



Rating
Buy

Asia
China

Resources
Metals & Mining

Company
CATL

Reuters	Bloomberg	Exchange	Ticker
300750.SZ	300750 CH	SHZ	300750

Date
13 June 2018

Initiation of Coverage

Price at 12 Jun 2018 (CNY)	39.82
Price target - 12mth (CNY)	72.20
52-week range (CNY)	39.82 - 36.20
HANG SENG INDEX	31,064

The rising Chinese lithium power

In pole position to power China's EV's; initiating with Buy

With 30% market share, demonstrable price leadership, and a clear cost advantage, we believe CATL is the best positioned battery maker supplying the EV sector in China. It is also first to make inroads into supplying global OEM's. As such, we believe it can achieve volume growth of close to 50% annually to 2020 with profits rising at a 30% CAGR. Our valuation reflects that high growth phase with a target multiple of 36x and 81% upside potential for the stock. We initiate with a BUY rating.

The Chinese EV lithium battery market leader

CATL's sales volume exhibited exponential growth at a 3-year 263% CAGR to 2017, thanks to its strong execution and solid manufacturing experience. The company has secured the lead position in the main future growth driver (passenger EVs), which we expect will support its capacity from 17.1GWh in 2017 to 54.0GWh in 2020E at a CAGR of 47%. CATL also shows up on the procurement roadmaps of key international auto OEMs, which makes it the first Chinese EV battery maker with a meaningful overseas presence.

Pricing premium and competitive cost position

Reflecting the company's superior product quality, our due diligence shows that CATL achieved an 8% battery pack pricing premium over the Chinese industry average in 2017. Its scale and progress in manufacturing technology also gave the company a 7-10% cost advantage in raw material procurement. Although unit gross profit will likely fall from RMB0.58/wh in 2017 to RMB0.36/wh in 2020E in order to lower the cost of EV ownership, its strong volume growth should drive the bottom line higher in the next 3 years.

Initiating coverage with Buy; target price set at 36x 2019E P/E; risks

Our target price of RMB72.2 is based on 36x 2019E EPS and implies 81% upside potential. We believe our multiple is justified by its strong recurring income growth at a 3-year CAGR of 30% and its leading industry position. Key risks: unexpected changes in EV demand and government's subsidy policy.

Valuation & Risks

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Forecasts and ratios

Year End Dec 31	2016A	2017A	2018E	2019E	2020E
Sales (CNYm)	14,879.0	19,996.9	27,003.1	35,515.9	44,803.4
EBITDA (CNYm)	4,260.1	6,244.9	6,380.3	8,427.0	10,752.2
Reported NPAT (CNYm)	2,851.8	3,878.0	3,477.5	4,397.1	5,833.4
DB EPS FD(CNY)	4.65	1.98	1.60	2.02	2.69

Source: Deutsche Bank estimates, company data



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Investment thesis

Outlook

CATL is the largest EV lithium battery player in China, with a c. 30% EV lithium battery market share in terms of installation in 2017. Close client relationships and a superior product quality translate into market dominance that should help CATL continue to gain market share in the EV lithium battery market and maintain its industry leading position.

We believe the company has secured its future growth driver in the passenger EV market as the main battery supplier of 4 of the top 10 best-selling models in 2017. In addition, CATL appears in the procurement relationship roadmaps of key international auto OEMs till the end of automobile model year 2022, which indicates its potential in the overseas market.

Through cooperation with more passenger EV makers, CATL should continue to gain market share in NCM batteries. Its new manufacturing bases in Jiangsu Liyang and Ningde Huxi are well prepared for rising demand.

We expect the ASP of lithium batteries to drop faster than the company cuts costs, implying shrinking unit profitability. ASP may drop at a CAGR of c.11% in the next three years, while we expect COGS to fall at a CAGR of c.9% in the same period. However, strong sales volume is likely to largely offset the impact as CATL's strong sales volume CAGR of 48% from 2018E to 2020E should help recurring income to climb at a CAGR of 30% in the next three years.

Valuation

As CATL has just listed on the A-share ChiNext market, we believe the market is still on the path of discovering its intrinsic value. Hence, we adopt a P/E multiple of 36x FY19E EPS, which is linked to PEG of 1.2x. The multiple implies 20% premium for the company, compared to the Chinese industry peer average PEG of 1.0x. We believe our valuation is justified by the company's strong recurring income growth at a 3-year CAGR of 30%, its leading industry position, competitive cost advantage, and potential upside in the overseas market.

Risks

Key downside risks include: significant changes in the Chinese government's new energy subsidy policy; weaker-than-expected volume growth in the next three years; a quicker-than-expected ASP drop or slower-than-expected cost cuts; a slower-than-expected ramp-up at the Ningde Huxi and Jiangsu Liyang plants.



Valuation

Target price of RMB72 based on 36x FY19E PE

As CATL has just listed on the A-share market on 11 June 2018, we believe the market is still on the path of discovering the company's intrinsic value. Hence, we set an earnings multiple of 36x FY19E PE to value CATL, derived from a PEG of 1.2x. Our target price is set at RMB72, implying a 81% upside potential.

Figure 1 below shows a valuation comparison of A-share peers; A-share investors commonly adopt the PEG method to value the sector, which on average trades at 1.0x PEG. We believe that our target multiple should not only reflect the company's strong recurring earnings growth at a 3-year CAGR of 30%, but also consider the company's leading industry position, competitive cost advantage, and potential upside in the overseas market, which we discuss in the following sections.

International peers listed in Korean and Japan markets are not pure battery plays, as the battery business tend to be only a fraction of their operations and contribute limited profitability. However, it is worth noting that the international peers are expected to record a much milder earnings growth, pushing up the international peers' PEG multiple to 2.2x on average.

In conclusion, we believe that CATL is more suitable to adopt the PEG multiple range of its A-share peers given its current investor profile. We believe a 20% premium for CATL over its A-share peers is justified, resulting in a PEG of 1.2x and a FY19E PE multiple of 36x.

Figure 1: Valuation comparison of A-share and international peers

Company	Bbg Ticker	Rating	Price local 6/12/18	Target Price	M. cap (US\$m) 6/12/18	3m avg. daily traded value (US\$m)	PE (x)		PEG	EPS Growth %			ROE %		Share price performance		
							2018	2019	2017-2020	2018	2018	2019	2018	2019	1 month	3 month	YTD
Battery - A-shares																	
BYD - A*	002594 CH	Hold	49.6	64.3	20,241	67	24.3	20.3	0.9	2.3	33.7	19.5	9.8	10.7	(6)	(26)	(24)
Sunwoda Electronic	300207 CH	Buy	11.1	14.5	2,691	5	21.3	17.7	1.1	4.2	21.2	20.3	21.6	21.5	1	(8)	14
EVE Energy	300014 CH	NR	17.9	NA	2,391	49	28.9	21.9	1.0	8.2	52.3	65.5	17.0	14.7	(9)	(7)	(9)
Far East Smarter Energy	600869 CH	NR	5.2	NA	1,785	6	36.8	36.8	NA	4.8	(37.2)	(77.5)	NA	NA	(3)	(10)	(10)
Camel Group	601311 CH	NR	11.7	NA	1,545	5	15.0	13.0	0.9	4.1	(15.3)	13.6	10.6	10.7	(7)	(11)	(12)
Shaanxi J&R Optimum Energy	300116 CH	NR	3.1	NA	1,181	37	4.5	3.7	NA	6.0	NM	75.9	NA	NA	(23)	(59)	(59)
Sichuan Chengfei Integration	002190 CH	NR	19.9	NA	1,115	24	NA	NA	NA	8.9	58.4	(58.7)	NA	NA	(17)	(15)	(8)
Shenzhen Desay Battery	000049 CH	NR	31.4	NA	1,006	18	18.2	14.2	1.1	12.5	10.9	30.2	24.1	22.1	(10)	(17)	(21)
Guangzhou Great Power	300438 CH	NR	22.0	NA	964	13	16.9	13.5	0.7	12.6	46.0	96.4	18.3	15.4	(10)	(18)	(26)
Average							19.7	16.5	1.0	6.5	21.3	25.4	16.6	16.6	(10)	(20)	(18)
Battery - international																	
Panasonic	6752 JP Ec	Hold	1,599	1,700	35,529	118	15.3	14.0	0.6	2.2	58.0	11.0	9.8	10.7	(2)	(5)	(3)
LG Chem*	051910 KS	Buy	379,000	480,000	24,932	78	12.3	12.3	3.5	1.6	6.5	0.7	21.6	21.5	10	(8)	(6)
SK Innovation	096770 KS	NR	213,500	NA	18,397	44	8.9	8.4	3.8	1.0	(7.0)	6.8	11.8	11.7	4	(0)	4
Samsung SDI	006400 KS	Buy	228,500	259,000	14,642	66	25.4	17.3	1.1	1.3	(7.7)	46.7	9.8	10.7	20	13	12
Average							15.5	13.0	2.2	1.5	12.5	16.3	13.3	13.6	12	6	8

*2017-2019 EPS growth rate to calculate PEG multiple due to lack of 2020 estimated numbers
Source: Bloomberg Finance LP, Deutsche Bank estimates



Earnings sensitivity analysis

As CATL's earnings and margin outlook is heavily dependent on its pricing and cost trajectory, we present the 2019E and 2020E earnings sensitivity analysis based on different inputs of 1) unit ASP decline, and 2) production efficiency improvement .

For the base case scenario, we factored in 14.5%/10.0%/7.5% of unit ASP decline in 2018E/2019E/2020E, and 7.0%/6.5%/2.0% production efficiency improvement in the same period. For a more detailed discussion on our ASP and cost decline assumptions, please refer to the "CATL's product pricing trajectory" and "CATL's cost per unit trajectory" in "Summary of financials" section.

In conclusion, our analysis in Figure 2 below shows that for every additional 0.5% of ASP cut in 2019E/2020E, it will have a negative -6%/-8% impact to our earnings forecasts. Meanwhile, for every 0.5% of production efficiency improvement in 2019E/2020E, it will lift our earnings forecasts by 4%/5%, respectively.

Figure 2: 2018-2019 earnings sensitivity analysis

2019 NPAT		ASP change from base case				
		-1.0%	-0.5%	0.0%	0.5%	1.0%
Efficiency chg vs. base case	-1.0%	3,726	3,958	4,190	4,424	4,660
	-0.5%	3,574	3,805	4,038	4,272	4,507
	0.0%	3,421	3,652	3,885	4,119	4,354
	0.5%	3,267	3,498	3,731	3,965	4,200
	1.0%	3,112	3,344	3,576	3,810	4,046

2020 NPAT		ASP change from base case				
		-1.0%	-0.5%	0.0%	0.5%	1.0%
Efficiency chg vs. base case	-1.0%	5,519	5,963	6,413	6,867	7,326
	-0.5%	5,231	5,675	6,125	6,579	7,038
	0.0%	4,940	5,384	5,833	6,288	6,747
	0.5%	4,646	5,090	5,539	5,993	6,453
	1.0%	4,349	4,793	5,242	5,696	6,155

2019 NPAT impact		ASP change from base case				
		-1.0%	-0.5%	0.0%	0.5%	1.0%
Efficiency chg vs. base case	-1.0%	-4%	2%	8%	14%	20%
	-0.5%	-8%	-2%	4%	10%	16%
	0.0%	-12%	-6%	0%	6%	12%
	0.5%	-16%	-10%	-4%	2%	8%
	1.0%	-20%	-14%	-8%	-2%	4%

2020 NPAT impact		ASP change from base case				
		-1.0%	-0.5%	0.0%	0.5%	1.0%
Efficiency chg vs. base case	-1.0%	-5%	2%	10%	18%	26%
	-0.5%	-10%	-3%	5%	13%	21%
	0.0%	-15%	-8%	0%	8%	16%
	0.5%	-20%	-13%	-5%	3%	11%
	1.0%	-25%	-18%	-10%	-2%	6%

Source: Deutsche Bank estimates



The Chinese market leader

Current market share leader

On the back of China's soaring EV demand, total EV battery installation volume grew from 4.2GWh in 2014 to 33.5GWh in 2017, pacing at a 100% 3-year CAGR. Our analysis of battery installation volume on vehicles shows industry dynamics, which we believe is a good tracker of order materialization by auto OEMs.

CATL seized the opportunity of strong EV industry growth and reported a 3-year battery sales volume growth at 263% from 2014 to 2017, gaining market share from competitors as it is capable of providing products in both quality and quantity.

We present an analysis of China's 2017 EV battery installations in Figure 3 below. CATL is the market share leader in both LFP (33%) and NCM battery installations (30%), and thus leads in total EV battery installations (30%), including batteries that use other kinds of cathode materials (LMO, LTO, and NCA - see our note in Figure 3).

The market share gap between CATL and the rest of the pack is more obvious in NCM batteries, where the company was more than 4x larger in terms of installation volume in 2017. We believe its market share gap, particularly in NCM batteries, reflects its edge in technology and manufacturing know-how. This is because NCM batteries answer to the pursuit of a higher energy density level on a wh/kg basis, a longer driving range per charge, and the ultimate goal of a lower total cost of ownership, which is currently driven by Chinese government policy. Although CATL also led in LFP battery installations in 2017, industry peers are not far behind in the relatively more mature technology, particularly BYD.

Figure 3: 2017 Chinese EV battery installation analysis

EV battery Installation analysis								Total Installation (Gwh)	Market share	
2017 Name	名称	LFP	share (%)	LMO	LTO	NCA	NCM	share (%)		
1	CATL	CATL	5.4	33.2%			4.6	30.4%	10.0	29.7%
2	BYD	BYD	4.4	27.1%			0.9	6.2%	5.4	16.0%
3	Optimum	沃特玛	2.0	12.5%					2.0	6.1%
4	Guoxuan	国轩高科	1.6	10.0%			0.3	2.3%	2.0	5.9%
5	Funeng	孚能科技					1.1	7.3%	1.1	3.3%
6	BAK	比克	0.0	0.0%			1.0	7.0%	1.0	3.1%
8	Guoneng	北京国能	0.6	3.4%			0.1	0.8%	0.7	2.0%
9	First	福斯特					0.7	4.5%	0.7	2.0%
10	Phylion	苏州星恒			0.5		0.0	0.3%	0.6	1.7%
11	Lishen	力神	0.2	1.1%			0.4	2.4%	0.5	1.6%
12	Zhihang	江苏智航					0.5	3.6%	0.5	1.6%
13	Yinlong	珠海银隆							0.5	1.6%
14	DLG	德朗能				0.3	0.1	0.9%	0.4	1.3%
15	EVE	亿纬锂能	0.1	0.4%			0.4	2.4%	0.4	1.2%
Subtotal			14.3	87.6%			10.2	62.6%	27.8	83.0%

LFP = Lithium Iron Phosphate

LMO = Lithium Manganese Oxide

LTO = Lithium Titanium Oxide

NCA = Lithium Nickel Cobalt Aluminum Oxide

NCM = Lithium Nickel Cobalt Manganese Oxide

Source: RealLi Research, Deutsche Bank

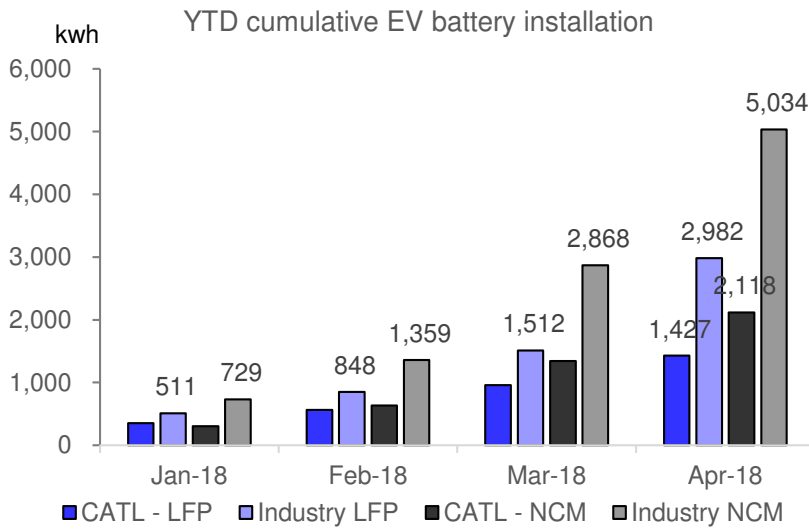


The strong becomes stronger

We also tracked the first 4 months of EV battery installations this year, as shown in Figure 4 below, which indicated that the strong became stronger – the market share of CATL increased to 48% / 42% YTD in LFP / NCM, respectively, from a +30% level in 2017. As government subsidy policy is favorable to batteries with higher energy density level (ie. NCM batteries), we estimated that CATL's NCM batteries will reach 31GWh in 2020E, taking up 86% of its battery volume growth in the next 3 years thanks to the rising demand of passenger EV, which we discuss in the following section.

It is worth noting that monthly market share may be volatile with fluctuations in EV shipments, but we believe CATL's market dominance in China will likely continue, partly based on our analysis of future growth drivers in the following section.

Figure 4: CATL continues to gain market share in China's EV battery industry



Source: RealLi Research, Deutsche Bank



Market share leader in passenger EVs – future growth driver

For a good gauge of CATL's exposure to future growth drivers, we gathered the top 10 selling passenger car pure Battery EV (BEV) models in China and monitored their performance in the first 4 months of 2018. As summarized in Figure 5 below, the top 10 passenger BEV models collectively account for a c.60% domestic market share in the segment and we observe a trend of gradual consolidation.

Among our samples, CATL is the main battery supplier to 4 of the top 10 best-selling passenger car BEV models in China, which largely secures its future demand. The company is exposed to models with higher capacities (on a kWh per unit basis), including Geely's Emgrand EV and BAIC's EU series, indicating that CATL has a even higher market share in terms of installed battery volume in the segment.

Figure 5: Analysis – top 10 pure battery EV models in China

Passenger pure battery EV (BEV) analysis												
Auto OEM	Model	车厂	名称	2017 sales		2018 YTD sales		Segment	Capacity kwh	Range km	Battery type	Battery supplier
				units	% of total	units	% of total					
BAIC BJEV	EC series	北汽新能源	北汽EC系列	78,089	16.6%	27,279	19.4%	A00	20.3	162	NCM	CATL Funeng
Geely Zhidou	Zhidou D2	吉利知豆	知豆D2	42,342	9.0%	8,174	5.8%	A00	18.0	155	NCM	Tianfeng
Chery	eQ	奇瑞	EQ电动车	25,784	5.5%	11,259	8.0%	A00	23.6	200	NCM	CATL
JAC	IEV6S/E	江淮汽车	江淮IEV6S/E	24,210	5.1%	11,435	8.1%	A0	23.0	180	LFP	Guoxuan
BYD	BYD E5	比亚迪	比亚迪E5	23,601	5.0%	8,679	6.2%	A	60.0	400	LFP	BYD
Geely	Emgrand	吉利汽车	帝豪EV	23,324	5.0%	5,300	3.8%	A	52.0	400	NCM	CATL
Zotye	Zotye E200	众泰汽车	众泰E200	16,751	3.6%	3,552	2.5%	A00	24.5	165	NCM	BAK
JMC	JMC E200	江铃汽车	江铃E200	15,980	3.4%	9,272	6.6%	A00	17.3	152	NCM	First
Chang'an	Benni (Benben)	长安汽车	奔奔	14,549	3.1%	1,258	0.9%	A00	27.0	215	NCM	Guoneng
BAIC BJEV	EU series	北汽新能源	北汽EU系列	13,158	2.8%	265	0.2%	A	42.0	260	NCM	CATL
Top 10 sub total				277,788	59.0%	86,473	61.5%					

Source: CPCA, d1EV, Deutsche Bank

Deeper client relationship through JV and equity investments

CATL not only positioned itself as the battery supplier to auto OEMs like most of the Chinese battery players. Since EV battery is a critical component in the vehicle and CATL emerged as the key supplier in the industry, auto OEMs has been partnering with the company for a deeper cooperation including R&D and design.

Regarding domestic client relationships in particular, it is worth noting that not only CATL is the key supplier to leading auto OEMs (including BAIC, Geely, SAIC), it has also set up JVs (SAIC) and received equity investments (Dongfeng Motor, Chang'an). Most of the auto OEMs that set up JVs or invest in CATL are the leading players in passenger car segment, which means CATL appears well-positioned for future growth.

Currently the structure of CATL's JVs allow the company to fully control the key manufacturing process to the complete production of battery cell. We believe the JVs form a stickier relationship with auto OEMs, as the structure leads to jointly developed battery projects, which in turn provide a more stable order outlook for the company.



From China to the world

CATL was the first battery maker in China to work with international brands in 2011, when the company partnered with BMW-Brilliance for the batteries of the first EV model of Zinoro"1E". After the recognition of BMW-Brilliance, CATL continued to expand its passenger vehicle customer portfolio internationally, including names like Volkswagen, Daimler, Honda, Nissan and Renault.

Figure 6 shows international auto OEMs and their EV battery procurement relationships before automobile model year 2022. The high-profile USD48bn EV battery purchasing contract awarded by Volkswagen confirms CATL as the sole battery supplier in China and one of the main battery suppliers overseas. Among Japanese OEMs, Nissan adopted the company's battery in its electric version of Sylphy and Honda is developing an EV model with CATL that is due for launch in 2020. We expect more collaborations with international auto OEMs to materialize going forward, which would make CATL the first EV battery maker to have a meaningful global presence.

Figure 6: CATL will be competing at a global level

Procurement relationships for EV lithium battery*						
Auto OEM / platform	PHEV			BEV		
Totyota	Panasonic	PEVE ¹		Panasonic		
Nissan				AESC	LGC	CATL
Renault				LGC	AESC	CATL
Mitsubishi	LEJ ²	AESC		LEJ ²	Toshiba	
Honda	Panasonic			Panasonic CATL		
Subaru	PEVE ¹			Panasonic		
GM	LGC			LGC		
Ford	Panasonic			LGC		
VW	SDI	LGC	Panasonic	Panasonic	SDI	LGC CATL
MEB VW EU				LGC		
MEB 2nd				LGC	CATL	SDI
Audi	SDI	LGC	Panasonic	Panasonic	SDI	LGC CATL
BMW	SDI	CATL		SDI	CATL	
Daimler	SKI	LEJ ²		LGC	BYD	CATL
PSA				CATL		
Hyundai	LGC	SKI	CATL	LGC	SKI	
Fiat Chrysler	LGC			SDI		
Volvo	LGC			LGC		
Jaguar Landrover	SDI	LGC		SDI	LGC	

Note 1: Primearth EV Energy, a subsidiary of Toyota

Note 2: Lithium Energy Japan, a JV set up by GS Yuasa, Mitsubishi, and Mitsubishi Motors

*Procurement relationships till model year 2022 are included.

Source: B3, Deutsche Bank



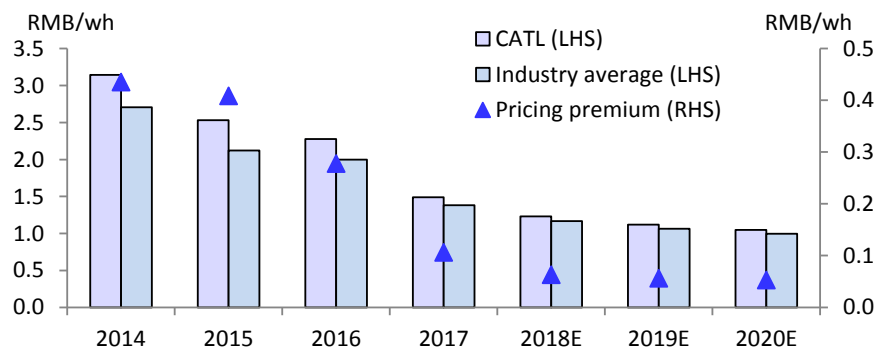
Priced at a premium

Pricing premium of 8% to industry peers in 2017

For a clean battery pack ASP comparison between CATL and industry peers, we carved out the company's battery cell sales to Pride Power, which comprised 21% of CATL's sales volume on average in 2014-2017, as implied by the unit pricing disclosed in its prospectus. Over the past 3 years, CATL's battery pack ASP (excluding VAT) came down 53% from RMB3.14/wh in 2014 to RMB1.49/wh in 2017, compared to the industry average of RMB2.71/wh in 2014 to RMB1.38/wh. Our analysis indicated that CATL commanded a pricing premium over industry peers of 16% in 2014, which declined to 8% in 2017 as the EV lithium battery industry developed along with its narrowing technology gap (see Figure 7).

We expect the trend to continue going forward, but the company should continue to command a slight pricing premium of c.5% to the industry average over the next 3 years. We believe CATL's progress in material sciences will continue to be reflected in superior product performance and higher consistency.

Figure 7: CATL battery pack commands a premium over industry average



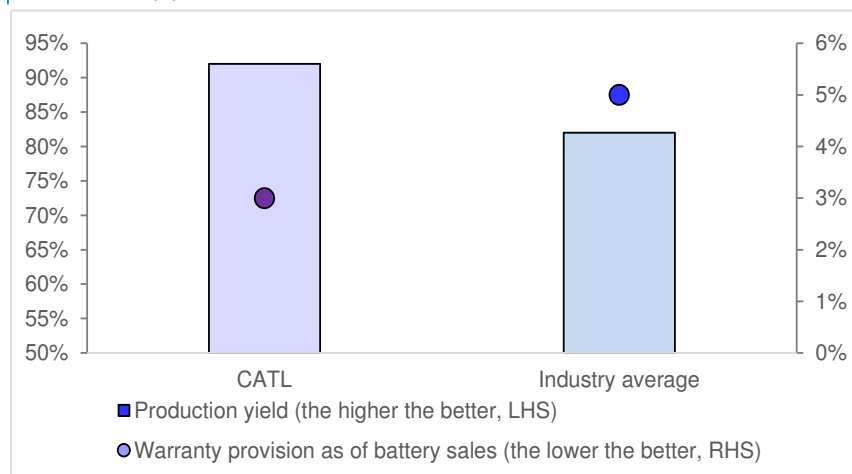
Source: Company data, RealLi Research, Deutsche Bank



Manufacturing experience and product quality set CATL apart

We believe CATL's pricing premium results from its combined manufacturing experience and higher product quality. Figure 8 illustrates its gap with its industry peers, and we believe these two key factors enable it to surpass competitors, which we will elaborate on in the following section.

Figure 8: CATL exhibits higher production yield and lower warranty provision than industry peers



Source: Company data, Deutsche Bank

- **Manufacturing experience:** As component materials and client requirements differ along with end-product generational changes, its accumulated manufacturing experience plays an important role in delivering lithium batteries in high volume and consistency, and thus high production yields. Following CATL's spin-off from ATL (one of the main suppliers of iPhone batteries), the company's engineers came with extensive experience in consumer electronic battery manufacturing given ATL's long history (it was founded in 1999). We believe ATL's supreme operational and management styles largely determine CATL's corporate DNA, which sets it apart from industry peers. In fact, its Chairman Zeng Yuqun had established ATL itself and managed the company for c. 17 years till 1Q17.
 - In 2015, ATL (majority owned by TDK) sold all of its 15% stake in the company in order to solidify CATL's position as a national champion in EV lithium batteries, supported by the Chinese government. Moreover, 2 companies were involved in IP (intellectual property) deals in 4Q15 and 3Q17, indicating cooperation at the R&D level.
- **Product quality:** Interviews with industry contacts suggest that CATL has a high production yield rate of over 90% compared to industry peers in China at c.10 percentage points lower. We believe it will take time for competitors to catch up with it, as technology complexity is increasing and moving towards high-nickel-content materials to achieve higher energy density with each year. In addition, the company lowered its warranty provision from 5% to 3% of sales revenue in 2016 due to significantly lower realized expense vs. the warranty provision, according



to its audited reports. This indicates CATL has a higher product quality in warranty provision than the industry norm's c.5% of sales revenue.

- CATL is now capable of achieving a 240wh/kg energy density level in mass production (NCM material on cell level) through technology development, which is not far from Panasonic's c.265wh/kg of the battery cell installed on the Tesla Model 3. CATL has also achieved a cell energy density level of 304wh/kg in over 1,000 cycles in the lab, according to Professor Minggao Ouyang, a leading expert in automobile power systems and control.



Competitive cost position

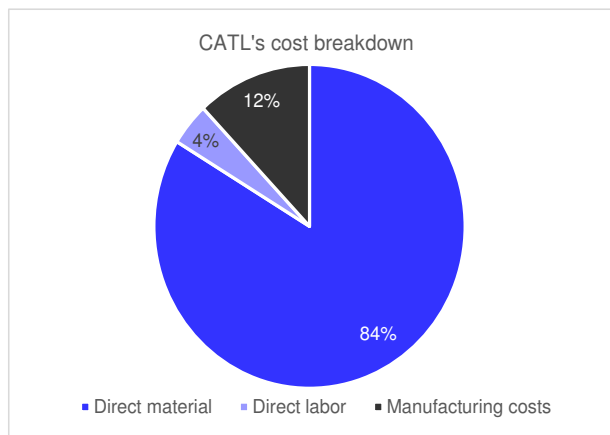
Lower battery costs domestically and internationally

Thanks to its significant scale, fast volume growth, and heavy reliance on domestic component suppliers, CATL has a competitive cost position against both overseas players and domestic players. The company's battery pack cost has dropped to USD143/kWh, with a blended battery system priced at USD209/wh. On a cost basis, this puts CATL on par with leading overseas players, including Tesla, LG Chem, and Samsung SDI.

CATL's cost cuts at 26% 3-year CAGR

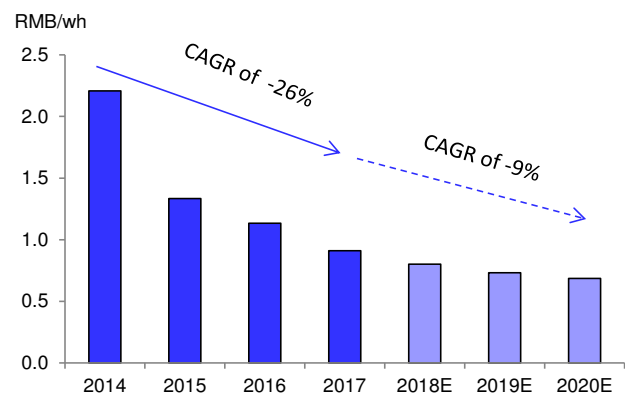
In 2014-2017, the company managed to cut battery costs by c.60% from RMB2.21/wh to RMB0.91/wh, achieving a 3-year CAGR of 26% cost down and still reported a healthy 36% gross margin. We believe that CATL's scale allowed it to leverage off domestic component suppliers and drive down its unit cost from the raw material perspective. As the industry has passed the easier phase of cost improvement, we expect CATL's blended battery cost to decline at a 3-year CAGR of 9% till 2020E (see Figure 10).

Figure 9: CATL's COGS breakdown



Source: Company data, Deutsche Bank estimates Data as of 2017

Figure 10: Historical battery pack cost trend and outlook



Source: Company data, Deutsche Bank estimates



Procurement cost advantage thanks to industry leading position

Our due diligence concludes that CATL has an advantage over the industry average spot price by 7-10%, thanks to its leading position in scale, fast growth, and accumulation of manufacturing know-how. As the company does not disclose unit cost directly, our view comes mainly from observations of year-over-year spot price movements of key components and comparing them to the company's reported unit procurement cost movements.

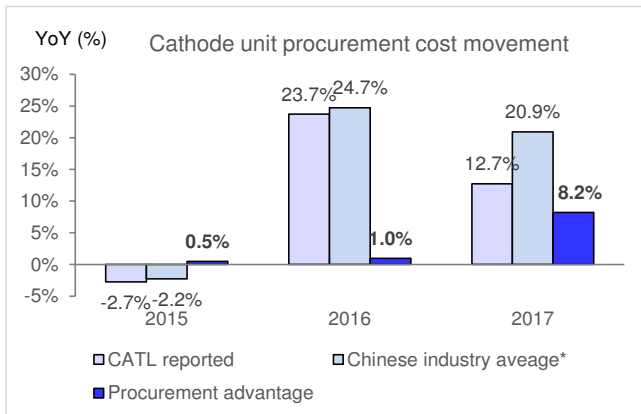
In the lithium battery industry, raw material purchase contracts are generally signed on an annual basis. As the battery component industry is expected to achieve cost decline in the future, battery makers tend not to build up inventory. Exception in the major components is cathode material, where the purchase contract is on a rolling monthly basis as over 80% of its cost is determined by upstream metals. Among CATL's inventory, 25-35% is made up by raw material and 40-50% by battery, which we believe is healthy considering its inventory days at 97 days in 2017.

Deep dive into the procurement cost movements of the 4 major components

We believe that CATL has paced itself and managed to strike a balance between raw material cost cuts and battery performance. As cathode is a critical component of a battery's materials that decides its energy density level, we saw that its procurement advantage allowed a significant improvement to c.8% in 2017 from virtually nil in 2015 (see Figure 11).

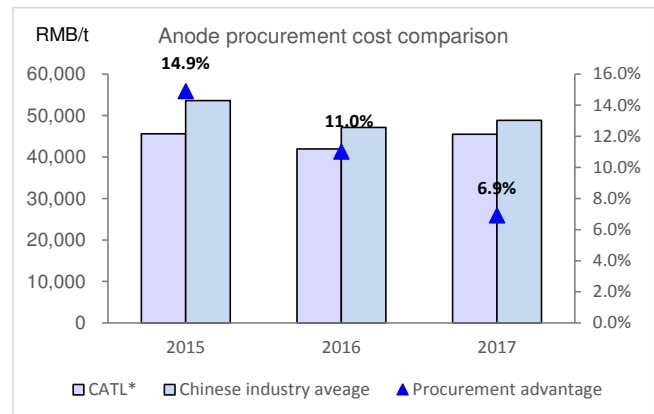
This compares with anode, which is shown in Figure 12 as a more mature component of battery materials and its estimated procurement cost advantage of c.15% occurred early in 2015 and gradually declined to c.7% in 2017.

Figure 11: CATL's cathode unit procurement cost advantage



*Industry average as the theoretical procurement cost factoring in the company's LFP/NCM split
 Source: Asian Metal, CIAPS, GBII, Company data, Deutsche Bank

Figure 12: CATL's anode unit procurement cost advantage



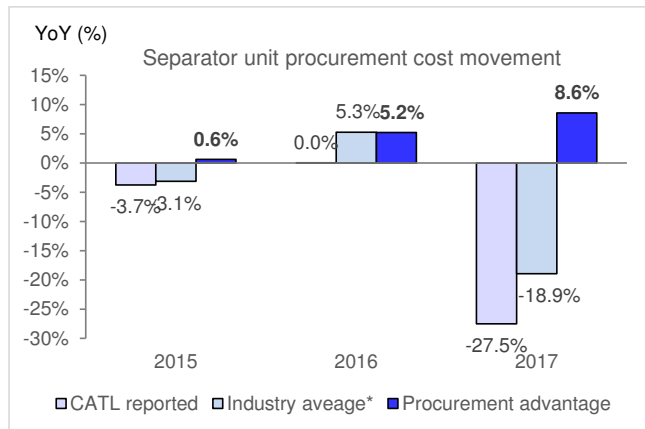
*Estimated by Deutsche Bank
 Source: CIAPS, GBII, Company data, Deutsche Bank



A separator prevents physical contact between the cathode and the anode, and acts as a safety mechanism in a battery cell. We note that the company sourced a proportion of separators overseas, and gradually substituted with domestic separators providers as the latter caught up in performance. We factored in an estimated imported/domestic split on an apples-to-apples comparison, and Figure 13 shows that CATL achieved a c.9% procurement advantage in 2017 from almost none in 2015.

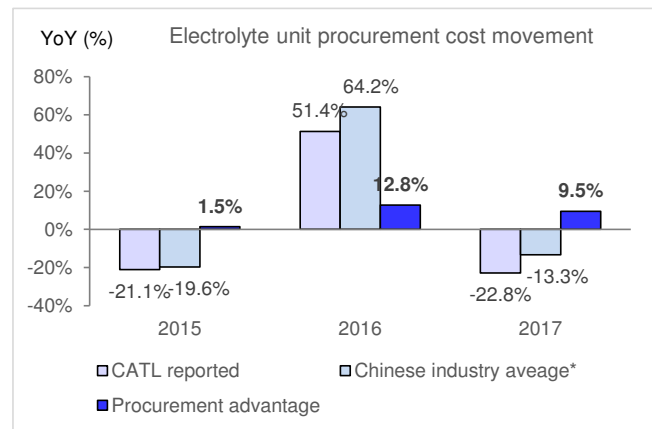
Its procurement advantage in electrolytes emerged in 2016, as electrolyte capacity is easier to ramp up provided that key ingredients are sufficient. We estimate that CATL had a procurement advantage of c.10% in 2017 based on its heavy reliance on key local suppliers (see Figure 14).

Figure 13:CATL's separator unit procurement cost advantage



* Industry average as the theoretical procurement cost factoring in the company's imported/domestic split.
 Source:CIAPS, GBII, Company data, Deutsche Bank

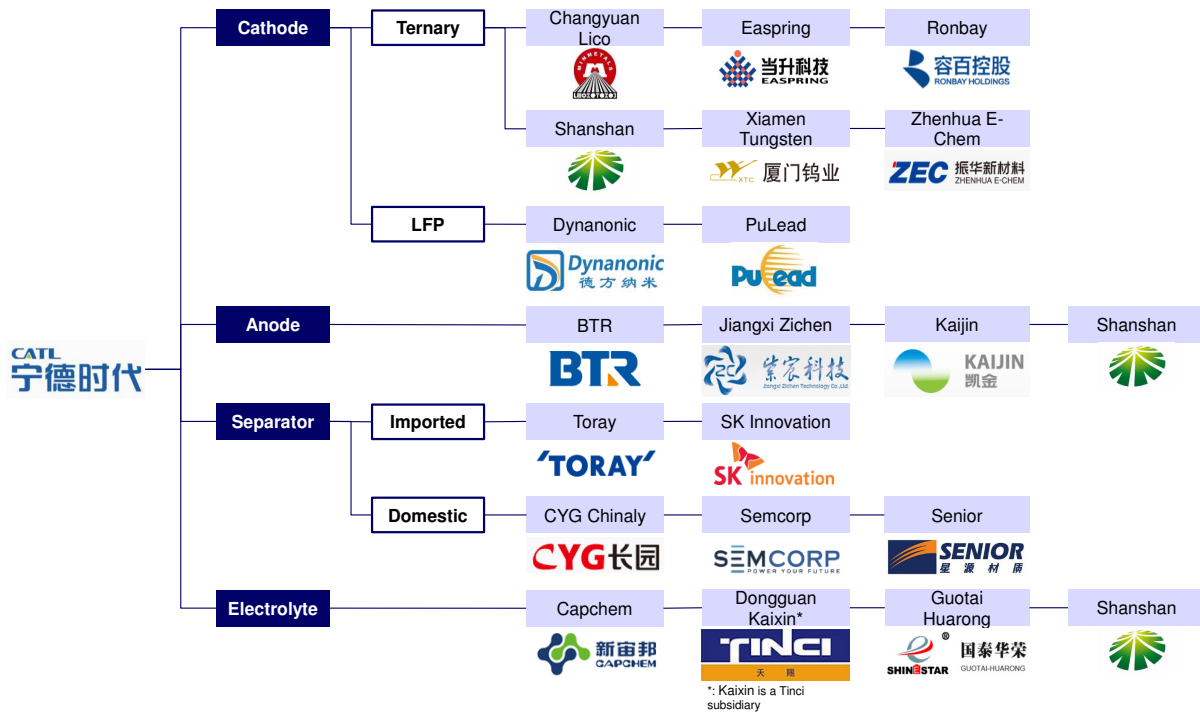
Figure 14:CATL's electrolyte unit procurement cost advantage



*Industry average as the theoretical procurement cost factoring in the company's LFP/NCM split
 Source:CIAPS, GBII, Company data, Deutsche Bank



Figure 15: CATL's heavy reliance on the domestic supply chain



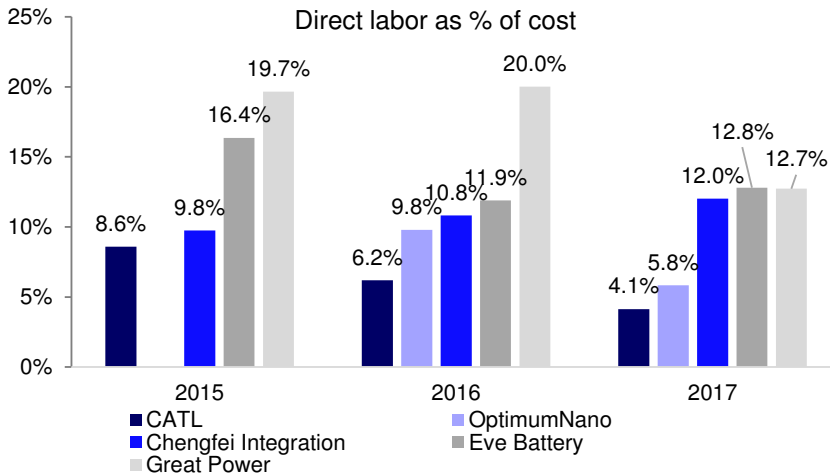
Source: Company data, industry data, Deutsche Bank



Higher automation level reflected in lower labor cost

We believe that increase in production line automation level also plays an important role in driving down unit cost for CATL. As the company has dedicated capex to automated formation, testing, warehousing systems over the past 3 years, we saw direct labor as a % of COGS more than halve to 4.1% in 2017, from 8.6% in 2015. It also puts CATL in the leading position, compared to domestic peers, as shown in Figure 16.

Figure 16: CATL exhibits lower labor cost as % of COGS



Source: Company data, A-share annual reports, Deutsche Bank



Summary of financials

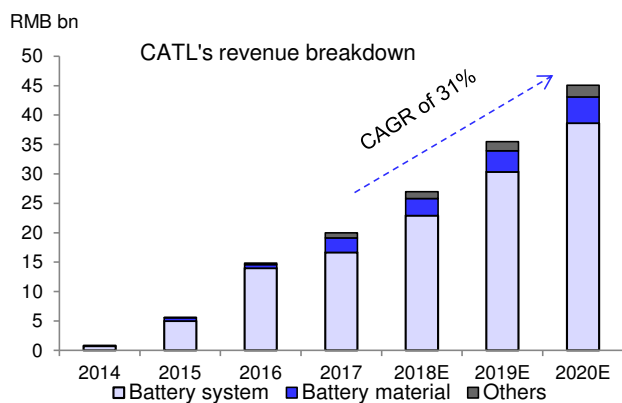
All segments are driven by lithium batteries

CATL is a pure proxy for exposure to lithium battery related businesses. As shown in Figure 17 and 18, the company reports revenue as follows: 1) battery systems, which include sales of both battery packs and battery cells; 2) battery materials, which mainly include sales of NCM precursor materials through its subsidiary Hunan Brunp; 3) others, which include battery recycling and battery R&D service revenue. Battery systems contributed 83%/81% of revenue/gross profit in 2017, and we expect a rise to 86% of revenue/gross profit each in 2020E, driven by strong EV battery volume growth.

As battery materials are mainly represented by sales of NCM precursors, we expect unit ASP movement and volume growth will largely follow the trend of NCM cathode, for which we expect a 22% 3-year revenue CAGR to 2020E. The battery material will consist of 10%/9% of CATL's top line/gross profit in 2020E, similar to current levels.

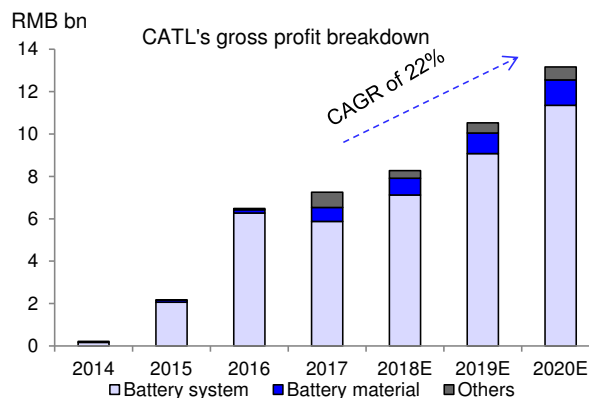
Regarding other businesses, including battery recycling and R&D services, we factored in similar growth rates to battery systems. Given that battery recycling occurs at the end of the battery product cycle, we believe that it should be highly linked to the company's main battery system sales. We expect to see 4%/5% revenue/gross profit contributions from the Others segment in 2020E, which is skewed to the conservative side, as we don't factor in the contribution from battery R&D services.

Figure 17: CATL's revenue breakdown



Source: Company data, Deutsche Bank estimates

Figure 18: CATL's gross profit breakdown



Source: Company data, Deutsche Bank estimates

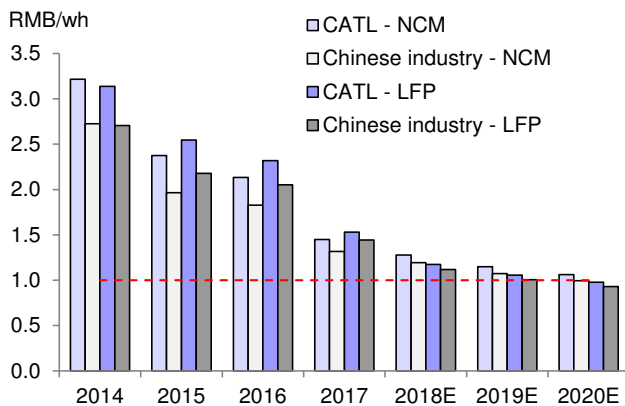


CATL's product pricing trajectory

CATL's battery pack ASP (excluding VAT) has more than halved over the past 3 years, and we estimate that ASP has declined by a 3-year CAGR of 22%, similar to the Chinese industry average, factoring in the company's LFP/NCM split. We expect battery pack ASP to decline further, responding to the phase-out of the government subsidy and cost-cut efforts to achieve a lower EV total cost of ownership.

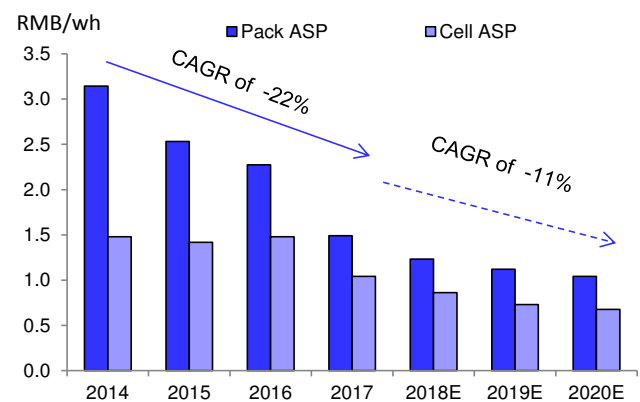
Currently the Chinese government targets to completely phase out the subsidy by end 2020 and sets the average battery cost target lower than RMB1/wh to drive technological improvement at EV battery manufacturers. We expect a slightly higher ASP decline CAGR at c.11% in the next 3 years for both CATL and the Chinese industry average. The number implies that Chinese industry average battery cost will achieve RMB0.99/wh (excluding VAT) by end-2020 and the industry will be fully prepared for the phase-out of the subsidy and re-entry of international battery players. Figure 19 below shows our estimates of CATL's pack ASP vs. the Chinese industry average, and Figure 20 illustrates the historical speed of the ASP decline and our outlook.

Figure 19: CATL battery ASP compared to the Chinese industry average



Source: RealLi Research, Company data, Deutsche Bank

Figure 20: CATL's battery ASP trajectory



Source: Company data, Deutsche Bank estimates

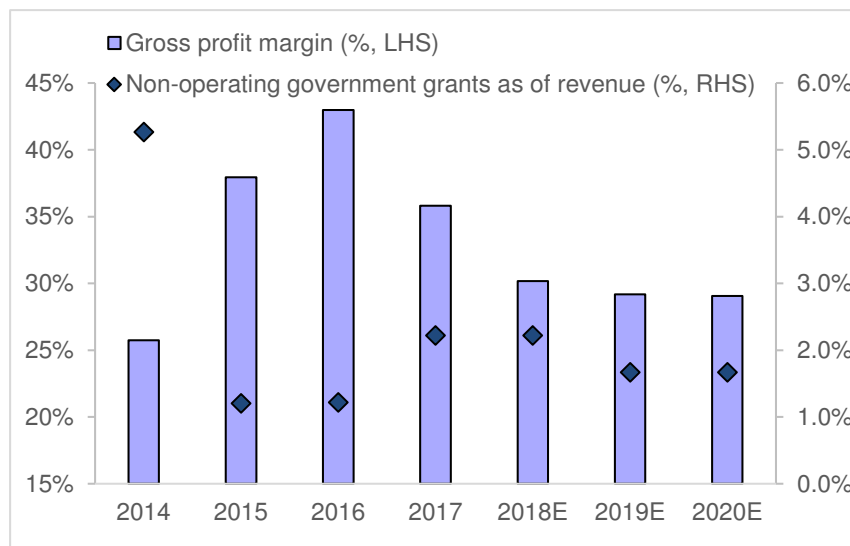


Direct exposure to government subsidy at c.2% of revenue

Chinese government provides EV subsidy to individual auto OEMs directly with a time lag, and other subsidies along the supply chain are not directly linked to the number of EVs sold. Regarding the exit of government subsidy at the end of 2020, we incorporated the impact on CATL's product in the previous section, adopting government battery cost at lower than RMB1/wh as the medium-term target by end 2020. If we look at the direct government subsidy as % of revenue, CATL reported the level at 1-2% in the past 3 years (see Figure 21 below).

Chinese government is strongly supportive of NEV sector, and the Ministry of Industry and Information Technology (MIIT) mentioned to develop 1-2 domestic lithium battery players capable of competing at a global level by the time subsidy exits. Therefore, we expect CATL to record the direct government subsidy at lower than 2% in the next 3 years, which we believe is at a reasonable level.

Figure 21: CATL's gross margin vs. subsidy as % of revenue trend



Source: Company data, Deutsche Bank estimates



CATL's cost per unit trajectory

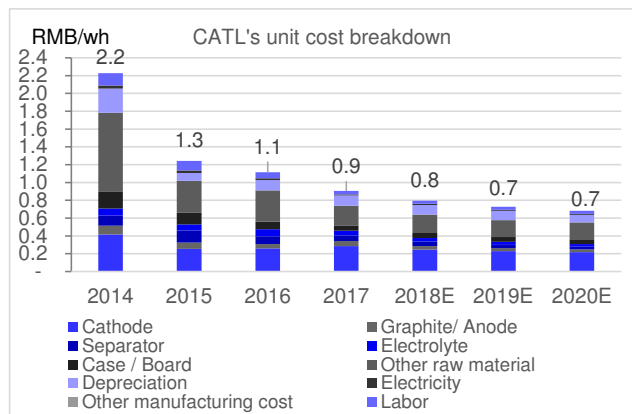
CATL successfully cut costs by 60% from 2014 to RMB0.91/kWh in 2017. We believe the cost cuts were made possible by its progress in material sciences, lower procurement cost and higher automation level, as illustrated in the previous section.

As shown in Figure 22 below, we built our unit cost assumption based on raw material, depreciation, labor, electricity, and other manufacturing costs. We expect costs to decline at a CAGR of 9% in the next 3 years, predominantly driven by raw material cost savings. The reduction in raw material usage reflects improving chemistry, energy density, the structural parts design of the cell and efficiency gains through scale enlargement.

We believe the phase of massive cost cuts due to scale increase is behind us, and the industry, including market leader CATL, would next seek cost savings by perfecting manufacturing technology and increasing energy density. As a result, we expect energy density improvement to be reflected in reduced raw material usage at a 3-year CAGR of 5% going forward, and improving manufacturing technology to contribute the remaining portion of cost savings.

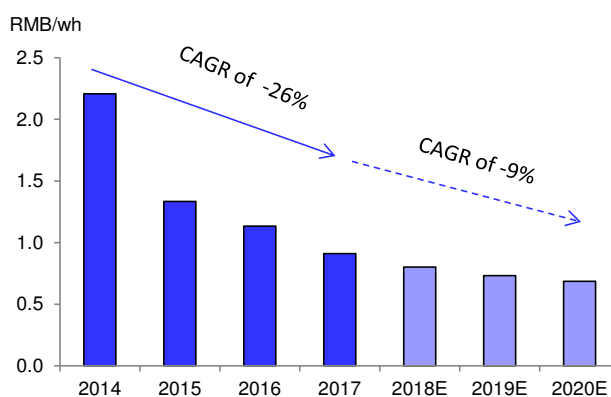
Let's look at the cost-cutting process another way. We estimate that in order to achieve a further 25% cost cut by 2020 to RMB0.7/wh from the current level, 84% of the cost savings will have to come from raw materials, 13% from depreciation, and 3% from electricity, labor, and other manufacturing costs.

Figure 22: CATL's battery unit cost buildup



Source: RealLi Research, GBII, Company data, Deutsche Bank

Figure 23: CATL's battery unit cost trajectory



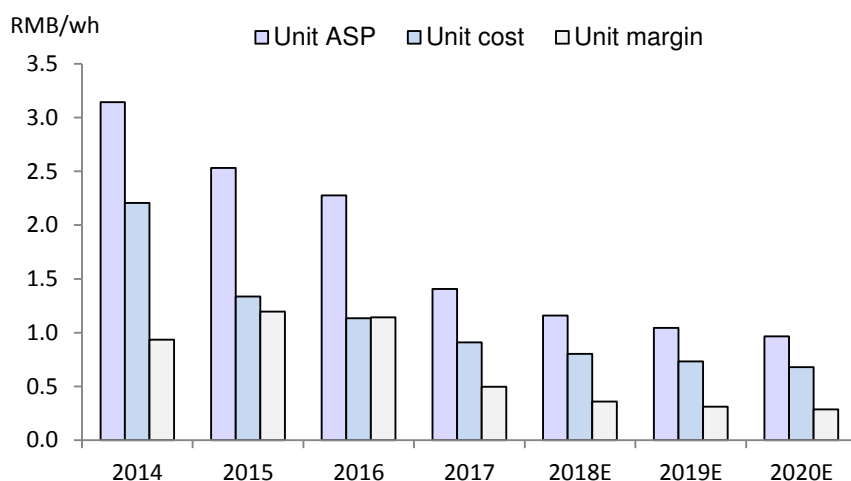
Source: Company data, Deutsche Bank estimates



Strong sales volume should offset shrinking unit profitability

We believe ASP of lithium batteries may drop faster than the company cuts costs. On a watt hour basis, we expect CATL's battery ASP per unit to fall at a 3-year CAGR of 11%, and cost per unit to drop at a 3-year CAGR of 9%. As a result, margin per unit should decrease from RMB0.50/wh in 2017 to RMB0.29/wh in 2020E, in our view (see Figure 24).

Figure 24: CATL's unit pricing, cost and margin



Source: Company data, Deutsche Bank estimates

Nonetheless, the strong growth in capacity and sales is likely to largely offset shrinking unit profitability. We expect total sales at CATL to increase from 11.8GWh in 2017 to 19.7/29.5/41.5 GWh in 2018/2019/2020, respectively, representing a 62%/64%/77% utilization rate in the next three years. The lower utilization rates than 76% in 2017 are due to the new manufacturing plants at Jiangsu Liyang (10GWh) and Ningde Huxi (24GWh), which will gradually ramp up after 2018 and 2019. As the company is still in an expansion phase, we expect the Ningde Hudong and Qinghai Xining plants to reach full capacity in 2020E, while other factories gradually ramp up (see figure 26).

In conclusion, we believe CATL will keep its competitive edge and expand its market share and bottom line even as its unit profitability erodes. Considering its broad customer mix, higher product quality and competitive cost position, CATL is highly likely to grow with downstream EV makers and maintain its leading position.

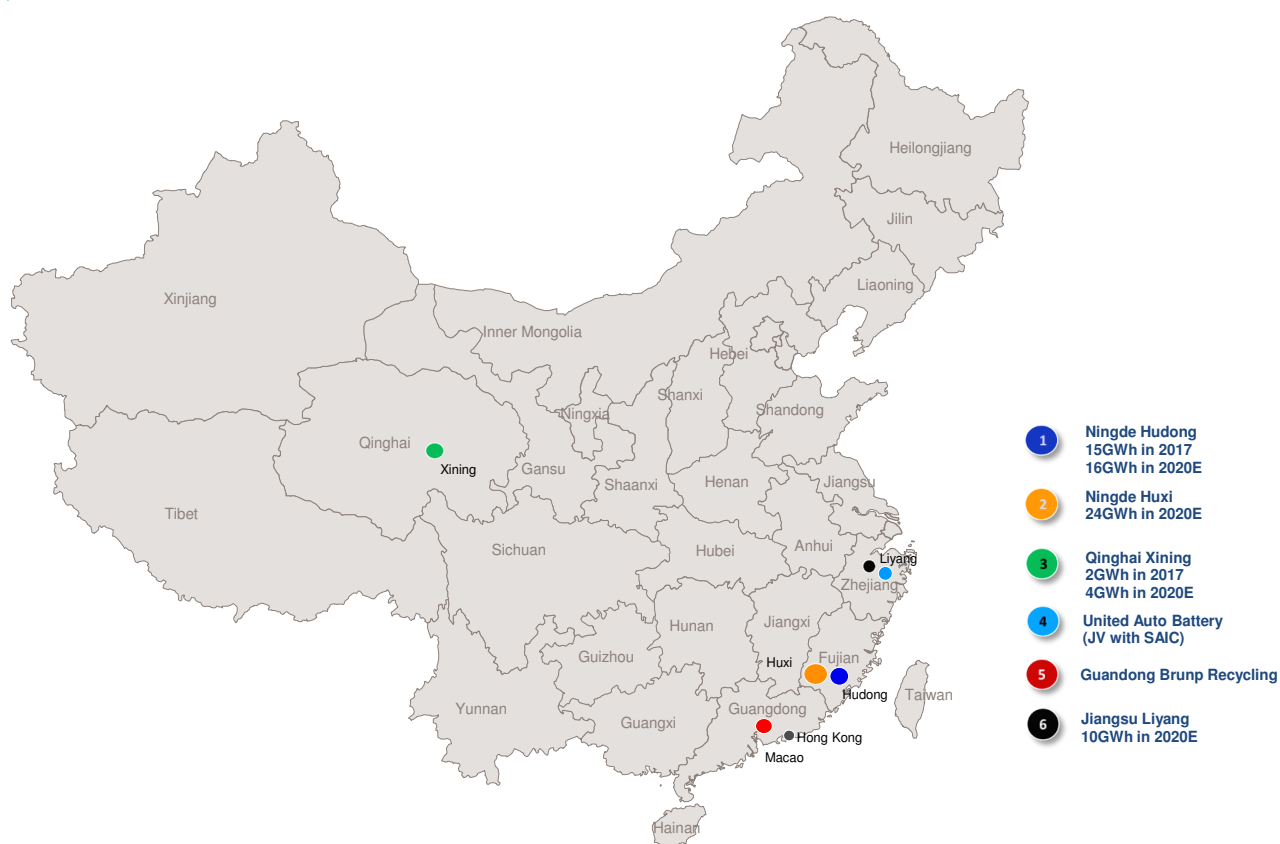


Figure 25: Key summary of CATL's operational and financial data

Key Summary		2014	2015	2016	2017	2018E	2019E	2020E
Effective Capacity	GWh	0.6	2.6	7.6	17.1	32.0	46.0	54.0
Sales	MWh	247	2,187	6,798	11,844	19,741	29,516	41,491
ASP	RMB/kWh	2.89	2.28	2.06	1.41	1.16	1.04	0.97
COGS	RMB/kWh	2.21	1.33	1.13	0.91	0.80	0.73	0.69
Sales	RMB mn	867	5,703	14,879	19,997	27,003	35,516	44,848
Battery sales	RMB mn	715	4,981	13,976	16,657	22,897	30,344	38,412
Gross profit	RMB mn	223	2,164	6,393	7,161	8,147	10,363	12,741
NPAT	RMB mn	54	931	2,852	3,878	3,478	4,396	5,572
GP Margin	%	25.7%	37.9%	43.0%	35.8%	30.2%	29.2%	28.4%
NP Margin	%	6.3%	16.3%	19.2%	19.4%	12.9%	12.4%	12.4%

Source: Company data, Deutsche Bank estimates

Figure 26: CATL's major assets and capacity map in China



Source: Company data, Deutsche Bank



Consolidated income statement

Figure 27: Consolidated income statement

	2014	2015	2016	2017	2018E	2019E	2020E
Rmb mn							
Revenue	867	5,703	14,879	19,997	27,003	35,516	44,803
YoY		558%	161%	34%	35%	32%	26%
COGS	644	3,539	8,486	12,836	18,856	25,153	31,788
COGS	644	3,499	8,377	12,740	18,726	24,982	31,573
Surcharge tax	0	40	109	96	130	170	215
Gross profit	223	2,164	6,393	7,161	8,147	10,363	13,015
Gross profit margin	25.7%	37.9%	43.0%	35.8%	30.2%	29.2%	29.0%
SG&A	196	951	2,784	3,752	4,527	5,599	6,570
Other income / expense	60	(3)	(128)	1,482	600	592	747
EBIT	87	1,209	3,481	4,890	4,221	5,356	7,192
<i>EBIT margin</i>	10.0%	21.2%	23.4%	24.5%	15.6%	15.1%	16.1%
D&A	67	189	779	1,355	2,160	3,071	3,560
EBITDA	154	1,398	4,260	6,245	6,380	8,427	10,752
EBITDA margin	17.8%	24.5%	28.6%	31.2%	23.6%	23.7%	24.0%
Net finance cost	25	109	80	42	-127	-141	-101
PBT	62	1,100	3,400	4,848	4,348	5,497	7,293
Tax	7	149	482	654	587	742	984
PAT	56	951	2,918	4,194	3,761	4,756	6,309
Minority interest	1	20	67	316	283	358	475
NPAT attributable to shareholders	54	931	2,852	3,878	3,478	4,397	5,833
YoY		1610%	206%	36%	-10%	26%	33%
<i>Net profit margin</i>	6.3%	16.3%	19.2%	19.4%	12.9%	12.4%	13.0%
Disposal gain	(0)	(1)	(152)	960			
Non-operating government grants	46	69	181	444	600	592	747
Investment income from WM products	3	14	48	354	-	-	-
Other non-operating income	0	(14)	7	16			
minus: income tax impact	8	12	17	263	81	80	101
minus: minority interest impact	0	6	2	10			
Recurring NPAT attributable to shareholders	14	880	2,786	2,376	2,958	3,885	5,187
YoY		6375%	217%	-15%	25%	31%	34%
<i>Recurring Net profit margin</i>	1.6%	15.4%	18.7%	11.9%	11.0%	10.9%	11.6%
EPS (end of period)	0.27	1.98	4.65	1.98	1.60	2.02	2.69
YoY		627%	135%	-57%	-19%	26%	33%

Source: Company data, Deutsche Bank estimates



Consolidated balance sheet

Figure 28: Consolidated balance sheet

	2014	2015	2016	2017	2018E	2019E	2020E
RMB mn							
Cash	60	1,293	2,457	14,081	15,750	14,345	17,648
Derivatives				14	14	14	14
Account receivable	402	2,872	8,070	12,467	16,836	22,143	27,934
Prepayment	15	70	101	306	306	306	306
Interest receivable	-	-	8	52	52	52	52
Inventory	312	1,042	1,360	3,418	5,021	6,697	8,464
Available for sale assets	-	-	5	-	-	-	-
Other current assets	1,104	228	9,761	2,695	2,695	2,695	2,695
Total current assets	1,893	5,504	21,761	33,033	40,674	46,253	57,113
Financial assets available for sale	5	5	143	1,961	1,961	1,961	1,961
Long-term equity investment	227	-	170	791	791	791	791
PPE	487	2,419	5,513	11,719	17,225	21,091	21,790
Long-term deferred expenses	0	6	14	139	139	139	139
Intangible assets	238	503	622	1,409	1,923	2,158	2,369
Goodwill	-	100	100	100	100	100	100
Deferred tax assets	25	135	265	510	510	510	510
Non-current assets	982	3,168	6,827	16,630	22,650	26,751	27,661
Total assets	2,875	8,673	28,588	49,663	63,324	73,004	84,773
Short-term debt	325	1,899	1,467	2,610	2,610	2,410	2,110
Account payable	551	2,825	7,928	14,108	17,385	21,123	25,389
Advance received from customers	9	170	88	203	274	361	455
Others current liabilities	52	455	700	969	969	969	969
Total current liabilities	936	5,349	10,183	17,890	21,238	24,863	28,923
Long-term debt	-	-	302	2,129	3,329	4,629	6,029
Provisions	44	581	931	1,789	1,789	1,789	1,789
Long-term payable	1,345	918	950	895	895	895	895
Others	215	327	432	488	488	488	488
Total non-current liabilities	1,603	1,825	2,614	5,302	6,502	7,802	9,202
Total liabilities	2,540	7,175	12,797	23,192	27,739	32,664	38,125
Share capital	200	471	613	1,955	2,172	2,172	2,172
Capital reserves	-	369	11,609	15,355	20,489	20,489	20,489
Other comprehensive income	0	1	2	249	249	249	249
Surplus reserve	7	37	300	638	638	638	638
Retained earnings	50	376	2,965	6,505	9,982	14,380	20,213
Minority interest	79	245	302	1,770	2,053	2,412	2,887
Total equities	335	1,498	15,791	26,471	35,584	40,340	46,649
Total liabilities and total equities	2,875	8,673	28,588	49,663	63,324	73,004	84,773

Source: Company data, Deutsche Bank estimates



Consolidated cash flow statement

Figure 29: Consolidated cash flow statement

	2014	2015	2016	2017	2018E	2019E	2020E
RMB mn							
Cash flow from operations							
Net profit	56	951	2,918	4,194	3,761	4,756	6,309
Depreciation	45	164	731	1,280	1,989	2,838	3,300
Amortization	23	25	48	75	170	232	261
Amortization of long-term deferred expenses	0	3	5	27	-	-	-
Decrease in inventory	(220)	(698)	(320)	(2,290)	(1,603)	(1,677)	(1,767)
Decrease in receivables	(314)	(2,316)	(14,762)	(5,076)	(4,368)	(5,307)	(5,790)
Increase in payables	282	2,477	13,032	5,163	3,276	3,738	4,266
Others	(9)	59	457	(1,032)	71	86	94
Provision for asset impairment	3	59	234	245	-	-	-
Cash flow from operation	(139)	665	2,109	2,341	3,297	4,667	6,673
Cash flow from Investment							
CAPEX	301	1,554	2,801	7,180	8,180	7,172	4,470
Others	979	1,265	9,782	2,875			
Cash flow from Investment	(1,273)	(641)	(12,428)	(7,636)	(8,180)	(7,172)	(4,470)
Cash flow from financing							
Borrowing	202	831	1,931	4,477	1,700	1,500	1,400
Payback	5	629	937	1,422	500	400	300
Equity raising					5,352		
Dividend payment	5	69	54	82	0	0	0
Cash flow from financing	1,466	440	10,971	8,933	6,552	1,100	1,100
FX impact	(5)	(1)	(2)	(14)	-	-	-
Net cash flow	48	462	650	3,624	1,670	(1,405)	3,303
Free cash flow	(440)	(889)	(692)	(4,840)	(4,883)	(2,505)	2,203

Source: Company data, Deutsche Bank estimates

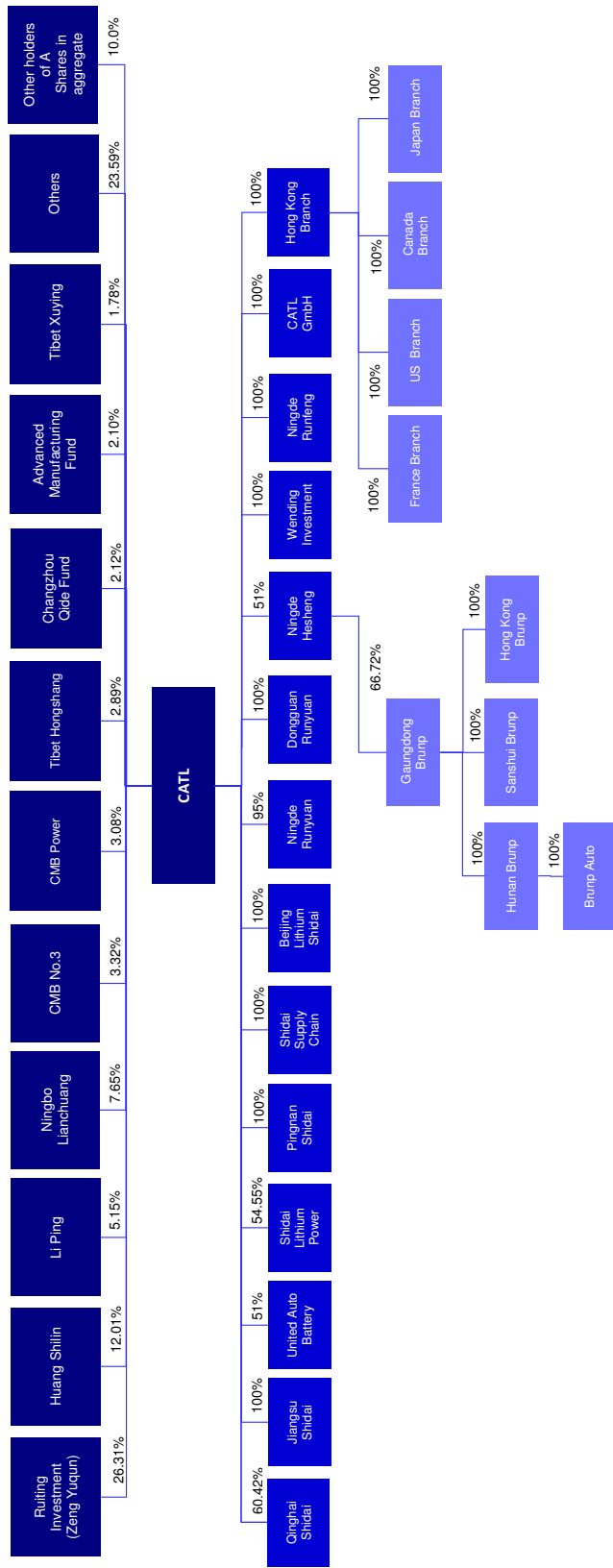


Appendix

Shareholding structure



Figure 30: CATL's shareholding structure as of today



Source: Company data, Deutsche Bank



Company history

Figure 31: CATL's company milestones and history

Year	Event
2011	Established Contemporary Amperex Technology Limited Founded from a branch of consumer electronic battery maker ATL
2012	Established Contemporary Amperex Technology Limited (Qinghai) with CDB development fund
2013	Acquired 35% of Guangdong Brunp Recycling Technology Limited through the company's JV Established Contemporary Amperex Technology GmbH (Munich)
2014	Established Beijing Li Contemporary Amperex Technology Limited Established Contemporary Amperex Technology Limited (Shanghai)
2015	Modified to a joint stock limited company Purchased Guangdong Brunp Recycling Technology Limited through the company's JV Established CATL Academicians and Specialists Workstation
2016	Established Contemporary Amperex Technology Limited (Jiangsu) Effective capacity reached 7.6GWh Founded branches in France, USA, Canada and Japan.
2017	Cooperated with SAIC to found United Auto Battery Co. Purchased 22% of Finnish auto supplier Valmet Auto Effective capacity reached 17.1GWh, sales volume reached 11.8GWh and became the largest in the world

Contemporary Amperex Technology

Source: Company data, Deutsche Bank



Model updated: 12 June 2018

Running the numbers

Asia

China

Metals & Mining

CATL

Reuters: 300750.SZ Bloomberg: 300750 CH

Buy

Price (12 Jun 18) CNY 39.82

Target Price CNY 72.20

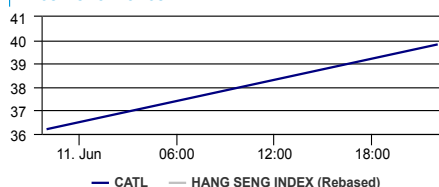
52 Week range CNY 36.20 - 39.82

Market cap (m) CNYm 86,506
USDm 13,513

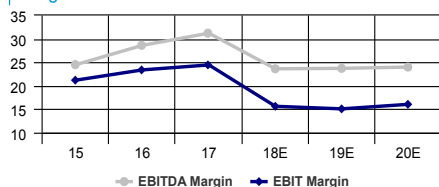
Company Profile

CATL operates as a battery products manufacturing company. The Company produces and sells power battery materials, energy storage battery materials, energy storage battery cells, battery systems, and other products. CATL also provides batteries recycling services.

Price Performance



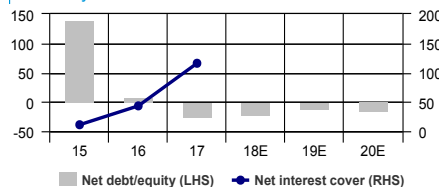
Margin Trends



Growth & Profitability



Solvency



Neil Sun

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Fiscal year end 31-Dec

Financial Summary

	2015	2016	2017	2018E	2019E	2020E
DB EPS (CNY)	1.98	4.65	1.98	1.60	2.02	2.69
Reported EPS (CNY)	1.98	4.65	1.98	1.60	2.02	2.69
DPS (CNY)	0.15	0.09	0.04	0.00	0.00	0.00
BVPS (CNY)	2.7	25.3	12.6	15.4	17.5	20.1
Weighted average shares (m)	471	613	1,955	2,172	2,172	2,172
Average market cap (CNYm)	na	na	na	86,506	86,506	86,506
Enterprise value (CNYm)	na	na	na	81,432	84,296	82,569

Valuation Metrics

P/E (DB) (x)	na	na	na	24.9	19.7	14.8
P/E (Reported) (x)	na	na	na	24.9	19.7	14.8
P/BV (x)	0.00	0.00	0.00	2.58	2.28	1.98
FCF Yield (%)	na	na	na	nm	nm	2.5
Dividend Yield (%)	na	na	na	0.0	0.0	0.0
EV/Sales (x)	nm	nm	nm	3.0	2.4	1.8
EV/EBITDA (x)	nm	nm	nm	12.8	10.0	7.7
EV/EBIT (x)	nm	nm	nm	19.3	15.7	11.5

Income Statement (CNYm)

Sales revenue	5,703	14,879	19,997	27,003	35,516	44,803
Gross profit	2,164	6,393	7,161	8,147	10,363	13,015
EBITDA	1,398	4,260	6,245	6,380	8,427	10,752
Depreciation	189	779	1,355	2,160	3,071	3,560
Amortisation	0	0	0	0	0	0
EBIT	1,209	3,481	4,890	4,221	5,356	7,192
Net interest income/(expense)	-109	-80	-42	127	141	101
Associates/affiliates	0	0	0	0	0	0
Exceptionals/extraordinary	0	0	0	0	0	0
Other pre-tax income/(expense)	0	0	0	0	0	0
Profit before tax	1,100	3,400	4,848	4,348	5,497	7,293
Income tax expense	149	482	654	587	742	984
Minorities	20	67	316	283	358	475
Other post-tax income/(expense)	0	0	0	0	0	0
Net profit	931	2,852	3,878	3,478	4,397	5,833
DB adjustments (including dilution)	0	0	0	0	0	0
DB Net profit	931	2,852	3,878	3,478	4,397	5,833

Cash Flow (CNYm)

Cash flow from operations	665	2,109	2,341	3,297	4,667	6,673
Net Capex	-1,554	-2,801	-7,180	-8,180	-7,172	-4,470
Free cash flow	-889	-692	-4,840	-4,883	-2,505	2,203
Equity raised/(bought back)	0	0	0	5,352	0	0
Dividends paid	-69	-54	-82	0	0	0
Net inc/(dec) in borrowings	202	993	3,055	1,200	1,100	1,100
Other investing/financing cash flows	1,219	402	5,490	0	0	0
Net cash flow	462	650	3,624	1,670	-1,405	3,303
Change in working capital	-537	-2,051	-2,203	-2,695	-3,246	-3,291

Balance Sheet (CNYm)

Cash and other liquid assets	1,293	2,457	14,081	15,750	14,345	17,648
Tangible fixed assets	2,419	5,513	11,719	17,225	21,091	21,790
Goodwill/intangible assets	603	722	1,509	2,023	2,258	2,469
Associates/investments	0	0	0	0	0	0
Other assets	4,358	19,897	22,354	28,325	35,309	42,866
Total assets	8,673	28,588	49,663	63,324	73,004	84,773
Interest bearing debt	3,398	3,650	7,423	8,623	9,723	10,823
Other liabilities	3,777	9,147	15,768	19,116	22,941	27,301
Total liabilities	7,175	12,797	23,192	27,739	32,664	38,125
Shareholders' equity	1,254	15,489	24,701	33,531	37,928	43,762
Minorities	245	302	1,770	2,053	2,412	2,887
Total shareholders' equity	1,498	15,791	26,471	35,584	40,340	46,649
Net debt	2,105	1,193	-6,658	-7,127	-4,622	-6,825

Key Company Metrics

Sales growth (%)	557.9	160.9	34.4	35.0	31.5	26.2
DB EPS growth (%)	626.7	135.1	-57.3	-19.3	26.4	32.7
EBITDA Margin (%)	24.5	28.6	31.2	23.6	23.7	24.0
EBIT Margin (%)	21.2	23.4	24.5	15.6	15.1	16.1
Payout ratio (%)	7.5	1.9	2.1	0.0	0.0	0.0
ROE (%)	123.2	34.1	19.3	11.9	12.3	14.3
Capex/sales (%)	27.2	18.8	35.9	30.3	20.2	10.0
Capex/depreciation (x)	8.2	3.6	5.3	3.8	2.3	1.3
Net debt/equity (%)	140.5	7.6	-25.2	-20.0	-11.5	-14.6
Net interest cover (x)	11.1	43.3	116.0	nm	nm	nm

Source: Company data, Deutsche Bank estimates



Appendix 1

Important Disclosures

*Other information available upon request

Disclosure checklist			
Company	Ticker	Recent price*	Disclosure
CATL	300750.SZ	39.82 (CNY) 12 Jun 2018	NA

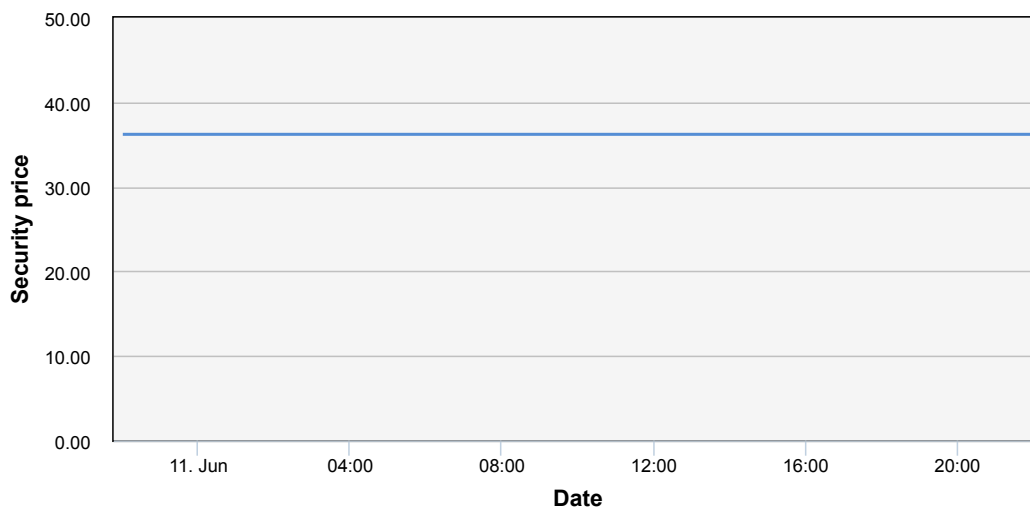
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Historical recommendations and target price. CATL (300750.SZ)

(as of 06/12/2018)



Current Recommendations

- Buy
- Hold
- Sell
- Not Rated
- Suspended Rating

** Analyst is no longer at Deutsche Bank



Equity Rating Key

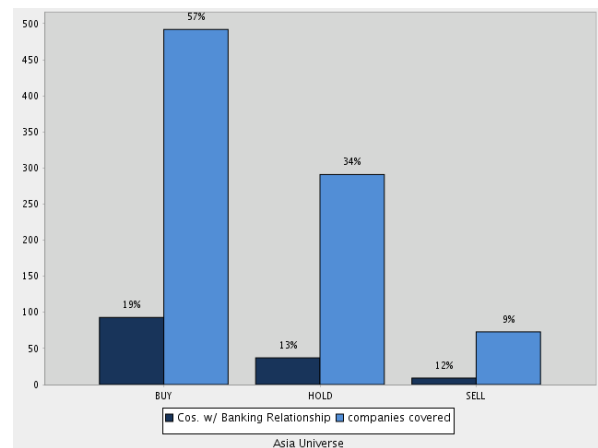
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Sell: Based on a current 12-month view of total share-holder return, we recommend that investors sell the stock.

Hold: We take a neutral view on the stock 12-months out and, based on this time horizon, do not recommend either a Buy or Sell.

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