strong recovery, we expect BYD's market share in NEPV to continue to rebound to 20%, and that will boost NEV sales volume to 364K units in 2021E, +99%YoY. We think BYD will gradually shift its business focus to NEV from ICE (61% vs 39% in 2021E), and maintain relatively stable ICE vehicle sales at 244K units, +3% YoY.

#### **Earnings Summary**

(YE 31 Dec)	FY18A	FY19A	FY20E	FY21E	FY22E
Revenue (RMB mn)	130,055	127,739	157,047	215,856	273,037
YoY growth (%)	22.79%	-1.78%	22.94%	37.45%	26.49%
Net income (RMB mn)	2,780	1,614	5,256	7,659	10,719
EPS (RMB)	0.93	0.50	1.83	2.71	3.83
YoY growth (%)	-34%	-47%	268%	48%	41%
Consensus EPS(RMB)	N/A	N/A	1.61	1.97	2.56
P/E (x)	244.19	457.51	124.31	83.92	59.36
P/B (x)	11.24	10.93	9.91	8.74	7.49
Yield (%)	0.10%	0.03%	0.10%	0.14%	0.19%
ROE (%)	5.05%	2.88%	8.80%	11.46%	13.93%
Net gearing (%)	64%	79%	86%	79%	72%

Source: Company data, Bloomberg, CMBIS estimates

## **BUY (Maintain)**

Target Price RMB293.2 (Previous TP RMB223.8) Up/Downside +28.9% Current Price RMB227.5

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#### Stock Data

Mkt Cap (HK\$ mn)	595,932
Avg 3 mths t/o (HK\$ mn)	7,996.01
52-week high/low	234.32/46.58
Total Issued Shares (mn)	915 (H <b>)</b>
	1 813 (Δ)

Source: Bloomberg

#### **Shareholding Structure**

Wang Chuanfu	18.83%
Lv Xiangyang	8.77%
Bershire Hathaway Energy	8.25%

Source: Company announcement

#### **Share Performance**

•	Absolute	Relative
1-mth	34.2%	20.7%
3-mth	89.0%	61.0%
6-mth	155.8%	121.3%

Source: Bloomberg

#### 12-mth Price Performance



Source: Wind

### Auditor: Ernst & Young

#### **Related Report**

- "BYD (002594 CH) Momentum to maintain with NEV sales" – 6 Nov 2020
- "BYD (002594 CH) Upside remains as bottom-line revised up" – 15 Oct 2020
- BYD (002594 CH) A shining monthly delivery of model "Han" – 8 Sep 2020



- 2020E earnings to reach RMB5.3bn. Given the updated sales volume and sales mix, we revised our net profit forecast by +1% to RMB5.3bn in 2020E. At the same time, we expect a more optimistic sales forecast of NEPV in 2021E, from 300K units to 364K units. As a result, we raised our 2021E bottom-line by 11% to RMB7.7bn.
- Strong LFP battery demand boost segment valuation. We revised the 2025E P/E multiple for the power battery segment from the previous 25x to 35x. We observe a gradual increase in the market share of the LFP battery. The main reasons are from two aspects: 1) driven by a sharp price cut by Tesla, the NEV industry has a strong demand for cost reduction, and domestic NEV players are facing the pressure of continuous cost reduction which lead to increasing LFP battery installation for new EV models; 2) BYD's blade battery, taking advantage of high volume density, can reduce the cost while making up for the short mile range to a certain extent, which can make up for the shortcoming for traditional LFP's less power density compared with NCM/NCA. We believe blade battery is expected to become the first choice in the subdivision of LFP. At present, BYD's blade battery is still in the ramp-up period of production capacity while accumulating certain potential demand as state above. We, therefore, raise the valuation multiple of the power battery segment to reflect a more optimistic shipment expectation. We adopted 2025E 35x PE (compared with the previous 2025E 25x PE) to get the corresponding valuation of the battery sector at RMB189bn.
- BYD semiconductor to spin off in 2021E. On 31 Dec 2020, BYD announced that it plans to spin off and list its holding subsidiary, BYD semiconductor. The main products of BYD semiconductor are IGBT modules and 3rd-generation semiconductor products (SiC). At present, BYD is planning to build its own SiC production line, which is expected to be completed in 2021E. In addition, BYD SiC will fully replace IGBT to increase vehicle mileage by about 10% in 2023E. We are optimistic about BYD's technology accumulation in the field of vehicle-grade semiconductors. The third-generation semiconductors (GaN and SiC) are very suitable for high voltage devices due to their wide bandgap characteristics. The electronic saturation speed of GaN is high, which is suitable for making microwave devices. It is applied to RF front-end amplifiers of mobile phones, 5G base stations, and microwave radars. The main application areas of SiC focused on by BYD are still in the field of electronic control and charging piles of NEV. At the same time, with the construction of the 5G base station entering the accelerating stage, the demand for small base stations (micro base stations) is gradually released. In the future, equipment suppliers will adopt the design of GaN-on-SiC based on silicon carbide substrate as the power supply module, which can achieve higher power density (to avoid the large amount of heat management hardware required by LDMOS, thus reducing the size of the base station) to meet the high frequency/high power requirements of their base stations. We believe that after the spin-off of BYD semiconductor, it is expected to achieve further independent operation, so as to expand the product matrix to adapt to different downstream needs and open up the valuation space.

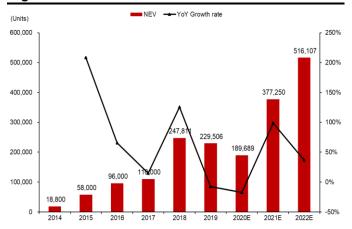


- Pending to have H-share placement. BYD submitted application materials for issuing additional H-share to CSRC. With reference to listing rules of both the H and A-share market, we think H-share issuance will have the highest funding raising efficiency. Boosted by current thrilling market sentiment, the H-A discount is at a close level. We expect BYD's new share placement to have a limited pricing discount and dilution impact to EPS, and rapid fundraising will help BYD accelerate power battery capacity expansion to meet surging market demand for blade battery. We think the placement will further enhance BYD's leading position in the power battery segment and boost the business external shipment pace, which will likely release the segment's value.
- Revise valuation; maintain BUY. We estimate BYD is currently trading at 2021E 6.6x NEV P/S, and 30x 2025E power battery P/E according to our SOTP valuation model. We think both sector's current valuation is far behind corresponding peers. Based on our revised NEV sales outlook and optimistic NEV sales mix in total auto sales volume, we lifted 2021E NEV P/S to 9x, and boost power batter valuation slightly from 25x to 35x then discount back. Our segment valuation for Auto/power battery/semi-conductor business is RMB656.7/189.3/16.0bn. Applying 15% conglomerate discount, we derived BYD's valuation at RMB799.9bn with TP of RMB293.2 for A-share (HK\$300.0 for H-share). Maintain BUY rating.



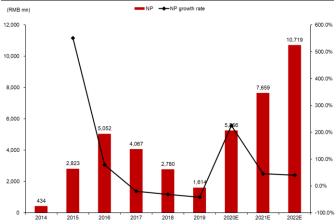
### **Focus chart**

Figure 1: NEV Sales volume forecast: BYD



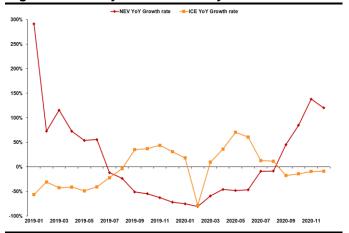
Source: Company data, CMBIS estimates

Figure 2: Bottom-line forecast



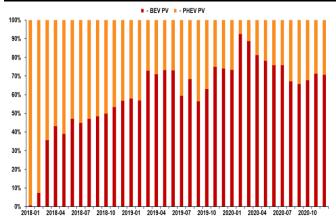
Source: Company data, CMBIS estimates

Figure 3: Monthly sales review: by NEV/ICE



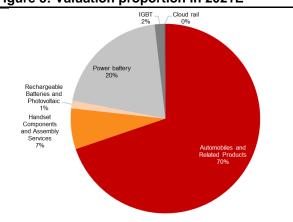
Source: Company data

Figure 4: BEV vs PHEV



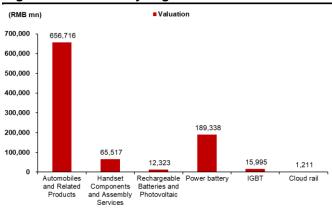
Source: Company data

Figure 5: Valuation proportion in 2021E



Source: Company data, CMBIS estimates

Figure 6: Valuation by segment in 2021E



Source: Company data, CMBIS estimates



## **Earnings Revision**

Figure 7: Earnings revision

(RMB mn)	Ne	W	Old	d	Change (%)		
	FY20E	FY21E	FY20E	FY21E	FY20E	FY21E	
Revenue	157,047	215,856	156,971	208,657	0%	3%	
Gross profit	28,172	37,953	28,095	36,039	0%	5%	
Operating profit	7,452	11,255	7,383	10,097	1%	11%	
Net profit	5,256	7,659	5,210	6,884	1%	11%	
EPS (RMB)	1.83	2.71	1.81	2.43	1%	12%	
GPM	17.94%	17.58%	17.90%	17.27%	0.0 ppt	0.3 ppt	
OPM	4.75%	5.21%	4.70%	4.84%	0.0 ppt	0.4 ppt	
NPM	3.35%	3.55%	3.32%	3.30%	0.0 ppt	0.2 ppt	

Source: CMBIS estimates

Figure 8: CMBIS estimates vs consensus

(RMB mn)	New	1	Consen	sus	Diff (%)		
	FY20E	FY21E	FY20E	FY21E	FY20E	FY21E	
Revenue	157,047	215,856	148,041	175,338	6%	23%	
Gross profit	28,172	37,953	23,981	27,177	17%	40%	
Operating profit	7,452	11,255	8,991	10,170	-17%	11%	
Net profit	5,256	7,659	3,939	4,226	33%	81%	
EPS (RMB)	1.83	2.71	1.64	1.94	12%	40%	
GPM	17.94%	17.58%	16.20%	15.50%	1.7 ppt	2.1 ppt	
OPM	4.75%	5.21%	6.07%	5.80%	-1.3 ppt	0.6 ppt	
NPM	3.35%	3.55%	2.66%	2.41%	0.7 ppt	1.1 ppt	

Source: Bloomberg, CMBIS estimates

Figure 9: Revenue breakdown

(RMB mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Automobiles and Related Products	76,007	63,266	62,230	98,095	124,374
YoY	34%	-17%	-2%	58%	27%
Handset Components and Assembly Services	42,230	53,380	81,565	101,466	117,092
YoY	4%	26%	53%	24%	15%
Rechargeable Batteries and Photovoltaic	8,950	10,506	12,607	14,498	16,238
YoY	2%	17%	20%	15%	12%
Other business	2,868	587	646	807	969
YoY	5524%	-80%	10%	25%	20%
Total Explicit revenue	130,055	127,739	157,047	214,867	258,673
YoY	23%	-2%	23%	37%	20%
Power battery				643	13,588
YoY					2014%
IGBT				346	776
YoY					124%
Total	130,055	127,739	157,047	215,856	273,037
YoY	23%	-2%	23%	37%	26%

Source: Company data, CMBIS estimates



Figure 10: P&L breakdown

(RMB mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Revenue	130,055	127,739	157,047	215,856	273,037
YoY	22.79%	-1.78%	22.94%	37.45%	26.49%
Cost of sales	(108,725)	(106,924)	(128,875)	(177,902)	(226,001)
Gross profit	21,330	20,814	28,172	37,953	47,036
GPM (%)	16.40%	16.29%	17.94%	17.58%	17.23%
YoY	5.91%	-2.42%	35.35%	34.72%	23.93%
Selling Exp	(4,729)	(4,346)	(5,183)	(7,339)	(9,556)
% of rev	-3.64%	-3.40%	-3.30%	-3.40%	-3.50%
Admin Exp	(4,989)	(5,629)	(6,282)	(8,203)	(9,010)
% of rev	-3.84%	-4.41%	-4.00%	-3.80%	-3.30%
Operating profit	4,241	2,312	7,452	11,255	15,467
OPM (%)	3.26%	1.81%	4.75%	5.21%	5.66%
YoY	-21.62%	-45.48%	222.28%	51.03%	37.42%
Net profit	2,780	1,614	5,256	7,659	10,719
NPM (%)	2.14%	1.26%	3.35%	3.55%	3.93%
YoY	-31.64%	-41.93%	225.58%	45.71%	39.96%

Source: Company data, CMBIS estimates

Figure 11: Valuation comparison vs major NEV players

Ticker	Major	jor NEV Sales in China				Market Cap	2021E Sales revenue	P/S multiple
	model	Oct	Nov	Dec	2020	(US\$, mn)	(US\$, mn)	FY21E
TSLA US	Model 3	12,143	21,604	>22,000	>135,655	773,525	46,616	16.6
NIO US	ES6, EC6, ES8	5,055	5,291	7,007	43,728	85,374	4,037	21.1
LI US	ONE	3,692	4,646	6,126	32,624	31,497	2,523	12.5
XPEV US	G3, P7	3,040	4,224	5,700	27,041	35,538	1,967	18.1
N/A	EX5, EX6	3,003	5,291	2,588	22,495	N/A	N/A	N/A
1211 HK/ 002594 CH	Han*	7,545	10,105	12,089	40,556**	- 60 104%	40.452	6.6
	Other EVs	15,672	16,585	16,752	149,133	- 69,104*	10,153	6.6

Source: Company data, Bloomberg, CMBIS estimates

Note: \*BYD NEV segment's market cap and sales estimates are estimated by CMBIS;

<sup>\*\*</sup>BYD Han's sales data is based on BYD's disclosure through its official Weibo;



Figure 12: Valuation comparison vs major power battery players

			2021E						
NEV Company	Ticker	Market Cap	Net profit	P/E	BVPS	P/B	P/S		
		(RMB, mn)	(RMB, mn)						
CATL	300750 CH	942,272	7,184	131.2	27.2	14.9	13.7		
BYD' power battery*	1211 HK/002594 CH	162,286	N/A	N/A	N/A	N/A	N/A		
EVE Energy	300014 CH	183,900	2,842	64.7	6.9	14.2	13.4		
Guoxuan High-Tech	002074 CH	55,051	435	126.6	10.2	4.2	7.2		

Source: Company data, Bloomberg, CMBIS estimates

Figure 13: SOTP valuation summary

Business Segment	Valuation method	Valuation multiple	2021E Valuation	Implied share price
			(RMB mn)	(RMB)
Automobiles and Related products			656,716	240.7
ICE	PS	0.50	13,302	4.9
NEV	PS	9.00	643,414	235.8
Handset Components and Assembly Services	PE	12.00	65,517	24.0
Rechargeable Batteries and Photovoltaic	PS	0.85	12,323	4.5
Power battery	2025E/PE	35.00	189,338	69.4
IGBT	2025E/PE	35.00	15,995	5.9
Cloud rail	PS	1.50	1,211	0.4
Total valuation			941,100	345.0
Valuation @ conglomerate discount		0.85	799,935	293.2
A share TP (RMB)		0.65	199,955	293.2
,		0.0		293.2
A-H discount (multiple)		0.9		
FX assumption (RMB/HK¥)		0.8430		
H share TP (HK\$)				300.0

Source: Company data, CMBIS estimates



## **Financial Summary**

Income statement						Cash flow					
YE 31 Dec (RMB mn)	FY18A	FY19A	FY20E	FY21E	FY22E	YE 31 Dec (RMB mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Revenue	130,055	127,739	157,047	215,856	273,037	Net income	2,780	1,614	5,256	7,659	10,719
Cost of sales	(108,725)	(106,924)	(128,875)	(177,902)	(226,001)	D&A	9,995	9,933	10,035	12,193	14,571
Gross profit	21,330	20,814	28,172	37,953	47,036	Change in working capital	(291)	3,233	4,511	9,250	(1,677)
						Others	(543)	6,427	-	-	-
Taxes and levies	(2,146)	(1,561)	(1,885)	(2,590)	(3,276)	Net cash from operating	12,523	14,741	11,933	12,432	29,139
S&D exp	(4,729)	(4,346)	(5,183)	(7,339)	(9,556)						
R&D exp	(3,760)	(4,141)	(4,523)	(6,195)	(7,782)	Capex & investments	(6,076)	(12,040)	(12,992)	(13,608)	(14,961)
Admin exp	(4,989)	(5,629)	(6,282)	(8,203)	(9,010)	Associated companies	(496)	(499)	(406)	(447)	(491)
Finance costs	(2,997)	(3,014)	(3,635)	(4,167)	(4,020)	Others	(7,659)	(8,342)	(4,539)	(5,933)	(5,483)
Impairment losses	(1,020)	(636)	(792)	(1,079)	(1,367)	Net cash from investing	(14,231)	(20,881)	(17,937)	(19,988)	(20,936)
Other income	2,328	1,724	2,261	3,295	3,927						
Investment income	248	(809)	(550)	(324)	(273)	Equity raised	-	-	-	-	-
GL from changes in FV	(5)	10	(56)	4	(39)	Change of Debts	5,076	10,535	13,569	14,835	264
GL on disposal	(19)	(100)	(76)	(100)	(172)	Dividend paid	(557)	(164)	(526)	(766)	(1,072)
Operating profit/(loss)	4,241	2,312	7,452	11,255	15,467	Others	(603)	(3,761)	7,222	8,010	9,831
Non-operating income	230	226	471	432	491	Net cash from financing	3,917	6,610	8,687	9,493	(6,359)
Non-operating expense	(86)	(107)	(118)	(162)	(217)						
Profit before income tax	4,385	2,431	7,806	11,525	15,741	Net change in cash	2,209	470	2,682	1,936	1,844
Income tax expense	(829)	(312)	(1,152)	(1,830)	(2,173)	Cash at the beginning	9,903	13,052	12,650	15,332	17,268
Profit for the year	3,556	2,119	6,654	9,695	13,569	Others	941	(872)	0	0	0
Non-controlling interests	776	504	1,397	2,036	2,849	Cash at the end	13,052	12,650	15,332	17,268	19,113
NP	2,780	1,614	5,256	7,659	10,719	Less: pledged cash	-	-	-	-	-

Balance sheet						Key ratios					
YE 31 Dec (RMB mn) Non-current assets	FY18A 79,361	FY19A 88,675	FY20E 102,177	FY21E 116,777	FY22E 131,273	YE 31 Dec Sales mix (%)	FY18A	FY19A	FY20E	FY21E	FY22E
	•	,	,	66,220	,	` '	58%	50%	40%	45%	46%
Fixed asset	43,679	49,443	58,001	,	74,742	Automobiles					
Intangible assets	11,314	,	14,840	16,943	19,123	Handset Components	32%	42%	52%	47%	43%
Interest in joint	3,561	4,060	4,466	4,913	5,404	Rechargeable Batteries	7%	8%	8%	7%	6%
Other non-current assets	20,807	22,521	24,870	28,701	32,004	Other business	2%	0%	0%	0%	0%
						Power battery	0%	0%	0%	0%	5%
Current assets	115,211	106,967	127,246	165,524	191,351	IGBT	0%	0%	0%	0%	0%
Cash	13,052	12,650	15,332	17,268	19,113	Total	100%	100%	100%	100%	100%
Account receivable	49,284	43,934	52,349	69,631	78,010						
Inventory	26,330	25,572	31,280	42,358	50,222	P&L ratios (%)					
Other current assets	26,545	24,811	28,284	36,267	44,006	Gross profit margin	16%	16%	18%	18%	17%
						Pre-tax margin	3%	2%	5%	5%	6%
Current liabilities	116,569	108,029	131,064	171,667	195,488	Net margin	3%	2%	4%	4%	5%
Borrowings	37,789	40,332	50,307	63,819	61,979	Effective tax rate	19%	13%	15%	16%	14%
Account payables	46,283	36,168	42,958	57,388	70,625	Balance sheet ratios					
Other payables	13,568	11,217	13,532	18,680	23,730	Current ratio (x)	0.99	0.99	0.97	0.96	0.98
Tax payables	18,930	20,311	24,266	31,781	39,153	Quick ratio (x)	0.59	0.59	0.57	0.55	0.53
						Cash ratio (x)	0.11	0.12	0.12	0.10	0.10
Non-current liabilities	17,308	25,011	29,609	32,486	36,076	Debtors turnover days	138	126	122	118	104
Borrowings	13,924	21,916	25,511	26,834	28,937	Total debt / total equity	221%	213%	234%	261%	254%
Deferred income tax	66	103	92	146	174	Net debt / equity ratio	64%	79%	86%	79%	72%
Provisions	-	-	-	-	-	Returns (%)					
Others	3,317	2,992	4,006	5,506	6,965	ROE	5%	3%	9%	11%	14%
						ROA	4%	3%	5%	6%	7%
Total equity	60,694	62,601	68,750	78,147	91,061	Per share					
Minority Interest	5,496	5,839	6,107	7,103	8,183	EPS (RMB)	0.93	0.50	1.83	2.71	3.83
Shareholders' equity	55,198	56,762	62,643	71,044	82,878	DPS (RMB)	0.20	0.06	0.19	0.28	0.39
						BVPS (RMB)	20.23	20.81	22.96	26.04	30.38

Source: Company data, CMBIS estimates

Note: \*All numbers are based on A share financial statement



## **Disclosures & Disclaimers**

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