

23 November 2018

Hong Kong

EQUITIES

2186 HK Outperform
Price (at 12:04, 22 Nov 2018 GMT) HK\$6.46

Valuation - NAV	HK\$	4.57
12-month target	HK\$	8.76
Upside/Downside	%	+35.6
12-month TSR	%	+36.6

GICS sector

Pharmaceuticals, Biotechnology & Life Sciences

Market cap	HK\$bn	21
Market cap	US\$bn	3
Free float	%	34
30-day avg turnover	US\$m	6.5
Number shares on issue	bn	3.26

Investment fundamentals

Year end 31 Dec		2017A	2018E	2019E	2020E
Revenue	m	3,814.8	5,163.0	6,245.9	6,858.2
EBIT	m	1,090.0	1,569.3	1,865.9	2,037.8
EBIT growth	%	17.6	44.0	18.9	9.2
Reported profit	m	981.4	1,205.2	1,395.4	1,534.1
Adjusted profit	m	981.4	1,205.2	1,395.4	1,534.1
EPS rep	Rmb	0.30	0.37	0.43	0.47
EPS rep growth	%	12.2	23.8	14.5	9.9
EPS adj	Rmb	0.30	0.37	0.43	0.47
EPS adj growth	%	12.3	23.6	14.5	9.9
PER rep	x	19.0	15.4	13.4	12.2
PER adj	x	19.0	15.4	13.4	12.2
Total DPS	Rmb	0.05	0.06	0.07	0.08
Total div yield	%	0.8	1.0	1.1	1.3
ROA	%	10.9	11.3	11.2	12.0
ROE	%	14.9	16.5	16.5	15.8
EV/EBITDA	x	14.1	10.4	9.0	8.3
Net debt/equity	%	-20.1	-7.4	4.0	-8.0
P/BV	x	2.8	2.4	2.1	1.8

Source: FactSet, Macquarie Research, November 2018
(all figures in Rmb unless noted, TP in HK\$)

Luye Pharma Group (2186 HK)

Small company with big products

Key points

- ▶ Inexpensive valuation with 13x 12M PE and 24% EPS growth in 2018E.
- ▶ Limited downside risks for Lipusu in 2019, with new products to rise in 2020.
- ▶ Initiate coverage with Outperform rating and TP of HK\$8.76 (36% upside).

Enjoying mild price decline

The blockbuster drug of Luye Pharma Group (LUYE), Lipusu, should contribute 38% of revenue and 63% of profit in 2018, according to our estimates. It has stayed out of the National Reimbursement Drug List (NRDL) to avoid severe price cuts of 30-50%. However, we believe it does need to negotiate to enter provincial drug lists (10 provinces so far) and yield some price discounts on an annual basis. The price drop should be much milder than the cuts required by NRDL tendering, in our view. Factoring in such gradual price drop, we expect sales growth of 15% and 13% in 2018 and 2019, which will peak in 2023 at Rmb2.5bn. Including all competing forms of paclitaxel (active ingredient of Lipusu) on the market, Lipusu accounts for 35% of share by value and 18% by volume.

Plan B ready

We are confident in our growth forecast for Lipusu in 2019 as it has escaped both the NRDL tendering and the recent (likely the next) round of 4+7 centralized procurement. However, projection beyond 2020 is less certain and management has a plan B in place to offset any potential shortfall from Lipusu. The company purchased Seroquel regular and extended-release tablet from AstraZeneca in June for US\$546m, payable in 3 instalments over 2 years. We expect this and another two products acquired in 2017 (from Acino for €245m) to contribute 22% of revenue in 2020. New products under development should also start contributing after 2020, reducing the company's revenue dependence on Lipusu.

Little sphere with magnificent power

A liposome is a miniscule bubble made out of similar materials to a human cell membrane to help transport large molecule drugs to their target site of action, but reduce damage to other healthy tissues. This technology can be applied to several existing drugs to improve their efficacy (through ability to use higher dosage) and reduce side effects. Regulators in the US and China consider such products as innovative drugs, but do not require clinical proof as extensive as brand new medicine. This shortens the time to market for the product and limits R&D expenditure for the company. Lipusu is a successful example and there will be more to come, in our view. This allows LUYE, albeit a small company, to market a high-margin blockbuster and sustain strong earnings growth.

Valuation

We apply 18x PE on 2019E EPS of oncology, metabolism and CNS drugs, and 13x on cardiovascular drugs and others, to arrive at our target price of HK\$8.76, implying 36.6% TSR. We believe the multiple is justified in view of our strong earnings growth estimates (23% in 2018 and 16% in 2019).

Key risk

Concentration risk on Lipusu and unexpected sales ramp up of new products.

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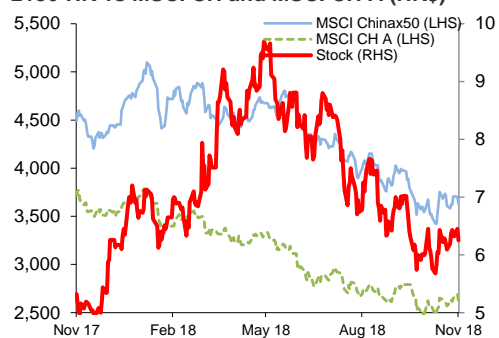


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2186-HK vs MSCI CH and MSCI CH A (HK\$)



Source: FactSet, Macquarie Research, Nov. 2018

MQ forecast vs Consensus forecast (Rmb bn)

	2015A	2016A	2017A	2018E	2019E
Revenue	2.6	2.9	3.8	MQ 5.2	6.2
				Cons 5.0	5.9
				Dif% 4%	5%
Net profit	0.75	0.89	0.98	MQ 1.21	1.40
				Cons 1.33	1.58
				Dif% -9%	-12%

MQ: Macquarie forecast, Cons: FactSet consensus

Source: FactSet, Macquarie Research, November 2018

Events after listing in 2014:

A 2014: Listed on mainboard Hong Kong Stock Exchange after delisted from Singapore in 2012

B 2016: Acquired Acino AG and obtained its TDS products including Rivastigmine Transdermal Patches

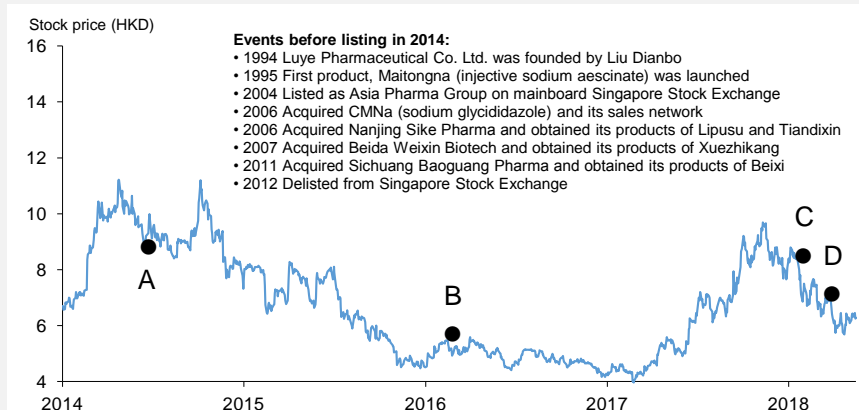
C 2018 May: Acquired Seroquel (quetiapine fumarate) from AstraZeneca

D 2018 Aug: Acquired Apleek from Bayer

Company profile

- Luye Pharma Group (LUYE) manufactures and sells both innovative and generic drugs. In terms of therapeutic areas, oncology (Lipusu & CMNa), cardiovascular (Xuezhikang & Maitongna), metabolism (Beixi) and CNS (rivastigmine transdermal patches) account for 49.1%/16.9%/19.6%/10.8% of total revenue respectively in FY17. It is the market leader in almost all its key drugs. According to the company, Lipusu ranked number one in market share with 35% market share; Xuezhikang had 97% share; Maitongna accounted for 66%, and CMNa occupied the full market.
- Chairman and founder Liu Dianbo was a teacher at Yantai Normal College. He graduated from Yishui Special Medical College (now Shandong Medical College) with a medical diploma in 1985. Later in 1989, he founded Penglai Huatai Pharma, where he was General Manager. He, together with Yang Rong Bing (Vice Executive Chairman) and Yuan Hui Xian (Executive Director) established Shandong Luye (formerly Yantai Luye) in 1994 to make and sell drugs as well as active pharmaceutical ingredients.
- Since the first product Maitongna was launched in 1995, the product line has expanded significantly through internal R&D and external M&A. The company acquired CMNa, Lipusu and Tiandixin in 2006 from Nanjing Saike, Xuezhikang in 2007 from Beida Weixin Biotech, Beixi in 2011 from Sichuang Baoguang Pharma, Rivastigmine transdermal patches in 2016 from Acino AG and most recently Seroquel from AstraZeneca and Apleek from Bayer in 2018. The ability of M&A and integration is key to enriching the product portfolio throughout the history of LUYE.
- Looking forward, Seroquel should rise as another key revenue contributor. More upside should also come from future potential launch of products under development, including LY03003 (rotigotine ER, Parkinson's) in 2021, LY03004 (risperidone ER, Schizophrenia) in 2H19, LY03005 (ansofaxine, Depression) in 2021, and 30410 (rivastigmine multi-day transdermal patch, Alzheimer's) in 2019.
- In 2004, Luye was listed in Singapore and later delisted in 2012. Two years later, the company was listed in Hong Kong. From 2014 to 2017, CAGR of revenue and earnings were 14% and 17%, respectively. Oncology, metabolism, cardiovascular and CNS segments contributed 49%, 20%, 17% and 11% respectively to 2017 revenue. We expect revenue and earnings to increase by 35% and 23% in 2018, due to good performance of Lipusu and contribution from newly acquired Seroquel.

Fig 1 Company History



Source: FactSet, Macquarie Research, November 2018, priced as of 22 November 2018

Small company with big products

Lipusu (力扑素)



Source: Company website
(authorized by management),
November 2018

With a market capitalization of Rmb18bn, but Macquarie-estimated core profits of Rmb1.2bn plus 15% growth projection for 2018, LUYE is one of the most inexpensive pharmaceutical manufacturer listed in HK, in our view. High gross margin and net margin put the company almost at par to biotechnology peers. Its blockbuster drug, Lipusu (力扑素), is the only approved paclitaxel liposome injection around the world and has maintained number one market share in China. Its recently acquired Seroquel (思瑞康) from AstraZeneca looks set to become another blockbuster drug for the company. Upside potential is significant for Seroquel as current sales are mostly outside of Asia, followed by Asian countries outside of China. The company's various smaller products such as Maitongna, Xuezhikang and CMNa, all enjoyed over 90% market share. For a small company like Luye, its pipeline is impressive with various potential blockbusters re-formulated with the company's extended-release drug delivery system.

Enjoying mild price decline

Lipusu accounted for 40% of the company's revenue in 2017 and enjoys high gross margin of 80%. Its active ingredient, paclitaxel, was approved in 1993 under the brand name of Taxol by BMS for use in various types of cancer around the world. Paclitaxel is one of the most prescribed plant alkaloid drugs with a market size of Rmb10bn in China, under different brand names and formulations, innovative and generic drugs combined. An improved formulation, Abraxane by Abraxis (now Celgene), was approved in 2005 to reduce the drug toxicity through binding paclitaxel with albumin nanoparticles. The combination of paclitaxel and the formulation behind Lipusu is unique, using liposome instead of albumin to improve the stability of paclitaxel but reduce its toxicity. This makes Lipusu the only such combination approved around the world.

The price drop in this respect should be much milder than the cuts required by NRDL

Despite its strong sales momentum over the last three years and fears of authorities intervening to cut price or remove drugs from formulary, we believe the growth of Lipusu can still last for another five years to reach a peak of Rmb2.5bn. We expect sales growth of 15% and 13% in 2018 and 2019. Lipusu has deliberately stayed out of the National Reimbursement Drug List (NRDL) to avoid potential severe price cuts of 30-50%, in exchange for access to a wider market. However, we believe it does need to negotiate to enter provincial drug lists (10 provinces so far) and yield some price discounts on an annual basis. The price drop in this respect should be much milder than the cuts required by NRDL tendering. From a more optimistic point of view, Lipusu may be able to escape from the national 4+7 centralized procurement scheme for now.

There are currently 5 types of paclitaxel on the market. 1) Original brand name naked paclitaxel and 2) liposome-paclitaxel (Lipusu) have similar cost at Rmb7-8k per treatment course, versus 3) generic naked paclitaxel at Rmb2-3k; 4) brand name albumin-paclitaxel (Abraxane) by Celgene at Rmb20k, versus 5) their generic by CSPC and Hengrui at Rmb9-10k. Type 1) and 3) are cheapest but they have the most side effects. Type 4) and 5) are the best but they are too expensive to be included in either the national or provincial drug list. Type 3) by LUYE is in the middle in terms of both price and side effects profile.

In the near term, this is positive news for all LUYE, CSPC and Hengrui

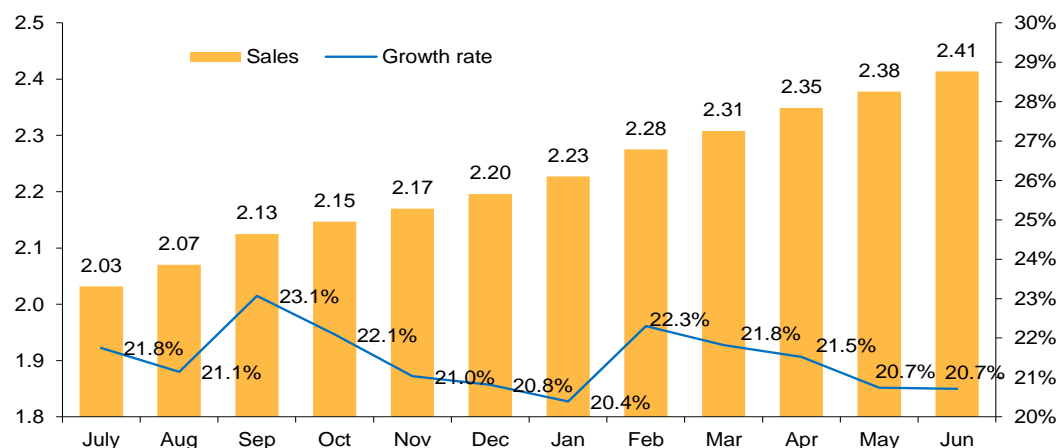
In the original proposed 4+7 centralized procurement scheme in September 2018, albumin-based paclitaxel made by CSPC Pharmaceutical and Jiangsu Hengrui Medicine (A-Share) (600276 CH, Not Rated) was on the list, but was eventually taken out in the final list in November 2018 due to a lack of generics which had passed the BE test. In the near term, this is positive news for LUYE, CSPC and Hengrui. If the next round of 4+7 procurement does include albumin-paclitaxel, all LUYE, CSPC and Hengrui may have to cut prices significantly and it remains to be seen who makes the biggest gain in volume to offset the price drop.

We strongly believe if the 2018 and 2019 earnings growth remains resilient, investors should be positively surprised

The dynamic is very tricky with lots of moving parts and uncertainties for Lipusu. In cases such as this, stock investors have historically skipped the complicated analysis and walked away from a stock or assumed the worst-case scenario. This could explain, in part, the weakness of the stock relative to the underlying fundamentals of the company at least for the next 12 months. We strongly believe if the 2018 and 2019 earnings growth remains resilient, investors should be positively surprised. Thus, this should serve as a near-term catalyst for LUYE. In the long-term, we acknowledge there is increasing uncertainty for Lipusu beyond 2020, but that should be offset by the launch of new products from its pipeline as well as ramp-up of sales of Seroquel.

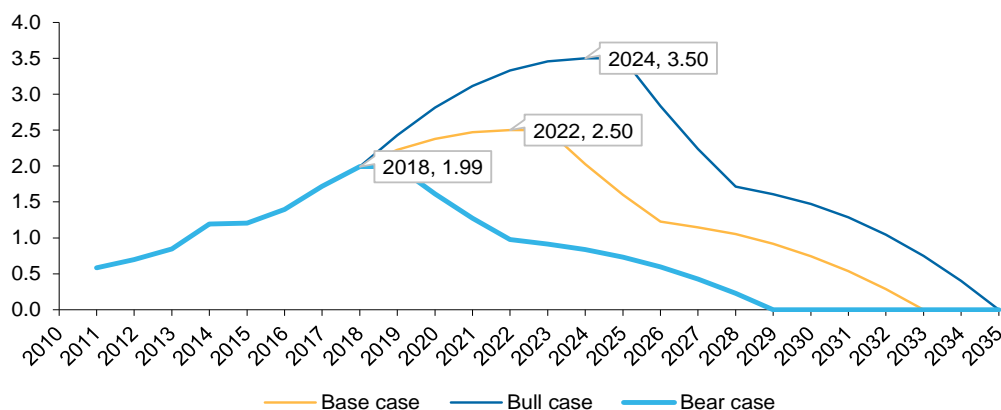
Lipusu accounts for 35% of market share by value and 18% by volume, followed by albumin-paclitaxel brand name and generic (CSPC and Hengrui) at 7-8% by value. The rest of the market consists of naked paclitaxel, which LUYE, CSPC and Hengrui are working hard to penetrate.

Fig 2 Last 12-month hospital sales of Lipusu (Rmb bn)



Source: IQVIA, Macquarie Research, November 2018

Fig 3 Scenario analysis of Lipusu (Rmb bn)



Source: Macquarie Research, November 2018

Plan B

While we are confident in the performance of Lipusu in 2019, its trajectory after 2020 is less certain. Thus, a plan B is needed in case centralized procurement, tendering or competitive pressure jeopardize the sales of Lipusu. Management took a bold step and acquired the global rights of brand name drugs Seroquel and Seroquel XR (quetiapine and its extended release form) from AstraZeneca in June 2018 at a price of US\$546m. Their financial performance will be consolidated in LUYE’s 2H18 results. Growth is around 20% for 2018, similar to the rate in 2017. Currently, there are two generic competitors of the normal-release dosage form in China. LUYE’s strategy is to replace the normal-release dosage form with the extended-release version at the same price. There is a good chance that it will be included in the reimbursement drug list, in our view. Quetiapine is one of the most prescribed drugs for treatment of schizophrenia/bipolar disorder and based on our estimation, it could contribute c. Rmb600m to the company’s 2017 revenue and contribute more than Rmb1bn in 2018. Combined with LUYE’s own drug developments in the central nervous system field, LUYE may become a major player in this area down the road.

The company has made a few significant M&As from overseas companies over the last three years. In 2016, it acquired Acino with a price of €245m, with two of its major transdermal drugs (Rivastigmine and Burpenorphoine) in the CNS treatment field, for pain and Alzheimer’s disease, respectively. The two drugs possess an innovative transdermal drug delivery system through their patches, which may be incorporated into LUYE’s platform down the road. Rivastigmine currently has 22% global market share.

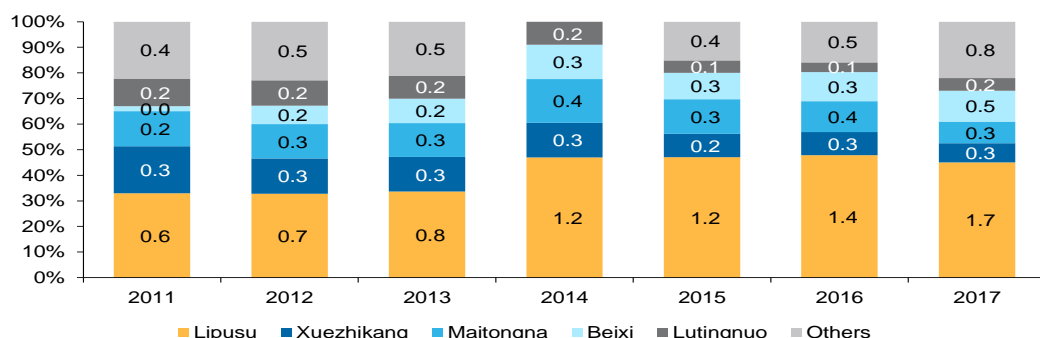
Liposome: the little sphere with magnificent power

A liposome is a miniscule bubble made out of similar materials to a human cell membrane. The surface of a liposome is made up of lipid (fats) while the inside is aqueous (water), allowing this sphere to help deliver both fat-soluble and water-soluble drugs. The size of a liposome can vary, allowing it to carry large molecules such as proteins and even peptides, which are the common forms of oncology drugs. The advantages of using a liposome to carry drugs into the body include:

- improving the solubility of drugs, bringing more to the target sites of action;
- protecting the drugs from degradation inside the body before it reaches the site of action;
- providing extended-release effects, reducing the frequency of drug administration;
- preventing drugs from reaching healthy tissues or other unintended sites;
- enhancing the therapeutic effect drugs; reducing their side effects.

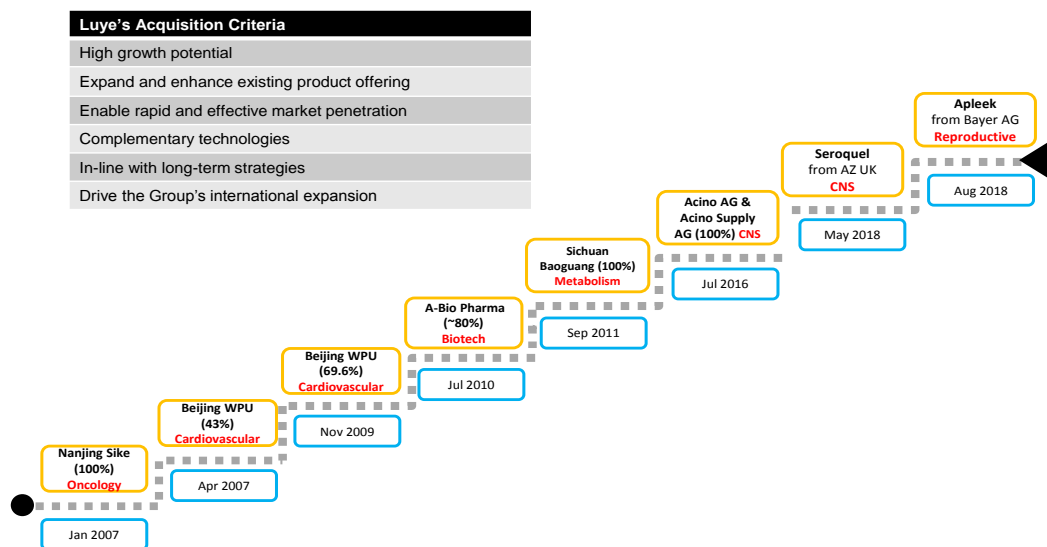
The company is one of the leading companies specializing in the development of an extended release drug delivery system. This is the core technology behind the success of Lipusu. LUYE is developing a couple of other drugs using the extended release technology and they have the potential to become blockbusters, including triptorelin and goserelin microspheres in the fertilization field, extended exenatide in the diabetes field, and risperidone microspheres and rotigotine microspheres in the CNS field. We believe in the fertilization field, metabolism field and CNS field, extended release drugs have a significant potential, and LUYE should be able to market them successfully to generate sales as good as Lipusu.

Fig 4 Sales and weight change of key drugs (Rmb bn)



Source: Company data, Macquarie Research, November 2018

Fig 5 Luye M&A History



Source: Company data, Macquarie Research Nov 2018

Valuation, recommendation, risks

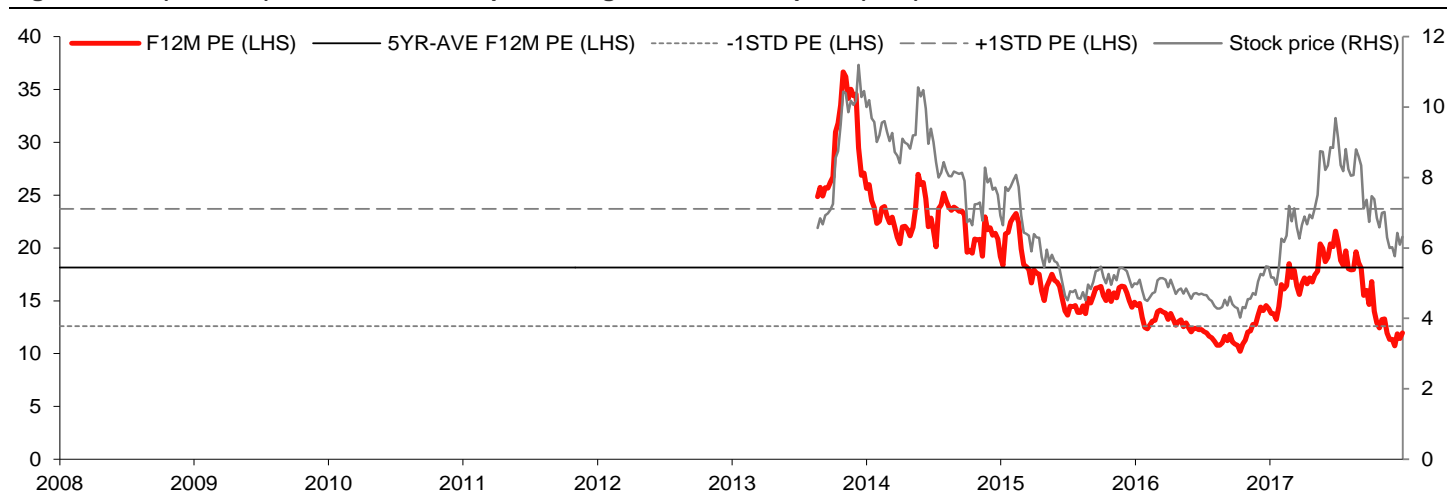
We base our target price on 2019E PE multiples but we differ from our peers in providing 1) free cash flow analysis on each product and business, 2) breakdown of revenue and earnings into individual products or subsidiaries and associates, with respective margin/SGA/tax assumptions, plus 3) major products under development, as far as into pre-clinical stage if meaningful, associated with estimated probability of each event, R&D of each stage, and sales trajectory.

The discounted free cash flows will result in a gross asset value, which, after adding the net cash (or minus net debt) and working capital, will become net asset value (NAV). Currently, we use end-2019 to calculate our NAV estimates. NAV estimates are important in two important aspects:

- evaluating the present value of projects under development, which may not be able to contribute to earnings in the next three years;
- considering the impact on balance sheet after acquisitions and disposals, which may not be captured when just using a PE multiple to value a company.

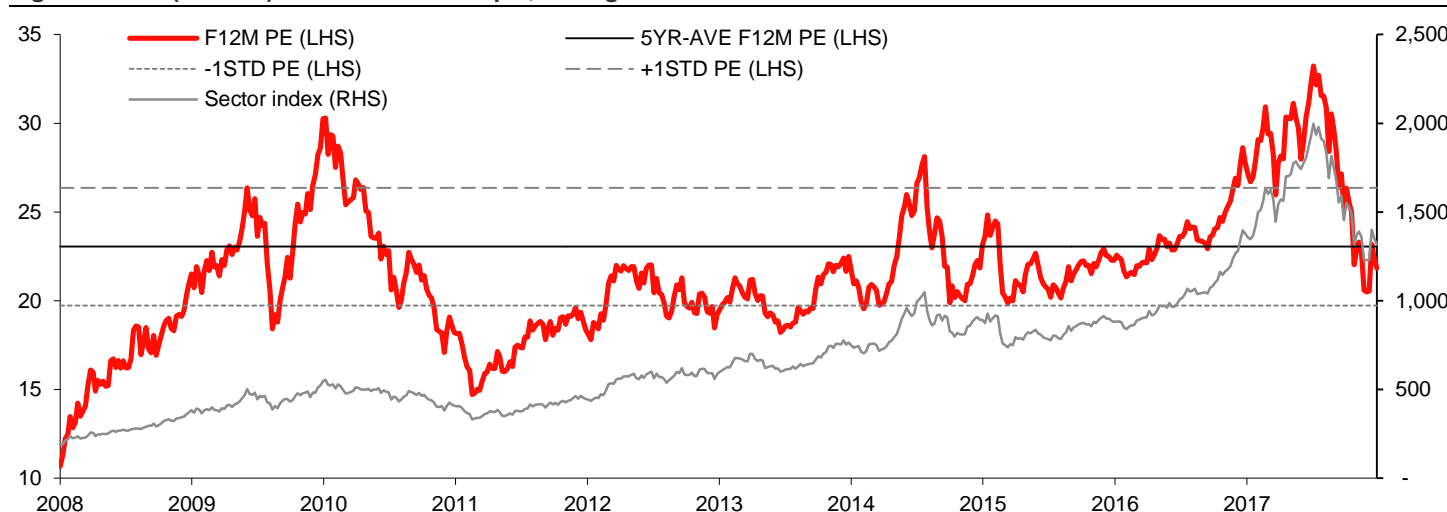
We apply 18x PE on 2019E EPS of oncology, metabolism and CNS drugs, and 13x on cardiovascular drugs and others, to arrive at our target price of HK\$8.76, implying 36.6% TSR. We believe the multiple is justified in view of the strong earnings growth (23% in 2018 and 16% in 2019), versus peers trading at 27.9x (12% growth in 2019E). LUYE currently trades at 13.4x 12-month forward PE, versus historically at 18.1x.

Fig 6 LUYE (2186-HK) Historical PE multiple, average PE and stock price (HK\$)



Source: Factset, Macquarie Research, November 2018, priced as of 22 November 2018

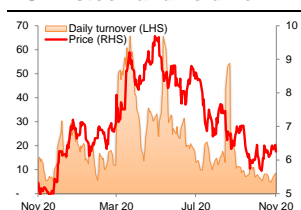
Fig 7 Sector (Pharma) Historical PE multiple, average PE and sector index



Source: Factset, Macquarie Research, November 2018, priced as of 22 November 2018

We estimate NAV of HK\$4.57, using discount rate of 9.24%. Cost of equity is calculated using risk-free rate of 3.5% and risk-free premium of 7%, which are the same across all healthcare companies under coverage. We assign a beta of 0.82 versus MSCI China, as compared to latest 2-year weekly beta of 1.02 versus MSCI China-A (0.99 if versus Hang Seng Index).

LUYE stock and volume



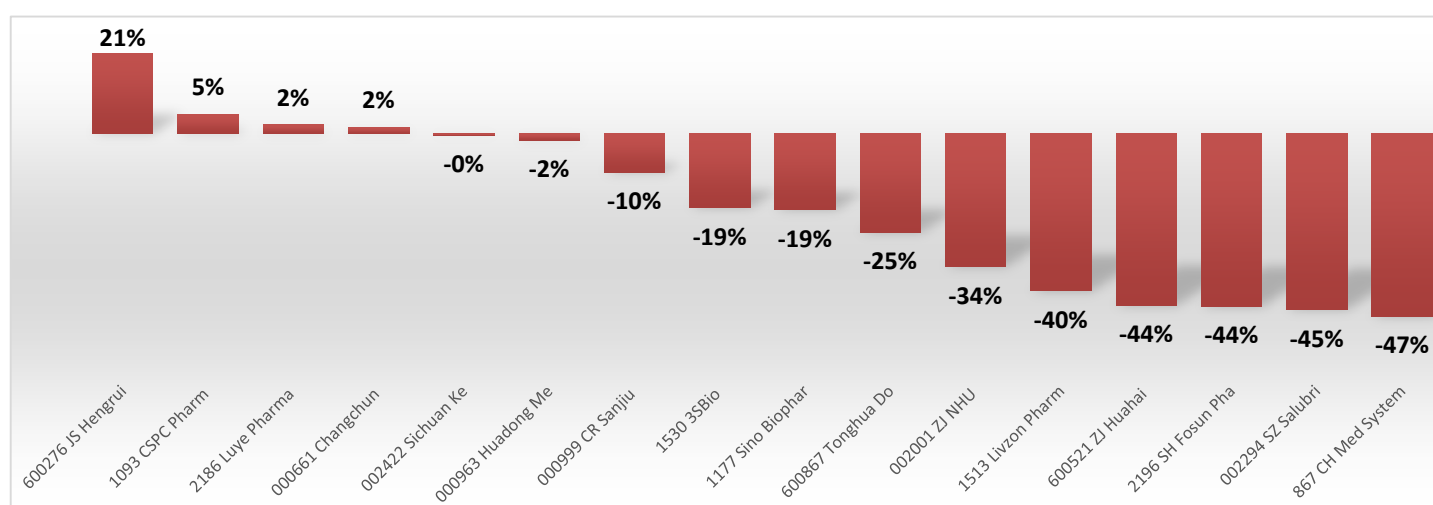
Source: FactSet, Macquarie Research, November 2018 (HK\$)

Our NAV can be broken down into HK\$1.03/share from oncology, HK\$0.77 from metabolism, HK\$0.26 from cardiovascular, HK\$0.34 from orthopedic, HK\$0.31 from Cardio-cerebral, HK\$0.19 from Digestive, HK\$1.67 from CNS, HK\$0.19 from others and HK\$0.65 from working capital.

We project 5 years of total R&D expenditure of Rmb3.0bn. This is compared to about Rmb0.2bn spent during 1H18, or 9.0% of revenue. Such expenditure is supposed to go into preclinical and clinical drug development as well as bioequivalence studies for generic drugs. Not all of their revenue impact down the road has been fully captured in our model yet.

YTD, LUYE is the third best performers among the pharmaceutical manufacturers, up 2%, versus sector median of -19%.

Fig 8 YTD stock performance among peers



Source: Factset, Macquarie Research, November 2018, priced as of 22 November 2018

Fig 9 Comparables (Price in trading currency)

Ticker	Company	Mkt. Cap. (US\$ bn)	Listed Curr.			P/E			EV/EBITDA			P/BV	Yield	2018/19 growth	
			TP	Price	Rating	2018F	2019F	2020F	2018F	2019F	2020F			2018F	2018F
600276-CN	Hengrui	34.0	NR	63.32	NR	58.1	45.8	36.4	50.0			12.2	0.2%	25.6%	27.0%
1093-HK	CSPC	13.2	25.39	16.00	OP	27.4	20.1	16.1	18.0	13.6	11.1	5.5	1.2%	26.1%	36.6%
1177-HK	Sino Biopharm	12.0	10.22	7.07	OP	31.8	26.2	21.2	15.2	12.1	9.9	4.1	0.7%	28.7%	23.3%
2196-HK	Fosun Pharm-H	10.4	NR	27.55	NR	22.7	18.2	15.8	16.7	13.5	11.9	2.2	1.6%	18.1%	24.7%
000963-CN	Huadong Med	7.4	NR	34.54	NR	22.8	18.2	14.8	17.5	14.0	11.7	5.1	1.7%	12.9%	25.3%
002422-CN	Sichuan Kelun P	5.1	NR	24.59	NR	28.6	22.7	18.4	12.5	10.4	9.3	2.8	1.2%	17.4%	26.3%
002001-CN	ZJ NHU	4.6	NR	16.23	NR	9.3	13.0	14.0	7.5	8.1	7.6	2.2	5.8%	19.6%	-28.5%
000661-CN	Changchun High	4.6	NR	187.95	NR	32.6	24.8	19.0	20.7	15.4	11.8	6.1	0.6%	28.0%	
600867-CN	Tonghua Dongbao	4.2	NR	14.44	NR	29.0	25.2	19.8	22.6	18.2	14.6	5.8	1.3%	18.9%	15.2%
1530-HK	3SBio	4.0	NR	12.34	NR	24.6	19.8	15.6	20.6	16.7	14.0	3.3	0.0%	21.9%	24.6%
002294-CN	Salubris	3.7	40.06	25.22	OP	16.1	12.9	10.8	12.6	10.1	8.5	3.8	3.6%	21.9%	25.1%
000999-CN	CR Sanjiu	3.5	NR	24.72	NR	16.9	15.2	13.7	12.0	10.6	9.6	2.2	1.3%	13.1%	11.5%
1513-HK	Livzon Pharm-H	3.2	37.61	29.05	OP	17.2	14.4	13.5	7.8	6.9	6.3	1.7	1.7%	14.5%	19.9%
867-HK	CMS	3.1	NR	9.52	NR	10.7	9.3	8.3	7.4	6.6	6.1	2.4	3.5%	9.7%	15.2%
2186-HK	Luye	2.6	8.76	6.46	OP	15.4	13.4	12.2	10.4	9.0	8.3	2.4	1.0%	21.0%	15.8%
600521-CN	ZJ Huahai Pharm	2.5	NR	14.03	NR	76.8	150.0	49.0	20.2	15.0	15.9	3.3	1.1%	19.7%	-48.8%
Median						23.7	19.0	15.7	17.1	13.5	11.7	3.3	1.3%	19%	16%
Average						27.0	27.9	18.6	18.1	13.0	11.3	4.2	1.7%	18%	12%

OP: Outperform, N: Neutral, UP: Underperform, NR: Non-rated; Rated forecast by Macquarie research and non-rated forecast by FactSet Consensus.

Source: FactSet, Macquarie Research, November 2018, priced as of 22 November 2018

Key risks

The obvious near-term risk is the revenue and profit concentration in Lipusu. We forecast 35% of revenue over the next three years to come from this blockbuster product. With two albumin-paclitaxel already approved and marketed, the threat is real. In its defense, management has said that Lipusu and albumin-paclitaxel currently target two different customer mixes, but we believe they may converge down the road, thanks to more policy from authorities. Centralized procurement may target albumin-paclitaxel in the beginning but as their prices drop, there will likely be spill-over effects on Lipusu as well. Another major factor to consider: management's timing to have Lipusu included on the National Reimbursement Drug List. At this stage, the severe price cuts seem like an overly expensive entry ticket to the list. However, if centralized procurement becomes prevalent across different types of paclitaxel, a price drop is inevitable and it may make sense for the company to consider entering negotiation into national insurance coverage. All of the above will likely take place over the next 24 months, in our estimation. If and when that happens, the company may have to implement its plan B to offset shocks to revenue and margin of Lipusu.

Some recent acquisitions from overseas seem expensive to us. For example, Acino was acquired at €245m or 12x our estimated 2018 PE while Seroquel was at US\$546m or 9x our estimated 2019 PE. While the revenues from these products help mitigate risks from potential shortfall from Lipusu, they may not be that impactful on earnings immediately. Their sales are mainly in the overseas market, which is not the core strength of LUYE. Strengthening the position of these products in China may require building a larger sales team and reaching out to new channels.

Fig 10 Summary of LUYE's major M&A in the last 10 years

Time	Targets	Key products	Stake	Price
2007	Nanjing Sike	Lipusu & Tiandixin	100%	USD 44m
2007	Beijing WPU	Xuezhikang	43%	RMB 994m
2009	Beijing WPU	Xuezhikang	26.6%	RMB 102m
2011	A-Bio Pharma	-	100%	SGD 12.5m
2011	Sichuan Baoguang	Bei Xi	100%	USD 46m
2016	Acino AG	TDS	100%	EUR 245m
2018	AstraZeneca	Seroquel	-	USD 546m
2018	Bayer	Apleek	-	-

Source: Company data, Macquarie Research, November 2018

While it is quite common among Chinese drug companies, LUYE derives most of its drugs through acquisitions rather than in-house development. Some of the acquired products have already been launched and marketed with little development work done by LUYE. Thus, management does not have a track record of bringing an innovative product through the entire clinical and approval processes yet. In 2019, the company targets the launch of risperidone, making use of its extended release technology. This will be the first in-house project marketed if it can secure NDA approval.

Product analysis

Red flower with green leaves

The company has been a specialist in the oncology field, with their best-selling drug Lipusu, the only paclitaxel liposome approved in China and globally, which accounted for 45% of the LUYE's revenue in 2017 and we forecast Lipusu would grow at 11% CAGR in the next three years.

In the CCV field, Xuezhikang is in the hyperlipidemia field and Maitongna is for improvement of blood circulation, which accounted for 8% and 9% of the revenue in 2017 respectively. We estimate Xuezhikang would keep 20% yoy growth in the next three years.

In the metabolism field, Beixi, with the chemical acarbose, accounted for 12% of the 2017 revenue. And we estimate it could achieve a peak sales of Rmb1bn by 2020.

The company acquired some major drugs in the last two years, including the Seroquel and the Seroquel XR from AstraZeneca, the rivastigmine patch from Acino, and the Apleek patch from Pfizer. We estimate these acquired drugs would contribute a sales of Rmb1.7bn in 2019, accounting for 28% of the total revenue.

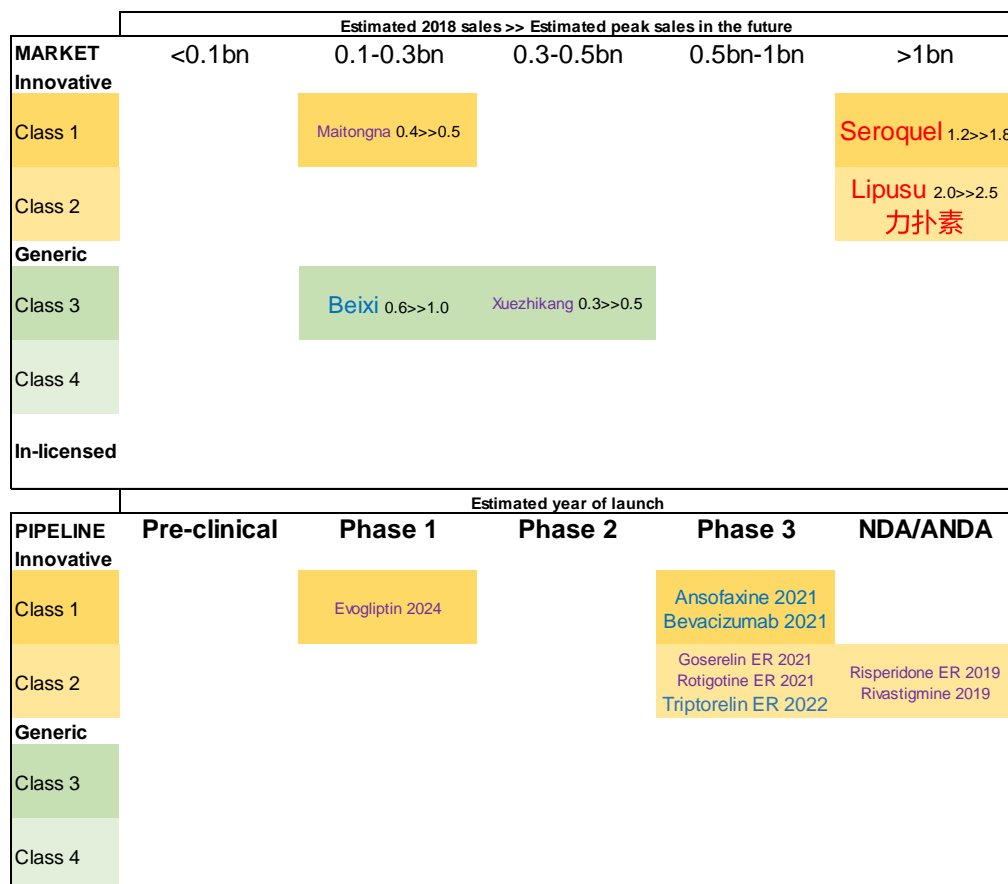
Pipelines analysis – mix of Class 1 and Class 2 new drugs

LUYE has a few innovative drugs in their pipeline. In the CNS field, Class 1 drug ansifaxine is in Phase III and expected to launch in 2021 with an estimated peak sales of Rmb1bn.

In the extended release field, the company has drug candidates in different treatment fields. In the reproductive field, goserelin and triptorelin microspheres are schedule to launch in 2021 and 2022, with a combined peak sales of Rmb1.5bn. In the diabetes field, exenatide ER is scheduled to launch in 2022. In the CNS field, risperidone and rotigotine microspheres are in NDA and Phase III, respectively, and expected to launch in 2019 and 2021.

The company also acquired biologic candidates from its connected company, Shandong Bo'an, including the biosimilar of bevacizumab, expected to launch in 2021.

Fig 11 Major market and pipeline drugs with estimated launch date and peak sales (Rmb)



Source: Company data, Macquarie Research, November 2018

Fig 12 Lipusu

- Sales trend: Lipusu recorded sales of Rmb1.7bn in 2017, accounting for 45% of the total revenue, with a growth CAGR of 19% in 2013-2017. As the only paclitaxel liposome drug in China, we estimate it would keep the growing momentum in the next few year and achieve peak sales of Rmb2.5bn.
- Market size: there are more than 4m new oncology cases in China and as the most common chemo therapy drug, we estimate the current market size of paclitaxel is around Rmb8bn.
- Growth potential: Lipusu is the only paclitaxel liposome drug in the market, and the future growth would be sales penetration into low-tier hospitals and substitution of normal paclitaxel.

Source: Macquarie Research, November 2018

Fig 14 Lipusu

- MOA: the principal mechanism of taxane drugs is the disruption of microtubule depolymerisation, thereby inhibiting the process of cell division. There are three class of taxane drugs, paclitaxel, paclitaxel liposome and albumin paclitaxel, among which paclitaxel liposome and albumin paclitaxel have less toxicity.
- History: Lipusu launched in 2003 in China and has been growing fast since then because of the lower toxicity. What should be noted is that it is also the only approved paclitaxel liposome drug in the world.
- Potential risk: there is limited space of normal paclitaxel for substitution and looking forward, it may face strong competition from albumin paclitaxel developed by domestic pharma like Hengrui and CSPC.

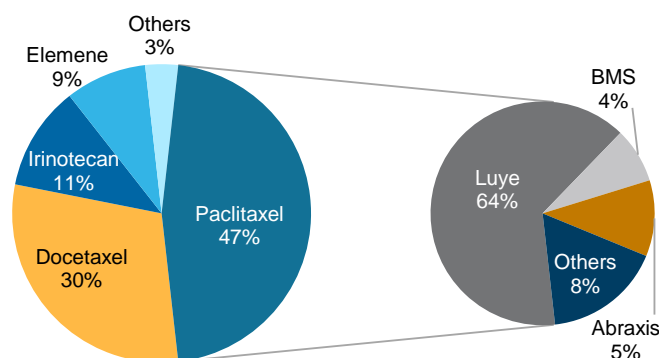
Source: Macquarie Research, November 2018

Fig 16 Beixi

- Sales trend: Beixi recorded a sales of Rmb458m in 2017, accounting for 12% of the total revenue, with a growth CAGR of 18% in 2013-2017. The price change is negligible in recent years. In the future, we believe it will grow at a single digits and achieve peak sales of Rmb1bn.
- Market size: there are c.110m diabetes patients in China, and according to ICH data, the diabetes drug market size is over Rmb40bn in 2017, among which 50% is oral drugs. Acarbose accounts for more than 35% and we estimate its market is around Rmb7bn.
- Growth potential: major growth would come from market share acquisition from Bayer and increase of treatment rate in low-tier cities or areas.

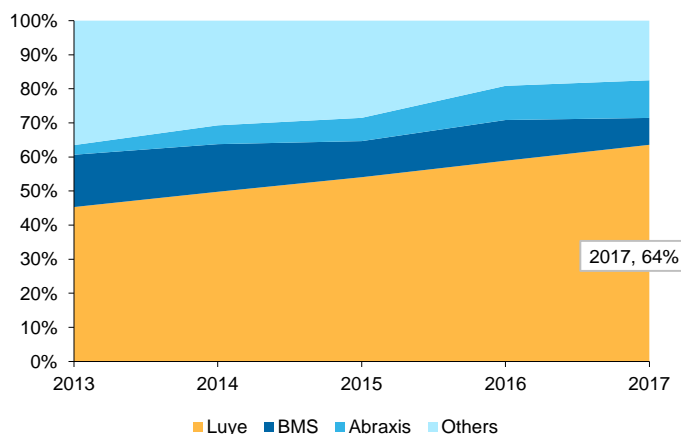
Source: Macquarie Research, November 2018

Fig 13 Market breakdown of plant alkaloid oncology drugs



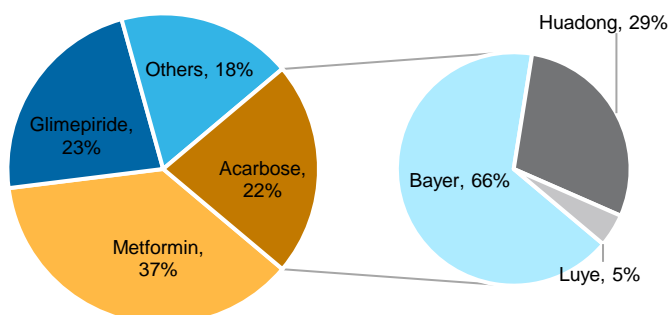
Source: Company Data, Macquarie Research, November 2018

Fig 15 Market share change of paclitaxel



Source: PDB, Macquarie Research, November 2018

Fig 17 Market breakdown of oral diabetes drugs



Source: Company Data, Macquarie Research, November 2018

Fig 18 Beixi

- **MOA:** Beixi belongs to the drug class of alpha glucosidase inhibitor for treatment of diabetes. Alpha glucosidase is a membrane-bound intestinal enzyme which could hydrolyse oligosaccharides, disaccharides and trisaccharides to glucose and other monosaccharides in the small intestine. By inhibiting alpha glucosidase, acarbose inhibits the production of glucose.
- **History:** Beixi got approved by CFDA in 2002 as the second-to-market generic of the innovator drug Glucobay, with its exclusive capsule dosage form.
- **Potential risk:** GLP-1 and DPP-4 drugs are ramping up fast in recent years due to their advanced mechanism and Beixi might face the induced competition.

Source: Macquarie Research, November 2018

Fig 20 LY03003 (rotigotine ER microspheres)

- **Sales potential:** the innovative drug rotigotine is Neupro developed by Schwarz Pharma (subsidiary of UCB) and it recorded peak sales of US\$350m globally in 2017. There are c.3m Parkinson Disease (PD) patients in China. We estimate the market size of PD drugs is around Rmb3bn in 2017 and growing fast. As the potential first-to-market generic, we estimate the peak saels of LY03003 could reach Rmb0.5bn.
- **MOA:** rotigotine is a non-selective agonist of dopamine, one of the most important neurotransmitter. Besides that, it also works as an antagonist at the adrenergic receptor and as a partial agonist at the 5-HT1A receptor.
- **Competitive landscape:** there is one rotigotine ER drug available in the China market, the innovator drug, and another two are in clinical trials.

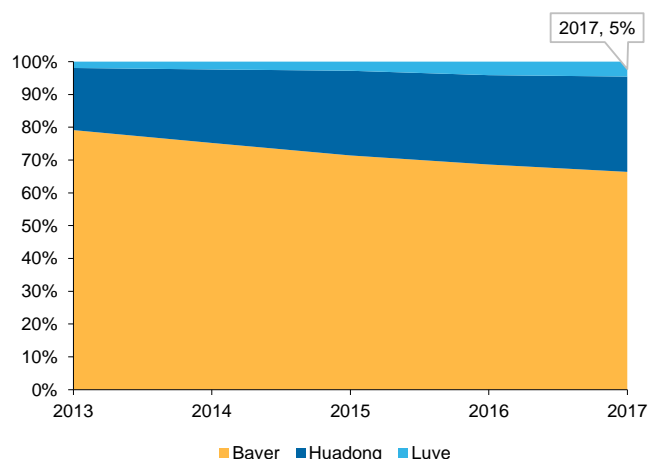
Source: Macquarie Research, November 2018

Fig 22 LY03004 (risperidone ER microspheres)

- **Sales potential:** the innovative drug of risperidone is Risperdal Consta developed by Janssen (subsidiary of J&J) and it recorded a sales of US\$805m globally in 2017. There are 8m schizophrenia patients and we estimate the drug market size is around Rmb2bn and is growing fast. As the potential first-to-market generic, we estimate it could achieve a peak sales of Rmb0.5bn.
- **MOA:** risperidone is the 2nd generation of antipsychotic medication, belonging to the class of atypical antipsychotic drugs. It is believed to act as an antagonist to two of the most important neurotransmitters, dopamine and serotonin. LY03004 is the ER version.
- **Competitive landscape:** currently, there is one risperidone ER drug in the China market and besides that, Luye's drug is the only one in clinical trials.

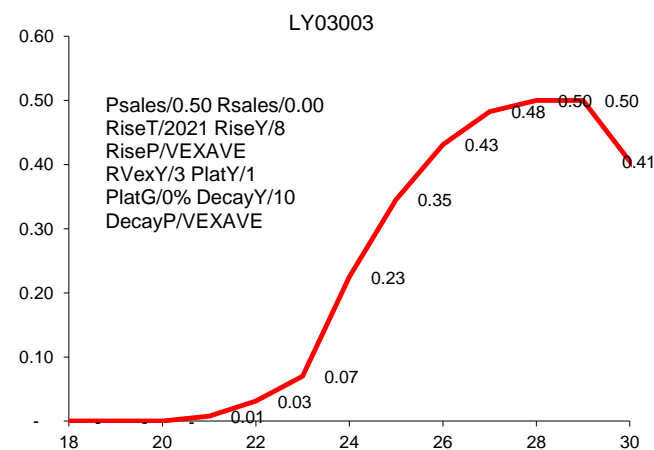
Source: Macquarie Research, November 2018

Fig 19 Market share change of acarbose



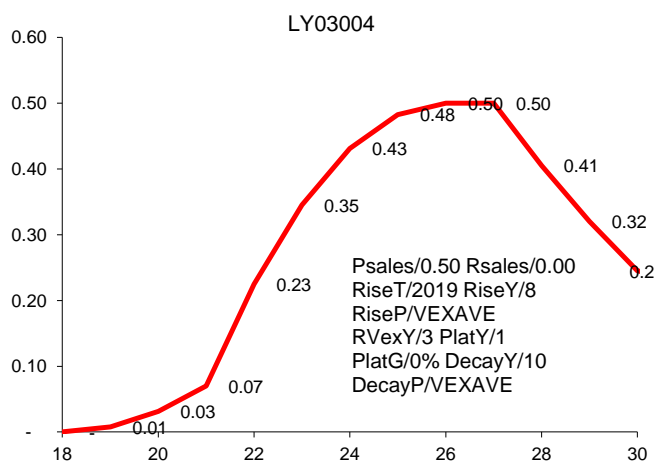
Source: PDB, Macquarie Research, November 2018

Fig 21 Sales forecast simulation of LY03003 (Rmb bn)



Source: Macquarie Research, November 2018

Fig 23 Sales forecast simulation of LY03004 (Rmb bn)



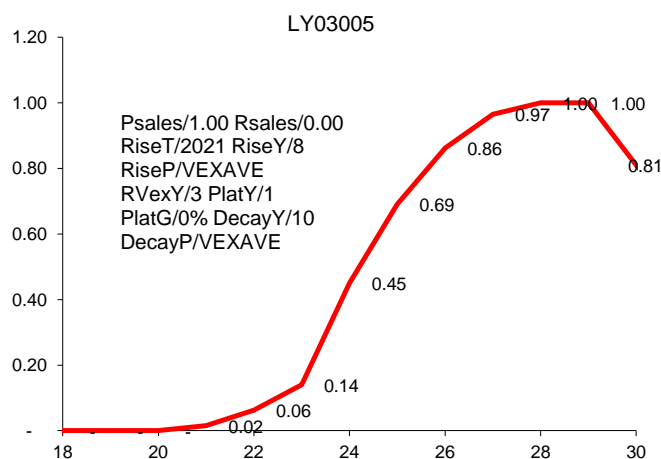
Source: Macquarie Research, November 2018

Fig 24 LY03005 (ansofaxine ER tablets)

- Sales potential: ansofaxine is a Class 1.1 innovative drug for treatment of depression. The comparable drug is Pristiq developed by Wyeth (subsidiary of Pfizer) and it recorded a global sales of US\$740m in 2016. The depression drug market size is c. Rmb3bn in China. As a potential best-in-class drug, we estimate ansofaxine could reach a peak sales of Rmb1bn.
- MOA: ansofaxine belongs to the the drug class of serotonin-norepinephrine reuptake inhibitors (SNRIs), which work by selectively inhibit reuptake of monoamine neurotransmitters and thus increase their extracellular concentrations.
- Competitive landscape: there are 13 SNRI drugs in the China market and quite a lot are under development.

Source: Macquarie Research, November 2018

Fig 25 Sales forecast simulation of ansofaxine (Rmb bn)



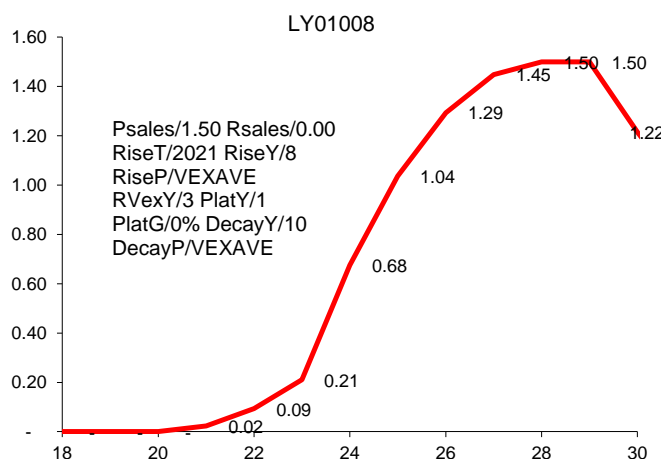
Source: Macquarie Research, November 2018

Fig 26 LY01008 (biosimilar of bevacizumab)

- Sales potential: the innovative drug of bevacizumab is Avastin developed by Genentech (subsidiary of Roche) and it recorded a sales of US\$6.1bn globally in 2017. We estimate the potential market size of mab drugs targeting VEGF is around Rmb7bn in China. Depending on the time to enter the market, biosimilar of bevacizumab could reach a peak sales of Rmb1.5bn.
- MOA: bevacizumab is a recombinant humanized monoclonal antibody that blocks angiogenesis by inhibiting VEGF-A, a growth factor that stimulates angiogenesis in cancer.
- Competitive landscape: there is no bevacizumab biosimilar in the market, one is under the NDA review and another 33 are in clinical trials.

Source: Macquarie Research, November 2018

Fig 27 Sales forecast simulation of LY01008 (Rmb bn)



Source: Macquarie Research, November 2018

Financial analysis

Metabolism drugs are key revenue drivers in the short term

2018 revenue jump mainly due to Seroquel consolidation and metabolism drugs are the key in near future

Gross profit margin higher than average, as well as SG&A ratio due to the focus on innovative drugs

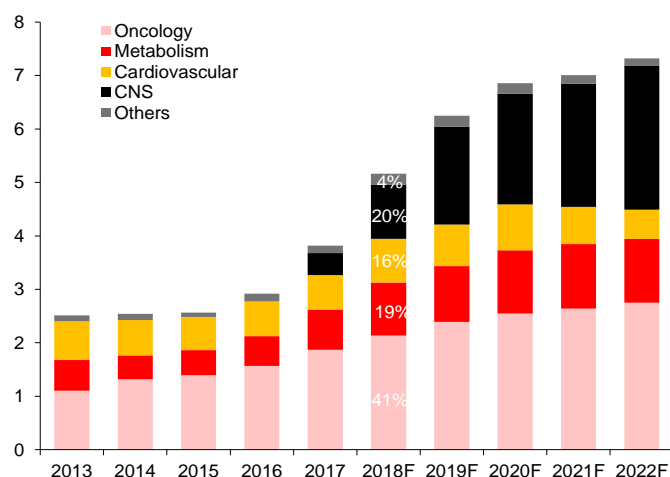
The revenue of the company has been growing slowly in the past couple of years, while it speeded up in 2017 and we believe this momentum could continue in the next few years because of the preparations the company has been making, especially in the CNS fields. The company has been specialised in the extended release filed and acquired a couple of new dosage drugs having the blockbuster potential, hoping to create synergies between its traditional fields with the new products. The acquisition of Acino brings the company risperidone and rotigotine patch, for treatment of Parkinson’s disease and depression, where the market has been growing fast in China. The acquisition of Seroquel from AstraZeneca would strengthen the company’s position in the CNS treatment field. And the acquisition of Apleek from Bayer would help the company enter a new contraceptive treatment field. And we believe there is still room for the sales ramp up of traditional oncology drugs, like their blockbuster drug Lipusu, which recorded sales revenue of Rmb1.7bn in 2017, whereas the volume penetration is still less than 20%. Revenue and profit in 2018 would be significantly affected by the consolidation of Seroquel. In the near future, the revenue would largely depend on the performance of its drugs in the metabolism fields and in the further future, on the market performance of the new drugs in CNS, fertilization, and biologics in the oncology fields.

Focus on innovative drugs brings a high gross profit margin for Luye, which is among the highest among peers, with a value of c.80% in 1H18. In our view, it would keep the same level in the future as the company would keep focused on innovative drugs.

SG&A cost accounts for c.43% of the revenue in 1H18, a bit higher than the industry average and could be justified by the sales of innovative drugs. This ratio would keep stable in our view.

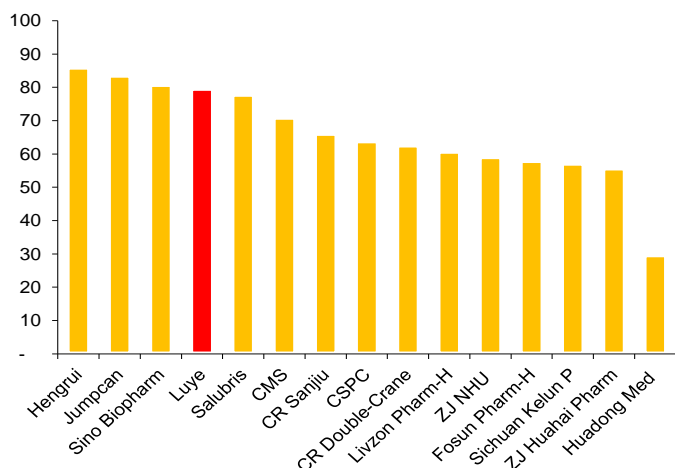
R&D expense accounts for c. 9% of the revenue in 1H18, and it has been growing from 6% in the last three years. Most of the R&D expenses went to and would keep going to the the development of extended release preparations in the CNS, fertilization treatment fields and the development of biologics.

Fig 28 Revenue breakdown of 2186-HK (Rmb bn)



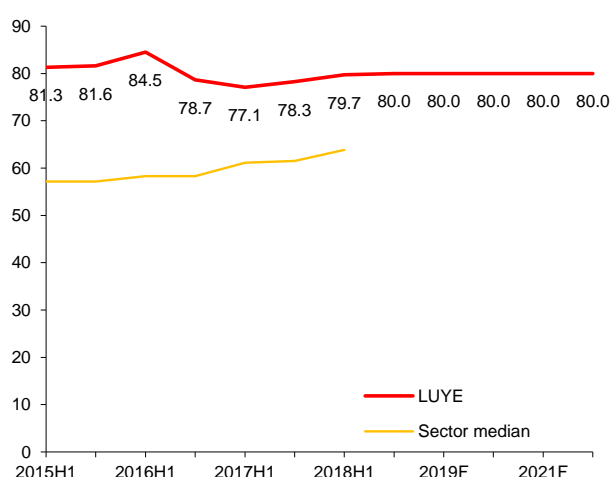
Source: Factset, Macquarie Research, November 2018

Fig 29 Gross margin of 2186-HK vs peers - 1H18 (%)



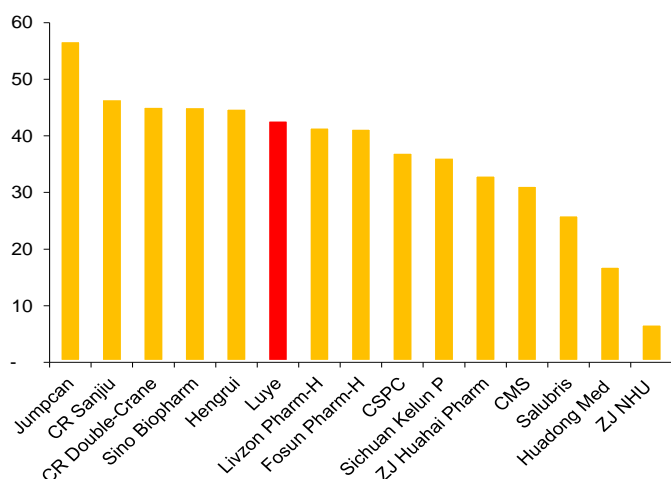
Source: Factset, Macquarie Research, November 2018

Fig 30 Gross margin trend of 2186-HK (%)



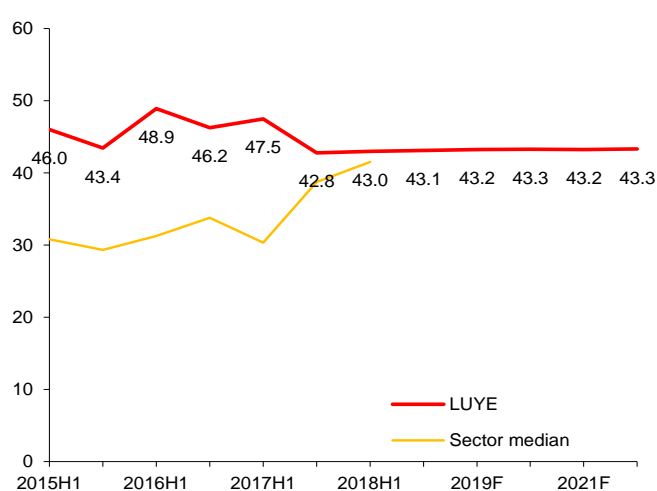
Source: Factset, Macquarie Research, November 2018

Fig 31 SGA ratio of 2186-HK vs peers - 1H18 (%)



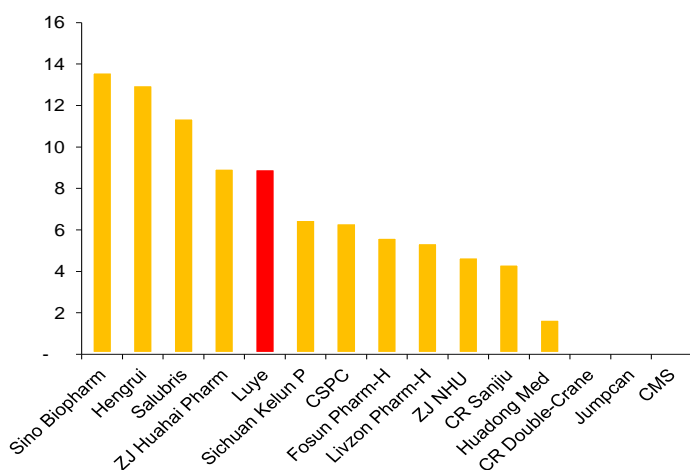
Source: Factset, Macquarie Research, November 2018

Fig 32 SGA ratio trend of 2186-HK (%)



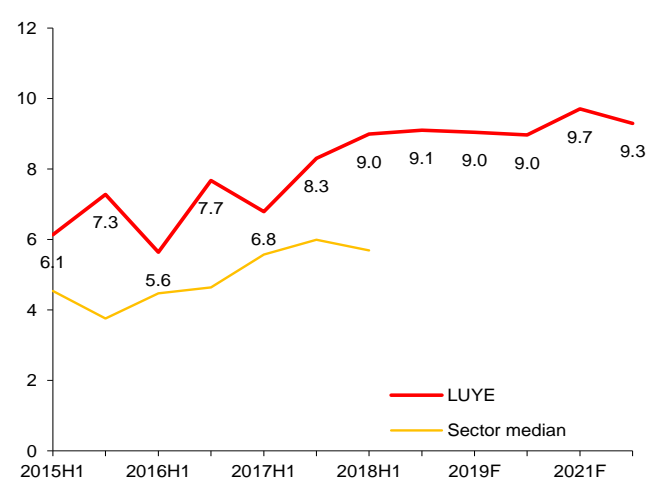
Source: Factset, Macquarie Research, November 2018

Fig 33 R&D ratio of 2186-HK vs peers - 1H18 (%)



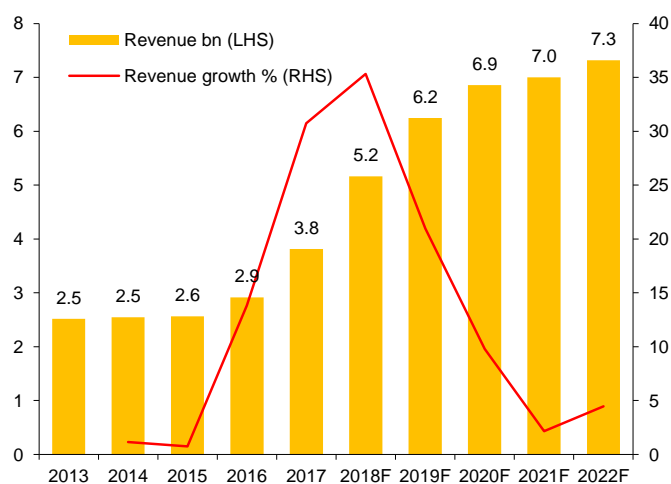
Source: Factset, Macquarie Research, November 2018

Fig 34 R&D ratio trend of 2186-HK (%)



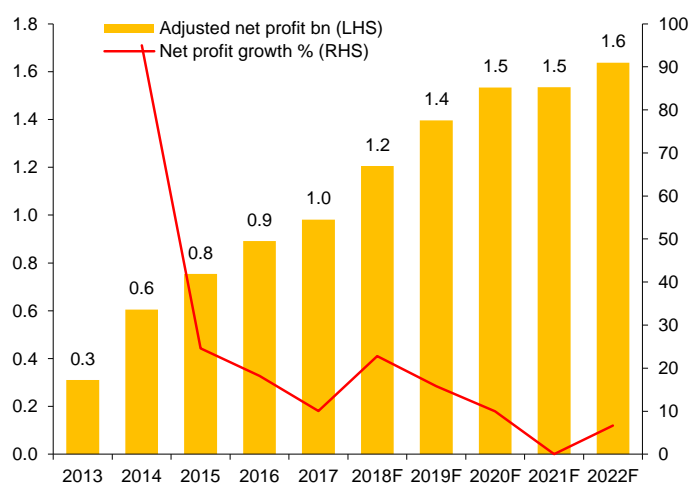
Source: Factset, Macquarie Research, November 2018

Fig 35 Revenue and growth of 2186-HK (Rmb bn)



Source: Factset, Macquarie Research, November 2018

Fig 36 Net profit and growth of 2186-HK (Rmb bn)



Source: Factset, Macquarie Research, November 2018

Balance sheet

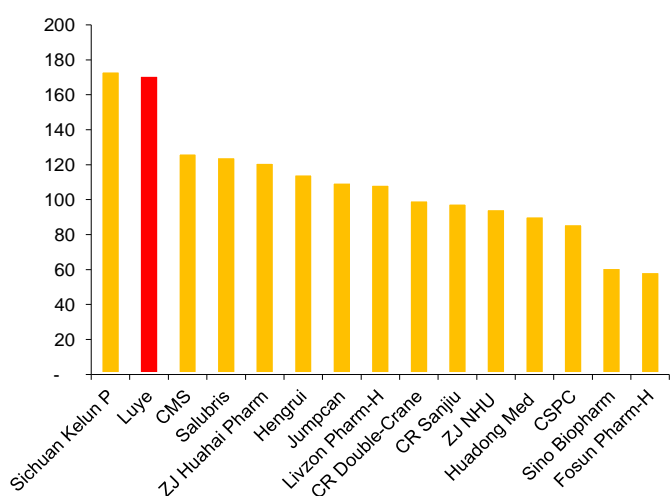
Inventory days increased a lot in 1H18

Total debt ratio is among the highest, indicating potential financing risk

Inventory days for 1H18 was around 200, which is much higher than the historical level and the full year number is expected to be higher than historical value while lower than the semi-annual number. Receivable days in 1H18 is around 72 days, which has been stable and in line with the industry average. We do not expect many changes in the future as the “two-invoice” policy has been fully adopted and intermediate distributors are being wiped out of the market.

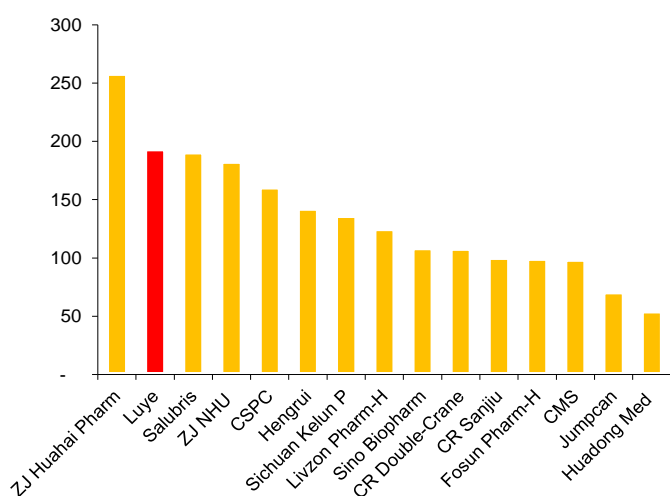
The company has been increasing its operating cash flow after consideration of change in working capitals from Rmb0.4bn to Rmb1bn. The company has a net cash position as seen for most pharma companies by 1H18. What should be noted is that the out cash flow from investment activities exceeds operating cash flow in 2016 and is barely lower than the operating cash flow in 2107 due to acquisitions in the past two years. And the company raised Rmb1.1bn and Rmb1.2bn fund, respectively, through issuing debt in 2016 and 2017. The company’s total gearing ratio is around 80% in 1H18, one of the highest among peers.

Fig 37 Receivables days of 2186-HK vs peers - 1H18



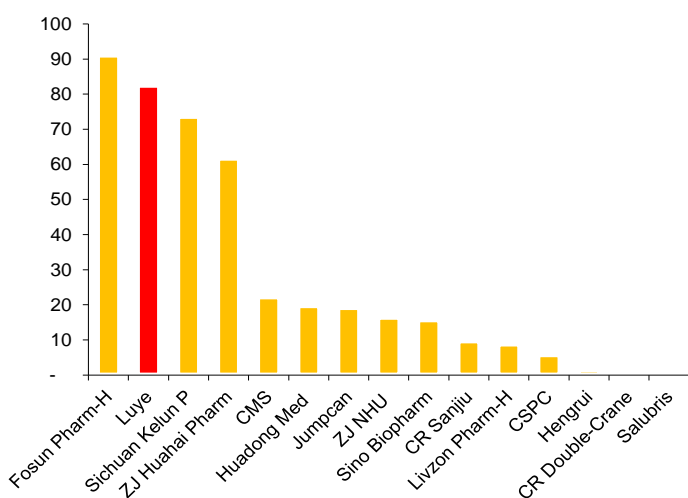
Source: Factset, Macquarie Research, November 2018

Fig 38 Inventories days of 2186-HK vs peers - 1H18



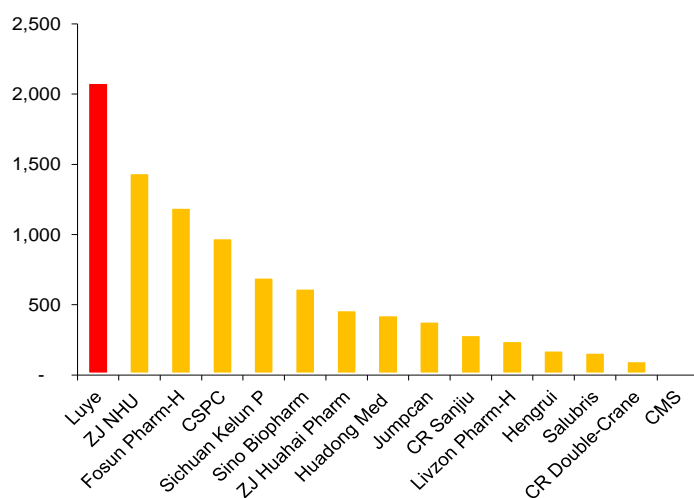
Source: Factset, Macquarie Research, November 2018

Fig 39 Total Gearing of 2186-HK vs peers - 1H18 (%)



Source: Factset, Macquarie Research, November 2018

Fig 40 Capex of 2186-HK vs peers - 1H18 (Rmb mn)



Source: Factset, Macquarie Research, November 2018

Fig 41 Income statement and balance sheet forecasts (Rmb bn)

INCOME STATEMENT	2013	2014	2015	2016	2017	2018F	2019F	2020F	2021F	2022F
Revenue	2.5	2.5	2.6	2.9	3.8	5.2	6.2	6.9	7.0	7.3
COGS	(0.4)	(0.5)	(0.5)	(0.5)	(0.9)	(1.0)	(1.2)	(1.4)	(1.4)	(1.5)
Gross profit	2.1	2.1	2.1	2.4	3.0	4.1	5.0	5.5	5.6	5.9
Gross margin	83.6%	81.0%	81.4%	81.7%	77.7%	80.0%	80.0%	80.0%	80.0%	80.0%
Selling, marketing & administrative	(1.5)	(1.2)	(1.1)	(1.4)	(1.7)	(2.2)	(2.7)	(3.0)	(3.0)	(3.2)
Research and development	(0.2)	(0.2)	(0.2)	(0.2)	(0.3)	(0.5)	(0.6)	(0.6)	(0.7)	(0.7)
Other operating income/expenses	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Exceptional items	(0.0)	(0.0)	-	(0.0)	(0.0)	-	-	-	-	-
EBIT excluding exceptional	0.4	0.7	0.8	0.9	1.1	1.6	1.9	2.0	2.0	2.1
EBITDA excluding exceptional	0.5	0.8	0.9	1.1	1.3	1.8	2.1	2.3	2.3	2.4
Interest expenses	(0.0)	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)	(0.2)	(0.2)	(0.2)	(0.2)
Interest income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Share of results of associates	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Other non-operating income/expenses	(0.0)	0.1	0.1	0.0	0.0	-	-	-	-	-
Profit before tax	0.4	0.7	0.9	1.0	1.1	1.5	1.7	1.9	1.8	2.0
Income tax	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)
Profit before minority interests	0.3	0.6	0.8	0.9	1.0	1.2	1.4	1.6	1.6	1.7
Minority interests	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0
Net profit	0.31	0.61	0.75	0.89	0.98	1.21	1.40	1.53	1.53	1.64
Dividends	-	0.32	-	0.12	0.15	0.18	0.21	0.24	0.24	0.24
Preferred distributions	-	-	-	-	-	-	-	-	-	-
Adjusted net profit	0.31	0.61	0.75	0.89	0.98	1.21	1.40	1.53	1.53	1.64
EPS (adjusted)	0.11	0.20	0.23	0.27	0.30	0.37	0.43	0.47	0.47	0.50
DPS	-	0.10	-	0.04	0.05	0.06	0.07	0.08	0.08	0.08
Special DPS	-	-	-	-	-	-	-	-	-	-
Average basic shares	2.71	2.99	3.32	3.32	3.26	3.26	3.26	3.26	3.26	3.26
Average fully-diluted shares	2.71	2.99	3.32	3.32	3.26	3.26	3.26	3.26	3.26	3.26
End-of-period basic shares	0.49	3.32	3.32	3.32	3.26	3.26	3.26	3.26	3.26	3.26
BALANCE SHEET										
Investment properties	-	-	-	-	-	-	-	-	-	-
Property, plant and equipment	0.9	1.1	1.2	1.7	2.0	2.0	2.0	2.0	2.0	2.0
Land bank	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Interests in associates and JCEs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Investments	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Receivables (L/T)	-	-	-	-	-	-	-	-	-	-
Intangible assets	0.5	0.5	0.5	1.9	1.9	5.4	5.4	5.4	5.4	5.4
Deferred tax assets	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other assets (L/T)	0.0	0.7	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2
Total non-current assets	2	3	2	4	4	8	8	8	8	8
Properties completed/under development	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Inventories	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3
Receivables (S/T)	0.4	0.6	0.6	1.0	0.9	1.3	1.5	1.7	1.7	1.8
Other assets (S/T)	0.5	0.3	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.7
Restricted cash and investments	0.2	2.0	2.6	2.8	3.0	3.0	3.0	3.0	3.0	3.0
Cash and cash equivalents	0.3	0.3	0.8	0.4	1.3	3.5	2.6	3.8	5.0	6.4
Total current assets	2	4	5	5	6	9	8	10	11	12
Total assets	3	6	7	9	11	17	16	18	19	20
Deferred revenue	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Payables	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Taxes payable	0.1	0.0	0.1	0.2	0.2	0.4	0.5	0.5	0.5	0.5
Other liabilities (S/T)	0.3	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4
Bank and other borrowings (S/T)	0.7	0.3	0.5	1.6	2.9	5.9	5.9	5.9	5.9	5.9
Total current liabilities	1	1	1	2	4	7	7	7	7	7
Bank and other borrowings (L/T)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred tax liabilities	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other liabilities (L/T)	0.1	0.1	0.1	0.1	0.1	1.9	-	-	-	-
Total non-current liabilities	0	0	0	0	0	2	0	0	0	0
Total liabilities	1	1	1	3	4	9	7	7	7	7
Issued capital	0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Share premium and reserves	0.7	3.3	3.3	3.3	3.1	3.1	3.1	3.1	3.1	3.1
Retained earnings	1.0	1.2	1.9	2.7	3.2	4.3	5.5	6.8	8.1	9.5
Shareholders' equities	2	5	6	6	7	8	9	10	12	13
Perpetual securities	-	-	-	-	-	-	-	-	-	-
Minority interests	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Total equities	2	5	6	7	7	8	9	11	12	13
Total liabilities and equities	3	6	7	9	11	17	16	18	19	20

Source: Bloomberg, Macquarie Research, November 2018

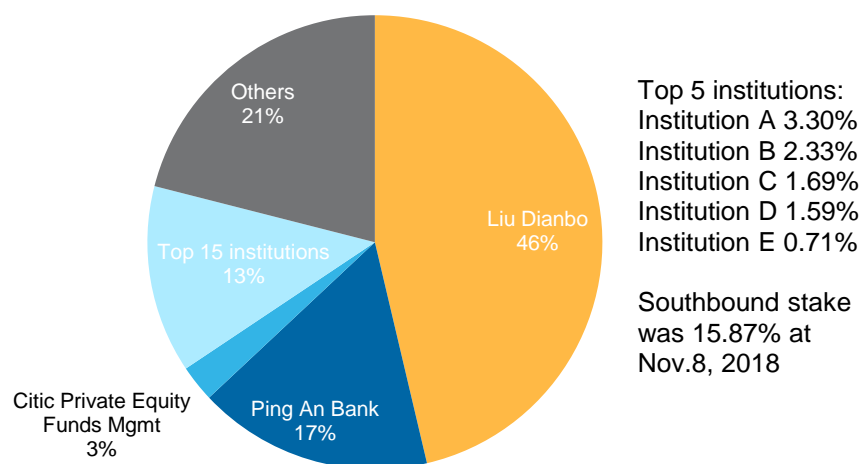
Appendices

Fig 42 Management

	Liu Dianbo (劉殿波)	Yang Rongbing (楊榮兵)	Yuan Huixian (袁會先)	Li Youxin (李又欣)	Zhu Yuanyuan (祝媛媛)
Management	<ul style="list-style-type: none"> Executive Chairman Founder 	<ul style="list-style-type: none"> Vice Executive Chairman Co-founder 	<ul style="list-style-type: none"> Executive Director Co-founder 	<ul style="list-style-type: none"> Senior Vice President Head of R&D 	<ul style="list-style-type: none"> Executive Director
Age & Relationship	• Age 52	• Age 52	• Age 59	• Age 56	• Age 37
Scientific & Education	<ul style="list-style-type: none"> Medical Diploma, Yishui Special Medical College (currently known as Shandong Medical College) 	<ul style="list-style-type: none"> Bachelor of Science, Beijing Normal University 	<ul style="list-style-type: none"> Diploma in National Economics, Renmin University of China 	<ul style="list-style-type: none"> PhD, Master, Bachelor in Chemistry, Peking University Honorary professor, Jilin University Lead a State Key Laboratory Awarded as "Thousand People" programme 	<ul style="list-style-type: none"> Master in Corporate Strategy and Governance, University of Nottingham Bachelor's degree in Finance from Southeast University
History & Experience	1985 Graduated from Yishui Special Medical College 1985-89 Teacher at Yantai Normal College 1989-93 General Manager, Penglai Huatai Pharma 1994-99 Chairman and General Manager, Shandong Luye 1999-03 Chairman and President, Shandong Luye 2003-now Executive Chariman of Luye Pharma	1988 Graduated from Beijing Normal University 1988-94 Assistant to factory head, Jiangsu Xuzhou Biochemical Pharma Factory 1994-99 Deputy General Manager, Shandong Luye 1999-00 Chief Sales Executive and Executive Director, Shandong Luye 2003-07 Non-executive Board Director, Luye Pharma 2007-now Executive Director, Luye Pharma	1980-94 Doctor for radiation diagnosis, Shengli Petroleum Administrative Bureau Yantai Sanatorium 1994-99 Deputy General Manager, Shandong Luye 1999-2003 Vice President and Executive Director, Shandong Luye 2003-now Executive Director, Luye Pharma	1988 PhD graduated from Peking University 1991-93 Research Fellow at Alexandar von Humboldt Foundation, University of Marburg 1994-07 Senior Scientist, Schwarz Pharma AG 2007-now Chief Scientist, Luye Pharma	2004-09 Investment Banker at Asia Partners Investment Holdings Ltd. where she was responsible for equity capital and corporate finance advisory services 2009 Joined Luye Pharma 2014-now Executive Director, Luye Pharma
Compensation & Stock position (Rmb)	<ul style="list-style-type: none"> Annual salary: 2017 3.65mn, 2016 3.08mn Controlling shareholder with 45.68% holdings 	<ul style="list-style-type: none"> Annual salary: 2017 1.92mn, 2016 1.46mn 	<ul style="list-style-type: none"> Annual salary: 2017 0.97mn, 2016 0.90mn 		<ul style="list-style-type: none"> Annual salary: 2017 0.52mn, 2016 0.48mn
Special notes			<ul style="list-style-type: none"> In charge of the Group's government relations 	<ul style="list-style-type: none"> In charge of the Group's R&D 	<ul style="list-style-type: none"> In charge of the Group's financing and strategies

Source: Company Data, Macquarie Research, November 2018

Fig 43 Ownership Structure



Source: FactSet, Macquarie Research, November 2018

Macquarie Quant View

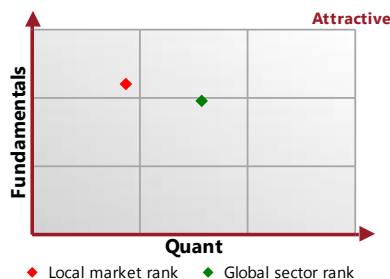
The Quant View page below has been derived from models that are developed and maintained by Sales and Trading personnel at Macquarie. The models are not a product of the Macquarie Research Department.

The quant model currently holds a marginally negative view on Luye Pharma Group. The strongest style exposure is Earnings Momentum, indicating this stock has received earnings upgrades and is well liked by sell side analysts. The weakest style exposure is Growth, indicating this stock has weak historic and/or forecast growth. Growth metrics focus on both top and bottom line items.

452/948

Global rank in Pharma, Biotech & Life Sciences

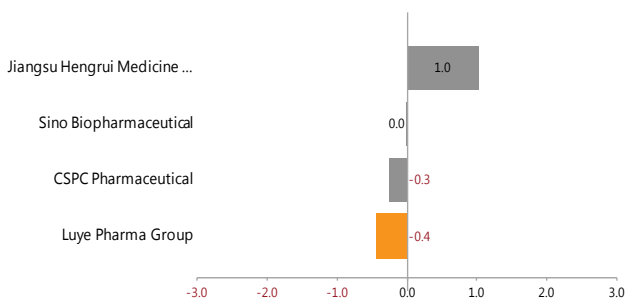
% of BUY recommendations: 62% (5/8)
 Number of Price Target downgrades: 1
 Number of Price Target upgrades: 0



Displays where the company's ranked based on the fundamental consensus Price Target and Macquarie's Quantitative Alpha model. Two rankings: Local market (Hong Kong) and Global sector (Pharma, Biotech & Life Sciences)

Macquarie Alpha Model ranking

A list of comparable companies and their Macquarie Alpha model score (higher is better).



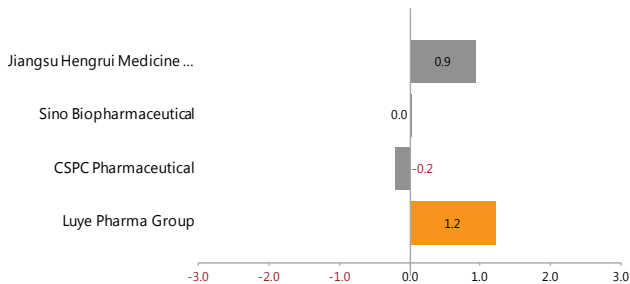
Factors driving the Alpha Model

For the comparable firms this chart shows the key underlying styles and their contribution to the current overall Alpha score.



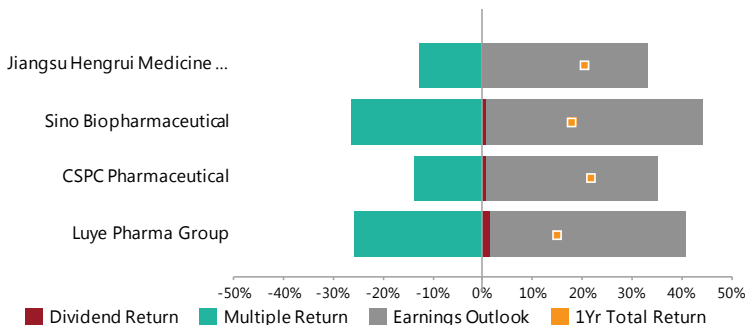
Macquarie Earnings Sentiment Indicator

The Macquarie Sentiment Indicator is an enhanced earnings revisions signal that favours analysts who have more timely and higher conviction revisions. Current score shown below.



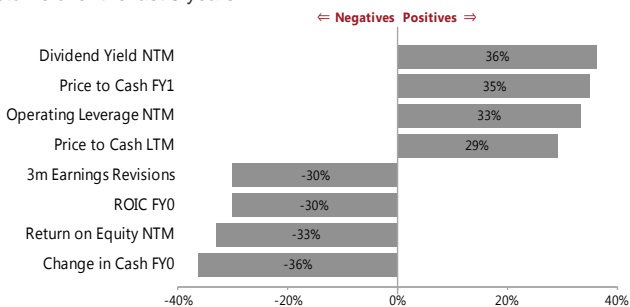
Drivers of Stock Return

Breakdown of 1 year total return (local currency) into returns from dividends, changes in forward earnings estimates and the resulting change in earnings multiple.



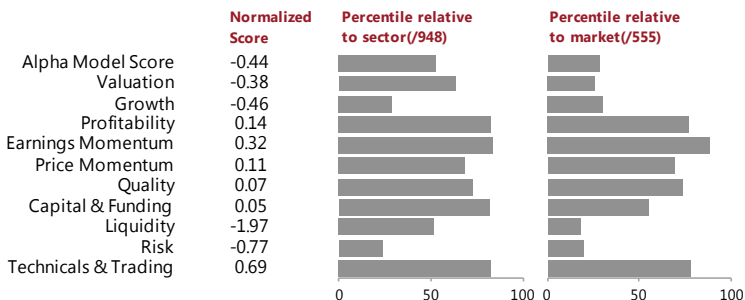
What drove this Company in the last 5 years

Which factor score has had the greatest correlation with the company's returns over the last 5 years.



How it looks on the Alpha model

A more granular view of the underlying style scores that drive the alpha (higher is better) and the percentile rank relative to the sector and market.



Source (all charts): FactSet, Thomson Reuters, and Macquarie Quant. For more details on the Macquarie Alpha model or for more customised analysis and screens, please contact the Macquarie Global Quantitative/Custom Products Group (cpq@macquarie.com)

Luye Pharma Group (2186 HK)

Interim Results					Profit & Loss						
		1H/18A	2H/18E	1H/19E	2H/19E		2017A	2018E	2019E	2020E	
Revenue	m	2,204	2,959	3,123	3,123	Revenue	m	3,815	5,163	6,246	6,858
Gross Profit	m	1,756	2,374	2,498	2,498	Gross Profit	m	2,963	4,130	4,997	5,487
Cost of Goods Sold	m	447	585	625	625	Cost of Goods Sold	m	851	1,033	1,249	1,372
EBITDA	m	790	1,029	1,058	1,058	EBITDA	m	1,340	1,819	2,116	2,288
Depreciation	m	152	98	125	125	Depreciation	m	250	250	250	250
Amortisation of Goodwill	m	0	0	0	0	Amortisation of Goodwill	m	0	0	0	0
Other Amortisation	m	0	0	0	0	Other Amortisation	m	0	0	0	0
EBIT	m	638	931	933	933	EBIT	m	1,090	1,569	1,866	2,038
Net Interest Income	m	-27	-88	-90	-90	Net Interest Income	m	-23	-115	-180	-180
Associates	m	0	-0	0	0	Associates	m	1	0	0	0
Exceptionals	m	29	-29	0	0	Exceptionals	m	-1	0	0	0
Forex Gains / Losses	m	0	0	0	0	Forex Gains / Losses	m	0	0	0	0
Other Pre-Tax Income	m	33	-33	0	0	Other Pre-Tax Income	m	50	0	0	0
Pre-Tax Profit	m	674	780	843	843	Pre-Tax Profit	m	1,116	1,454	1,686	1,858
Tax Expense	m	-111	-107	-130	-123	Tax Expense	m	-136	-218	-253	-279
Net Profit	m	563	673	713	720	Net Profit	m	981	1,236	1,433	1,579
Minority Interests	m	-0	-31	-19	-19	Minority Interests	m	1	-31	-37	-45
Reported Earnings	m	563	642	694	701	Reported Earnings	m	981	1,205	1,395	1,534
Adjusted Earnings	m	563	642	694	701	Adjusted Earnings	m	981	1,205	1,395	1,534
EPS (rep)	fen	17.5	19.8	21.2	21.5	EPS (rep)	fen	30.1	37.3	42.7	46.9
EPS (adj)	fen	17.5	19.8	21.2	21.5	EPS (adj)	fen	30.2	37.3	42.7	46.9
EPS Growth yoy (adj)	%	48.8	7.5	21.5	8.4	EPS Growth (adj)	%	12.3	23.6	14.5	9.9
						PE (rep)	x	19.0	15.4	13.4	12.2
						PE (adj)	x	19.0	15.4	13.4	12.2
EBITDA Margin	%	35.8	34.8	33.9	33.9	Total DPS	fen	4.5	5.5	6.5	7.5
EBIT Margin	%	28.9	31.5	29.9	29.9	Total Div Yield	%	0.8	1.0	1.1	1.3
Earnings Split	%	46.7	53.3	49.7	50.3	Basic Shares Outstanding	m	3,258	3,258	3,258	3,258
Revenue Growth	%	19.1	50.7	41.7	5.5	Diluted Shares Outstanding	m	3,259	3,233	3,269	3,269
EBIT Growth	%	37.1	49.1	46.2	0.2						
Profit and Loss Ratios					Cashflow Analysis						
		2017A	2018E	2019E	2020E		2017A	2018E	2019E	2020E	
Revenue Growth	%	30.7	35.3	21.0	9.8	EBITDA	m	1,213	1,538	1,829	1,993
EBITDA Growth	%	25.5	35.8	16.3	8.1	Tax Paid	m	-196	-218	-253	-279
EBIT Growth	%	17.6	44.0	18.9	9.2	Chgs in Working Cap	m	-1	-225	-229	-119
Gross Profit Margin	%	77.7	80.0	80.0	80.0	Net Interest Paid	m	-27	-115	-180	-180
EBITDA Margin	%	35.1	35.2	33.9	33.4	Other	m	40	0	0	0
EBIT Margin	%	28.6	30.4	29.9	29.7	Operating Cashflow	m	1,028	980	1,166	1,415
Net Profit Margin	%	25.7	23.3	22.3	22.4	Acquisitions	m	-5	1	0	0
Payout Ratio	%	14.9	14.8	15.2	16.0	Capex	m	0	0	0	0
EV/EBITDA	x	14.1	10.4	9.0	8.3	Asset Sales	m	-803	-3,502	0	0
EV/EBIT	x	17.4	12.1	10.1	9.3	Other	m	1	0	0	0
Balance Sheet Ratios						Investing Cashflow	m	-808	-3,501	0	0
ROE	%	14.9	16.5	16.5	15.8	Dividend (Ordinary)	m	-213	-147	-179	-212
ROA	%	10.9	11.3	11.2	12.0	Equity Raised	m	-178	0	0	0
ROIC	%	19.3	24.2	21.4	18.1	Debt Movements	m	1,237	3,080	-0	-0
Net Debt/Equity	%	-20.1	-7.4	4.0	-8.0	Other	m	-199	1,868	-1,943	7
Interest Cover	x	47.8	13.6	10.3	11.3	Financing Cashflow	m	648	4,802	-2,122	-204
Price/Book	x	2.8	2.4	2.1	1.8	Net Chg in Cash/Debt	m	868	2,281	-956	1,211
Book Value per Share		2.1	2.4	2.8	3.2	Free Cashflow	m	1,028	980	1,166	1,415
						Balance Sheet		2017A	2018E	2019E	2020E
						Cash	m	4,251	6,532	5,576	6,787
						Receivables	m	912	1,273	1,540	1,691
						Inventories	m	420	461	511	540
						Investments	m	0	0	0	0
						Fixed Assets	m	2,010	2,010	2,010	2,010
						Intangibles	m	1,866	5,367	5,367	5,367
						Other Assets	m	1,302	1,301	1,301	1,301
						Total Assets	m	10,760	16,944	16,305	17,696
						Payables	m	187	213	237	251
						Short Term Debt	m	2,861	5,941	5,941	5,941
						Long Term Debt	m	0	0	0	0
						Provisions	m	346	496	561	608
						Other Liabilities	m	470	2,306	357	357
						Total Liabilities	m	3,864	8,957	7,096	7,157
						Shareholders' Funds	m	6,768	7,827	9,043	10,366
						Minority Interests	m	128	159	166	173
						Other	m	0	0	0	0
						Total S/H Equity	m	6,896	7,986	9,209	10,539
						Total Liab & S/H Funds	m	10,760	16,944	16,305	17,696

All figures in Rmb unless noted.

Source: Company data, Macquarie Research, November 2018

Important disclosures:

Recommendation definitions

Macquarie - Australia/New Zealand

Outperform – return >3% in excess of benchmark return
Neutral – return within 3% of benchmark return
Underperform – return >3% below benchmark return

Benchmark return is determined by long term nominal GDP growth plus 12 month forward market dividend yield, which is currently around 9%.

Macquarie – Asia/Europe

Outperform – expected return >+10%
Neutral – expected return from -10% to +10%
Underperform – expected return <-10%

Mazi Macquarie – South Africa

Outperform – expected return >+10%
Neutral – expected return from -10% to +10%
Underperform – expected return <-10%

Macquarie - Canada

Outperform – return >5% in excess of benchmark return
Neutral – return within 5% of benchmark return
Underperform – return >5% below benchmark return

Macquarie - USA

Outperform (Buy) – return >5% in excess of Russell 3000 index return
Neutral (Hold) – return within 5% of Russell 3000 index return
Underperform (Sell) – return >5% below Russell 3000 index return

Volatility index definition*

This is calculated from the volatility of historical price movements.

Very high-highest risk – Stock should be expected to move up or down 60–100% in a year – investors should be aware this stock is highly speculative.

High – stock should be expected to move up or down at least 40–60% in a year – investors should be aware this stock could be speculative.

Medium – stock should be expected to move up or down at least 30–40% in a year.

Low-medium – stock should be expected to move up or down at least 25–30% in a year.

Low – stock should be expected to move up or down at least 15–25% in a year.

* Applicable to Asia/Australian/NZ/Canada stocks only

Recommendations – 12 months

Note: Quant recommendations may differ from Fundamental Analyst recommendations

Financial definitions

All "Adjusted" data items have had the following adjustments made:

Added back: goodwill amortisation, provision for catastrophe reserves, IFRS derivatives & hedging, IFRS impairments & IFRS interest expense
Excluded: non recurring items, asset revals, property revals, appraisal value uplift, preference dividends & minority interests

EPS = adjusted net profit / epowa*

ROA = adjusted ebit / average total assets

ROA Banks/Insurance = adjusted net profit / average total assets

ROE = adjusted net profit / average shareholders funds

Gross cashflow = adjusted net profit + depreciation

*equivalent fully paid ordinary weighted average number of shares

All Reported numbers for Australian/NZ listed stocks are modelled under IFRS (International Financial Reporting Standards).

Recommendation proportions – For quarter ending 30 September 2018

	AU/NZ	Asia	RSA	USA	CA	EUR	
Outperform	51.56%	59.51%	45.05%	46.88%	67.86%	46.70%	(for global coverage by Macquarie, 3.70% of stocks followed are investment banking clients)
Neutral	33.20%	28.92%	37.36%	47.70%	25.00%	42.73%	(for global coverage by Macquarie, 2.04% of stocks followed are investment banking clients)
Underperform	15.23%	11.57%	17.58%	5.42%	7.14%	10.57%	(for global coverage by Macquarie, 0.47% of stocks followed are investment banking clients)

2186 HK vs HSI, & rec history



(all figures in HKD currency unless noted)

Note: Recommendation timeline – if not a continuous line, then there was no Macquarie coverage at the time or there was an embargo period.
Source: FactSet, Macquarie Research, November 2018

12-month target price methodology

2186 HK: HK\$8.76 based on a PER methodology

Company-specific disclosures:

2186 HK: Macquarie Capital Limited makes a market in the securities of Luye Pharma Group Ltd.

Important disclosure information regarding the subject companies covered in this report is available at www.macquarie.com/research/disclosures.

Date	Stock Code (BBG code)	Recommendation	Target Price
09-Nov-2018	2186 HK	Outperform	HK\$8.76
03-Jan-2017	2186 HK	Neutral	HK\$4.90

Target price risk disclosures:

2186 HK: Any inability to compete successfully in their markets may harm the business. This could be a result of many factors which may include geographic mix and introduction of improved products or service offerings by competitors. The results of operations may be materially affected by global economic conditions generally, including conditions in financial markets. The company is exposed to market risks, such as changes in interest rates, foreign exchange rates and input prices. From time to time, the company will enter into transactions, including transactions in derivative instruments, to manage certain of these exposures.

Analyst certification:

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