Morimatsu International Holdings (2155 HK)

華泰金融控股（香港）有限公司
HUATAI FINANCIAL HOLDINGS (HONG KONG) LIMITED

Vanguard in pressure vessel industry under global layout

Huatai Research | **Initiation**

7 March 2022 | China (Hong Kong) | **Medical Devices**

Rating (Initiate):	**BUY**
Target price (HKD):	**11.01**

Analyst **DAI Wen**
SAC No. S0570516120002 daiwen@htsc.com
SFC No. BFI915 +86-21-28972078

Analyst **SHEN Luqing**
SAC No. S0570519060001 shenluqing@htsc.com
SFC No. BNL372

Top pressure vessel player to deliver robust growth; initiate at BUY

Morimatsu International Holdings Company Limited (Morimatsu) is the top pressure equipment provider in China, receiving orders from high-prosperity industrial (eg, pharmaceutical/mining/electronic chemical) clients in China/overseas. Considering the company's advantage in global wide top client base/competitive technology/fast product delivery with lower pricing/full-speed capacity expansion, we expect Morimatsu to achieve 2021/2022/2023 revenue of RMB3.89/4.98/6.26bn and net income of RMB317/443/589mn. Given Morimatsu's status as China leading one-stop pressure vessel platform, we believe it should trade at 21x 2022E PE (a 10% discount to the 2022E A-share peer average PE of 23x, given the liquidity gap between A/H-share market), reflecting a fair value of HKD11.35bn and a target price of HKD11.01. Initiate at BUY.

Pressure vessel market: will grow rapidly under vigorous demands

According to Frost & Sullivan, the domestic pressure vessel industry is estimated to grow at CAGR of 10.9% in 20E-24E, while the modular pressure equipment is expected to grow more rapidly at CAGR of 21.8% in 20E-24E under improved pressure vessel industrial techniques and customized demand from downstream clients. And we believe leading players like Morimatsu, who can provide one-stop solution (from early-stage verification/design to final delivery /maintenance) as well as considerable capacity is likely to take the tailwind from industry development.

Pharmaceutical, new energy and semis industries to be key engines

We anticipate Morimatsu to deliver 21E-23E revenue CAGR of near 30%, mainly driven by below high-prosperity industries: 1) pharmaceutical sector, which may deliver 21E-23E revenue CAGR of 35%, given the company's fueling up of downstream innovative drug development orders, deep layout in stainless steel bio-processor provider and distinguished advantage in offering modular factories; 2) mining sector, which may realize 21E-23E revenue CAGR of 33%, driven by industry capacity expansion cycle under incentive policies on new energy; 3) electronic chemical sector, which may reach 21E-23E revenue CAGR of 112%, due to the supportive semiconductor and solar policy and the company's competitive layout in providing equipment for manufacturing high-purity reagent.

Backed by decent client base and fast capacity expansion

We like Morimatsu for below features to prompt long-term growth: 1) experienced management with strong R&D expertise; 2) global top client pool to help accumulate industrial reputation; 3) capacity expansion with Nantong new floorage area to increase 2020 overall capacity by 25%, and Changshu new plant to bring incremental revenue of RMB3-5bn; and 4) information platform to bind clients.

Risks – liquidity risks; delay of downstream clients' capacity expansion.

Financials

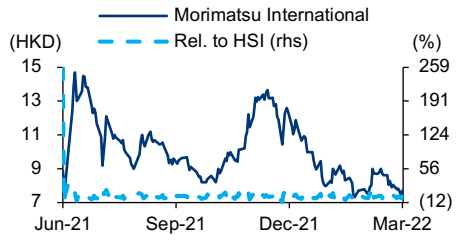
YE 31 Dec	2019	2020	2021E	2022E	2023E
Revenue (RMBmn)	2,826	2,979	3,885	4,984	6,263
+/-%	14.53	5.39	30.44	28.29	25.66
Net profit (RMBmn)	149.10	289.39	316.63	443.09	588.86
+/-%	28.29	94.08	9.42	39.94	32.90
EPS (diluted, RMB)	0.14	0.28	0.31	0.43	0.57
ROE (%)	16.79	33.94	27.38	28.84	28.69
PE (x)	43.82	22.58	20.64	14.75	11.10
PB (x)	9.24	6.54	4.97	3.72	2.78
EV EBITDA (x)	33.52	17.41	15.48	11.33	8.39

Source: Company announcements, Huatai Research estimates

Key data

Target price (HKD)	11.01
Closing price (HKD as of 4 Mar)	7.71
Potential upside -/+ (%)	43
Mkt cap (HKDmn)	7,999
6m avg daily val (HKDmn)	15.21
52wk price range (HKD)	4.96-15.64
BVPS (RMB)	1.67

Share performance



Source: S&P

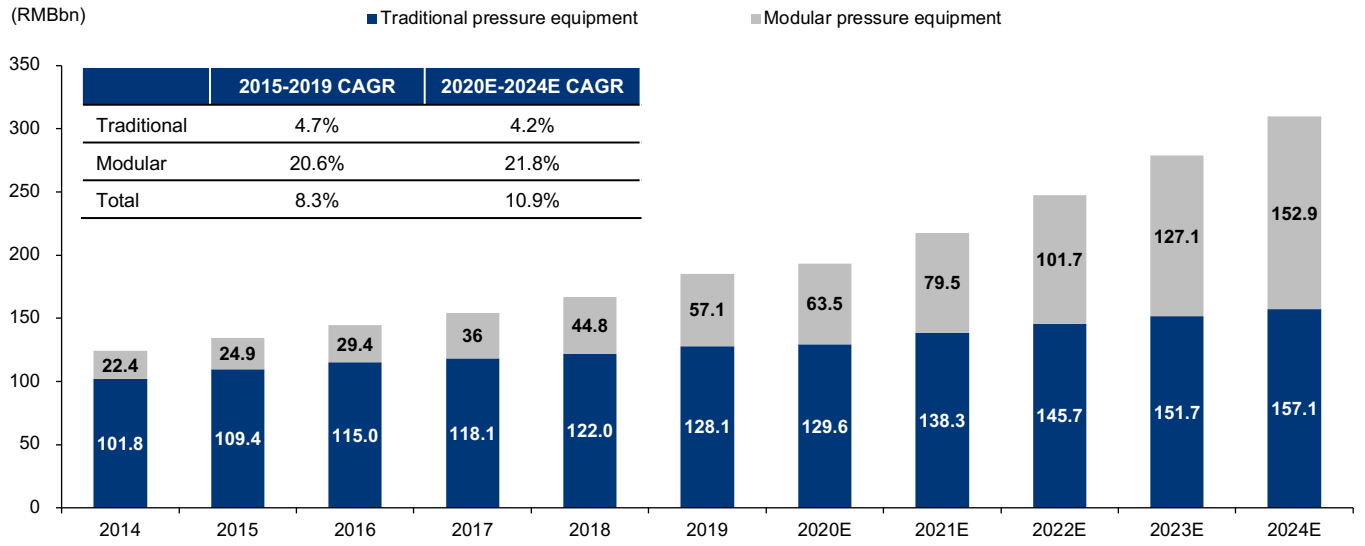
Contents

Figures

Investment thesis

The pressure vessel industry faces vigorous downstream demand. According to Frost and Sullivan, the entire pressure vessel industry is expected to grow at 10.9% 20E-24E CAGR, while the modular pressure equipment is expected to grow faster at 21.8% 20E-24E CAGR. This attributes to: 1) the policy support related to the traditional manufacturing industry (etc. “Made in China 2025”, “Belt and Road Initiative”); 2) the rapid research and development (R&D) advancement in downstream industries that leads to more strict standard for pressure vessel manufacturers; 3) the evolving technology related to pressure vessel (etc. modular technology and intelligent workshop); and 4) the high entry barriers of the industry because of the strict industry qualification standard and heavy capital expenditure required. Therefore, we expect the pressure vessel industry to experience long-term prosperity; in addition, the enterprise with strong R&D ability, well-planned capacity expansion, and short delivery duration would finally stand out.

Fig.1: Market size of the pressure vessel industry



Source: Frost & Sullivan estimates, Morimatsu prospectus, Huatai Research

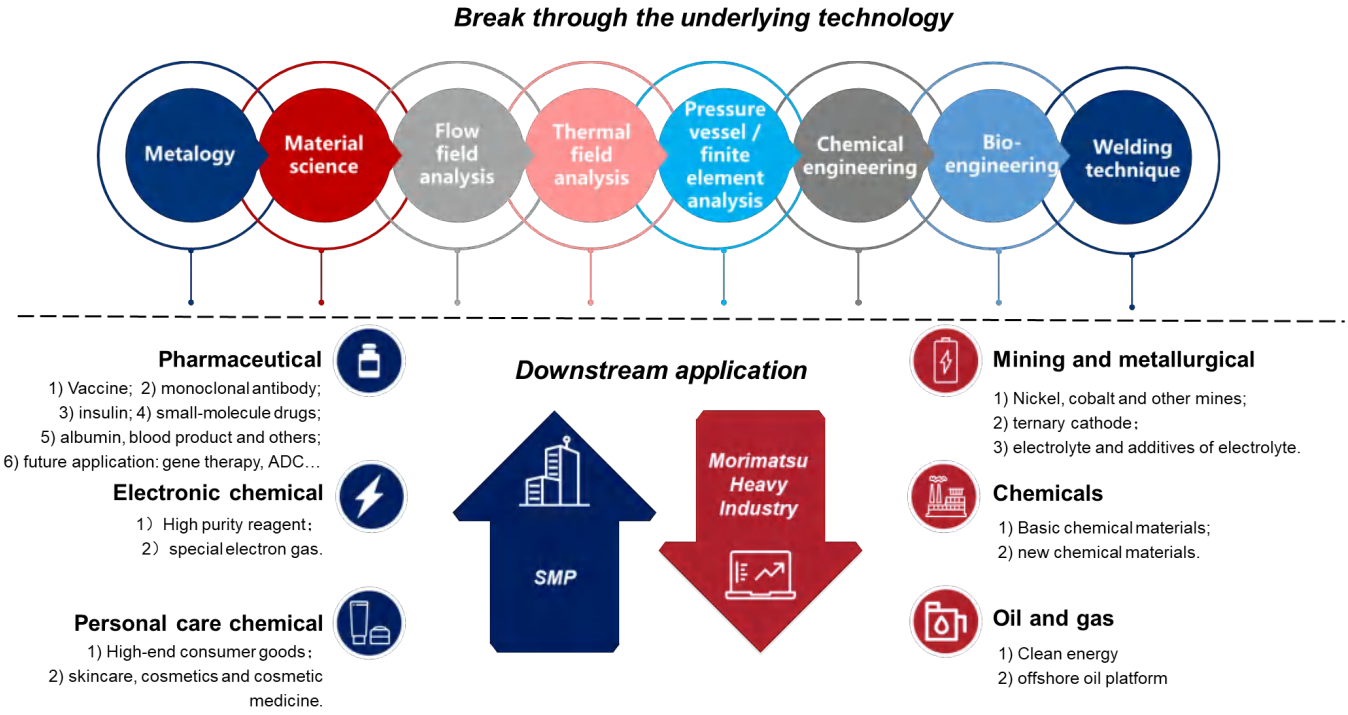
Vertical integration: the one-stop provider for downstream clients’ evolving demands. Characterized by its ability in final assembly and modular plants, Morimatsu can follow a new project from the early-stage verification / design stage until the final delivery / maintenance stage. Taking the pharmaceutical sector as example, Morimatsu can provide not only the single equipment, but also the entire factory solution: 1) for biologics: Morimatsu is the lead domestic stainless steel bioreactor manufacturer with the ability to deliver the largest bioreactor in the world (20KL); 2) for modular plants: Morimatsu acquired Pharmadule in 2011 and is able to provide a turnkey projects to clients to accelerate their time to market (etc. Walvax’s modular plant project); 3) for future application extension: Morimatsu has R&D layout in ADC, mRNA, bispecific antibodies, etc.. In addition, Morimatsu’s role as the one-stop provider for clients does not only apply in the pharmaceutical industry, but also in other industries, such as electronic chemical and mining, etc..

Fig.2: Pharmaceutical sector – follow the evolving technology and downstream clients' need

Note: BPS – bioprocessing system
Source: Morimatsu prospectus, Huatai Research

Horizontal layout: pharmaceutical, new energy and semis act as triple engine for Morimatsu. We expect Morimatsu to serve the capacity expansion demand from various high-prosperity industries: 1) pharmaceutical sector: we expect 21E-23E revenue CAGR of 35%, driven by Morimatsu's position as the top stainless steel bioprocessor & modular plant provider, and its potential in accelerating the pace of import substitution and enter oversea market through attractive pricing and delivery duration; 2) mining sector: we expect 21E-23E revenue CAGR of 33%, driven by encouraging policy regarding new energy and the industry capacity expansion cycle; 3) electronic chemical sector: we expect 21E-23E revenue CAGR of 112%, driven by supportive semiconductor and solar policy, and Morimatsu's ability to provide equipments for manufacturing G5 grade high-purity reagent. As a result, the forementioned three sectors would take 55% of the company's total revenue by 2023E (vs. 41% in 2020).

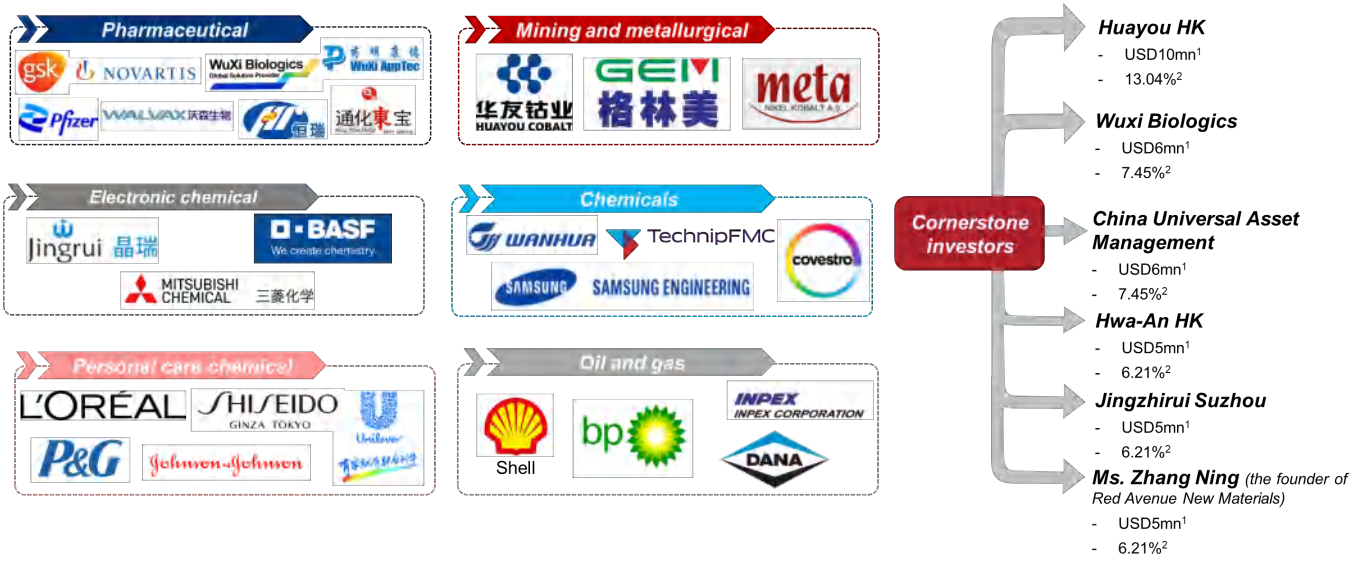
Fig.3: Morimatsu's downstreaming industries and application breakdown



Source: Morimatsu prospectus, Huatai Research

Competitive advantage: in-depth cooperation with top downstream clients. With over 30 years' of experience in pressure vessel industry, Morimatsu has accumulated various project experience and has formed in-depth cooperation with lead downstream clients. For example, Morimatsu has past cooperation with 80% of the top twenty global pharmaceutical companies; in addition, it has also cooperated with global giants such as Protal & Gamble, Shell, Samsung; and domestic leaders such as Huayou Colbalt, Wanhua, Jingrui in other industries. We expect Morimatsu to keep strengthening its client base, because of: 1) shorter project delivery time (etc. 6.5 months for Walvax's modular plants and less than a year for Lonza's 20KL stainless steel bioprocessor); 2) reasonable pricing (etc. Morimatsu's stainless steel bioprocessor is c.30% cheaper than the European peers); and 3) Morimatsu's proved track record and reputation in delivering high-quality products.

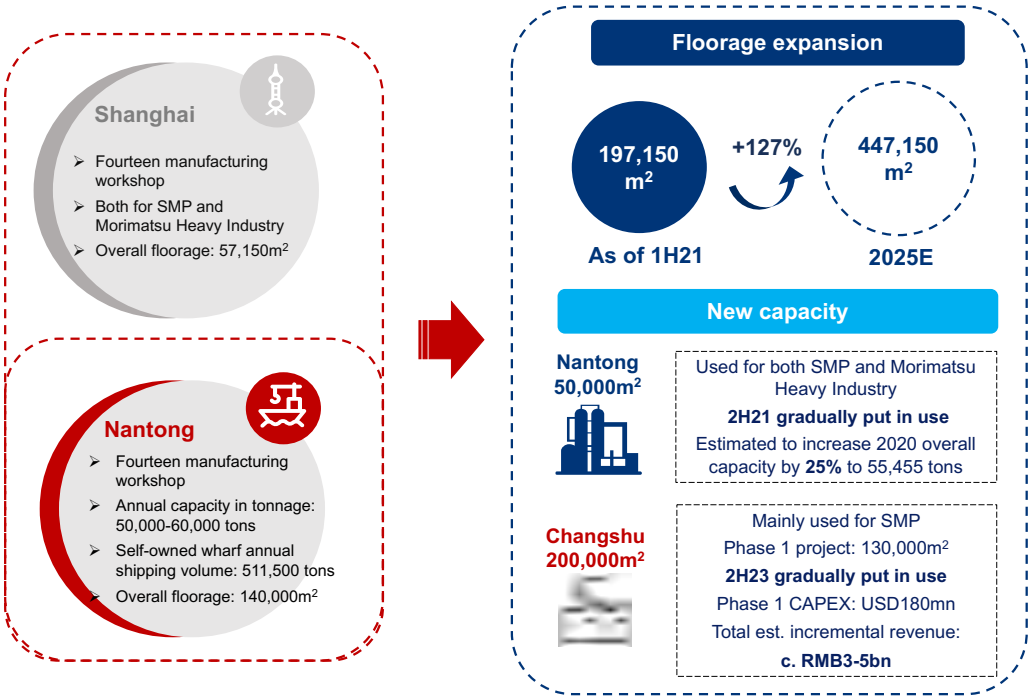
Fig.4: Morimatsu's representative orders and core clients



Note: 1. Investment amount; 2. approximate % of total offered shares;
Source: Morimatsu prospectus, 1H21 semi-annual report, Huatai Research

Capacity: clear capacity expansion plan in supporting the future order growth. Prior to Morimatsu's listing, its average capacity utilization from 2017-2020 is 94.7% which has almost touched the ceiling of its ability in receiving future orders. Facing the booming development of downstream clients, Morimatsu has made clear capacity expansion plan in Nantong (50,000m^2 for both SMP and Morimatsu Heavy Industry) and Changshu (200,000m^2 mainly for SMP). We expect to see the new capacity to gradually release and the company's overall floorage is expected to grow 127% and to achieve 447,150m^2 by 2025E. We expect the incremental 50,000m^2 capacity in Nantong to increase the company's overall capacity by 25% and the 200,000m^2 capacity planned in Changshu will bring in additional RMB3bn revenue after the entire factory is put in use.

Fig.5: Morimatsu capacity layout and future expansion plan



Source: Morimatsu prospectus, 1H21 semi-annual report, Huatai Research

Where we differ from the market: 1) We expect the downstream demand from pharmaceutical, new energy and semiconductor industry to maintain high prosperity and the three related sectors to contribute c.55% of the total revenue by 2023E (pharmaceutical sector to deliver 21E-23E revenue CAGR of 35%, mining sector to deliver 21E-23E revenue CAGR of 33%, and electronic chemical sector to deliver 21E-23E revenue CAGR of 112%); and 2) We expect the gradual capacity release and Morimatsu's successful track record in providing customized pressure equipment to various industry leaders as the strong support for it to secure future orders from different industry's clients.

Financial forecasts and valuation

Considering Morimatsu International's nature as a leading domestic pressure equipment provider and its scarcity as one of the few players listed in H-share, we mainly calculate Morimatsu International's equity value using PE method compared with it's A-share peers; in addition, we also applied peer valuation with H-share medical device companies and DCF valuation as validation reference.

Valuation method: PE

In our estimation, Morimatsu will achieve 2021E/2022E/2023E revenue of RMB3.89/4.98/6.26bn, up by 30/28/26% yoy. We estimate the corresponding net profit at RMB317/443/589mn (adjusted net profit at RMB404/517/651mn), yoy up by 9/40/33% (adjusted net profit yoy: 30/28/26%).

We have identified leading players in the A-share pressure equipment market as comparable peers, as their core business, organizational structure, and growth prospects are most similar with Morimatsu (while H share peers are mainly traditional medical devices company experiencing centralized procurement recently, reflecting a great decline in stock price). As a result, we adopt 2022E PE of 21x (a 10% discount to the 2022E A-share peer average PE of 23x) to value Morimatsu, considering both: 1) the valuation premium of the A-share over H-share; and 2) Morimatsu's competitive advantage from its oversea business exposure/reputation and domestic first-mover advantages.

Fig.6: Peer valuation: A-/H-share pressure equipment players

Company	Stock code	Stock price	Market cap	EPS (RMB)			PE (x)		
		(RMB)	(RMBbn)	2020	2021E	2022E	2020	2021E	2022E
Truking Technology	300358 CH	22.34	12.85	0.38	0.93	1.12	59	24	20
Tofflon Sci &Tech	300171 CH	46.40	29.16	0.74	1.21	1.60	63	38	29
Focused Photonics	300203 CH	28.46	12.88	1.10	1.24	1.22	26	23	23
Offshore Oil	600583 CH	4.83	21.36	0.08	0.18	0.25	60	27	19
Average			19.06	0.57	0.89	1.05	52	28	23

Company	Stock code	Stock price	Market cap	EPS (HKD)			PE (x)		
		(HKD)	(HKDbn)	2020	2021E	2022E	2020	2021E	2022E
CIMC Enric	3899 HK	5.30	5.91	0.32	0.21	0.24	17	26	22
Weigao Group	1066 HK	9.24	18.74	0.33	0.44	0.55	28	21	17
AK Medical	1789 HK	10.30	47.08	0.47	0.55	0.65	22	19	16
Average			23.91	0.37	0.40	0.48	22	22	18

Note: Prices as of 4 March 2022

Source: H-share data from Bloomberg, A-share data from Wind, Huatai Research

Valuation method: DCF (for reference)

We use DCF valuation only for reference to estimate the company's long-term value. Assuming a WACC of 10.7% and a perpetual growth rate range of 1.0%, we arrive at a fair value range of HKD12.3bn (RMB10.1bn) and a target price of HKD11.89 for Morimatsu.

Fig.7: Morimatsu: free cash flow

(RMBmn)	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Net revenue	**3,885**	**4,984**	**6,263**	**7,667**	**9,204**	**10,835**	**12,432**	**13,996**	**15,504**	**17,102**
yoy%	30	28	26	22	20	18	15	13	11	10
EBIT	391.47	5494	717.79	899.98	11136	1345.93	1569.46	1796.28	2018.43	2259.54
yoy%	11	38	33	25	23	21	17	14	12	12
EBIT margin (%)	10	11	11	12	12	12	13	13	13	13
EBITDA	331.79	458.48	608.38	762.80	941.11	1140.77	1330.23	1522.47	1710.76	1915.12
+Depreciation and amortization	80.21	90.14	101.86	115.33	130.42	147.02	165.28	185.37	207.46	231.77
- Change in working capital	(119.98)	(187.53)	(185.06)	(160.76)	(131.51)	(301.80)	(295.01)	(289.43)	(279.42)	(296.58)
-Capex	(162.19)	(194.63)	(229.66)	(264.11)	(295.81)	(325.39)	(357.92)	(393.72)	(433.09)	(476.40)
Free cash flow	**129.83**	**166.47**	**295.51**	**453.26**	**644.21**	**660.60**	**842.57**	**1024.69**	**1205.71**	**1373.90**

Source: Huatai Research estimates

Fig.8: Morimatsu: key assumptions and DCF valuation

DCF Analysis (RMBmn)		Key assumptions (%)	
PV of FCF	3,723	Tax rate	15.0
Terminal value	14,269	Debt ratio	25.0
PV of terminal value	5,704	Beta	1.60
Enterprise value	9,427	Risk free rate	3.0
Net cash/(debt), minority interests	647	Risk premium	6.0
Equity value (RMBmn)	**10,074**	Equity cost	12.6
Equity value per share (HKD)	**11.89**	Debt cost	6.0
		Debt cost (after tax)	5.1
		WACC	**10.7**
		Perpetual growth	1.0

Source: Huatai Research estimates

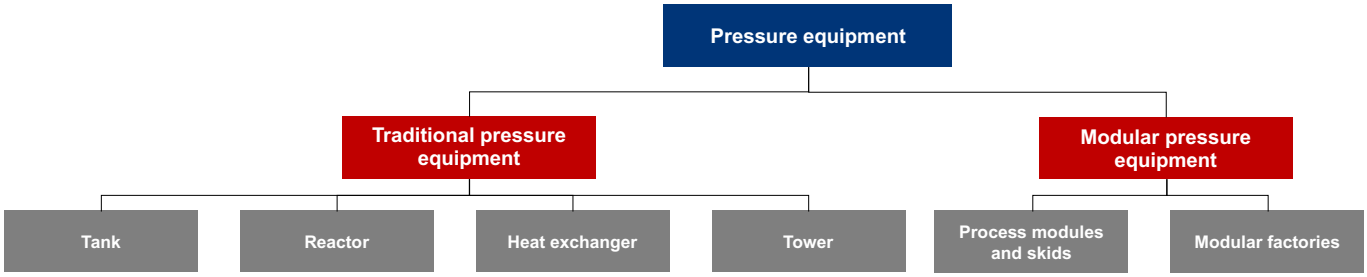
China pressure vessel market: face vigorous terminal demand

China pressure vessel industry will meet long-term prosperity. According to Frost & Sullivan, the market size of China's pressure vessel industry has been growing steadily in the past few years, from RMB124.2bn in 2014 to RMB185.2bn in 2019 (2015-2019 CAGR: 8.3%); in addition, it will reach RMB310.0bn by 2024 (2020E-2024E CAGR: 10.9%, with the modular pressure equipment growing rapidly at 21.8% 2020E-2024E CAGR). We think the industry players who have the following characteristics will ourperform the market: 1) the one with sufficient incremental capacity; 2) the one who has broken through the underlying core technology and has strong R&D to cover various downstream applications; 3) the one with self-controlled transportation ability; and 4) the one with strong soft power including interdiscipline professionals, stable customer relationships, and abundant project experience.

Pressure vessel: highly customized with various downstream applications

Pressure equipment (or pressure vessel) refers to a closed container that is used in industrial production to complete the production process of reaction, mass transfer, heat transfer, separation and storage, and can withstand pressure loads (internal and external pressure), including: 1) traditional pressure equipment: a variety of single pressure vessels which are used in industrial production. Based on different functions in the production process, the traditional pressure equipment can be classified into heat exchangers, tanks, reactors, and towers; and 2) modular pressure equipment: a kind of integrated system that integrates pressure vessels and other devices into one module. It can operate independently to realize one or more complete technologcal processes and be transported, hoisted, and installed as a whole. Modular pressure equipment can be divided into pressure modules and skids, and modular factories.

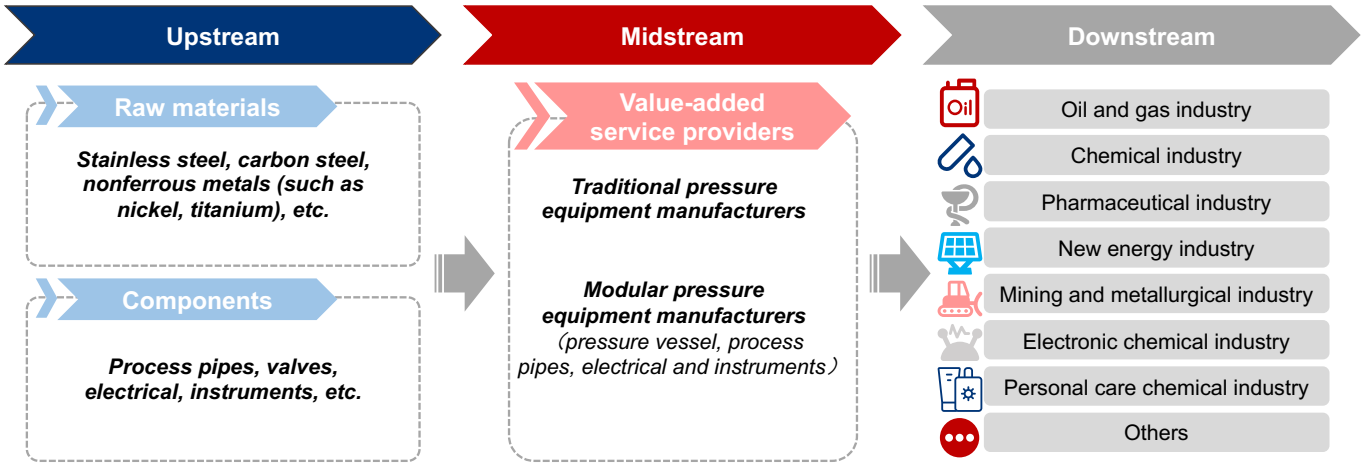
Fig.9: Classification of pressure equipment



Source: Morimatsu prospectus, Huatai Research

The industrial chain of the pressure equipment includes the supply of upstream raw materials and components, midstream pressure equipment manufacturers and downstream applications in various industries: 1) upstream: it mainly includes raw materials (such as stainless steel, carbon steel), nonferrous metals (such as titanium, nickel, etc.), and components (such as process pipes, valves, etc.) used in modular pressure equipment; 2) midstream: it generally involves traditional pressure equipment manufacturers, modular pressure equipment manufacturers, and related value-added service providers such as digital design and factory management; and 3) downstream: it envolves multiple applications in oil and gas industry, chemical industry, pharmaceutical industry, new energy industry, mining and metallurgical industry, electronics chemicals industry, personal care chemical industry and other industries.

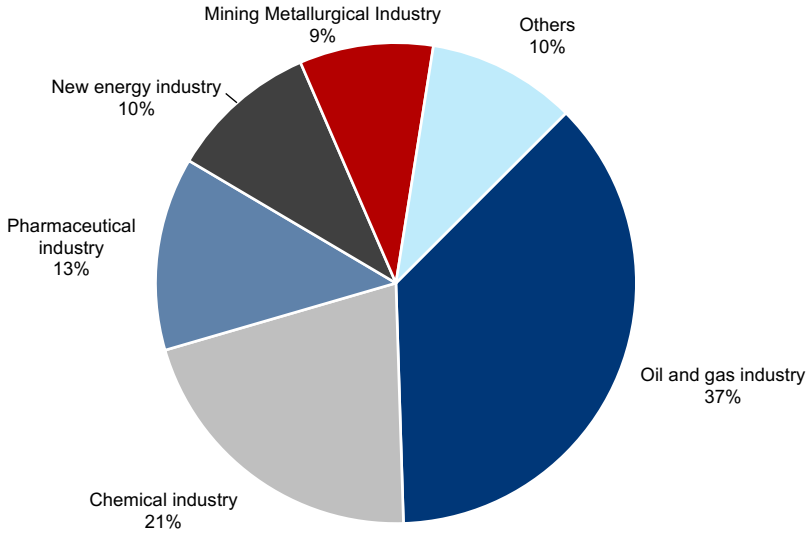
Fig.10: Upstream and downstream industries of pressure equipment industry



Source: Morimatsu prospectus, Huatai Research

Pressure equipment manufacturers face various downstream applications. The pressure equipment is mainly used in the oil and gas, chemical and pharmaceutical industries. According to Frost & Sullivan, China's pressure equipment industry's downstream application is splited as follows: 1) the oil and gas industry accounted for 37%; 2) the chemical industry accounted for 21%; 3) the pharmaceutical industry accounted for 13%; 4) the new energy industry accounted for 10%; and 5) the mining metallurgical industry accounted for 9%.

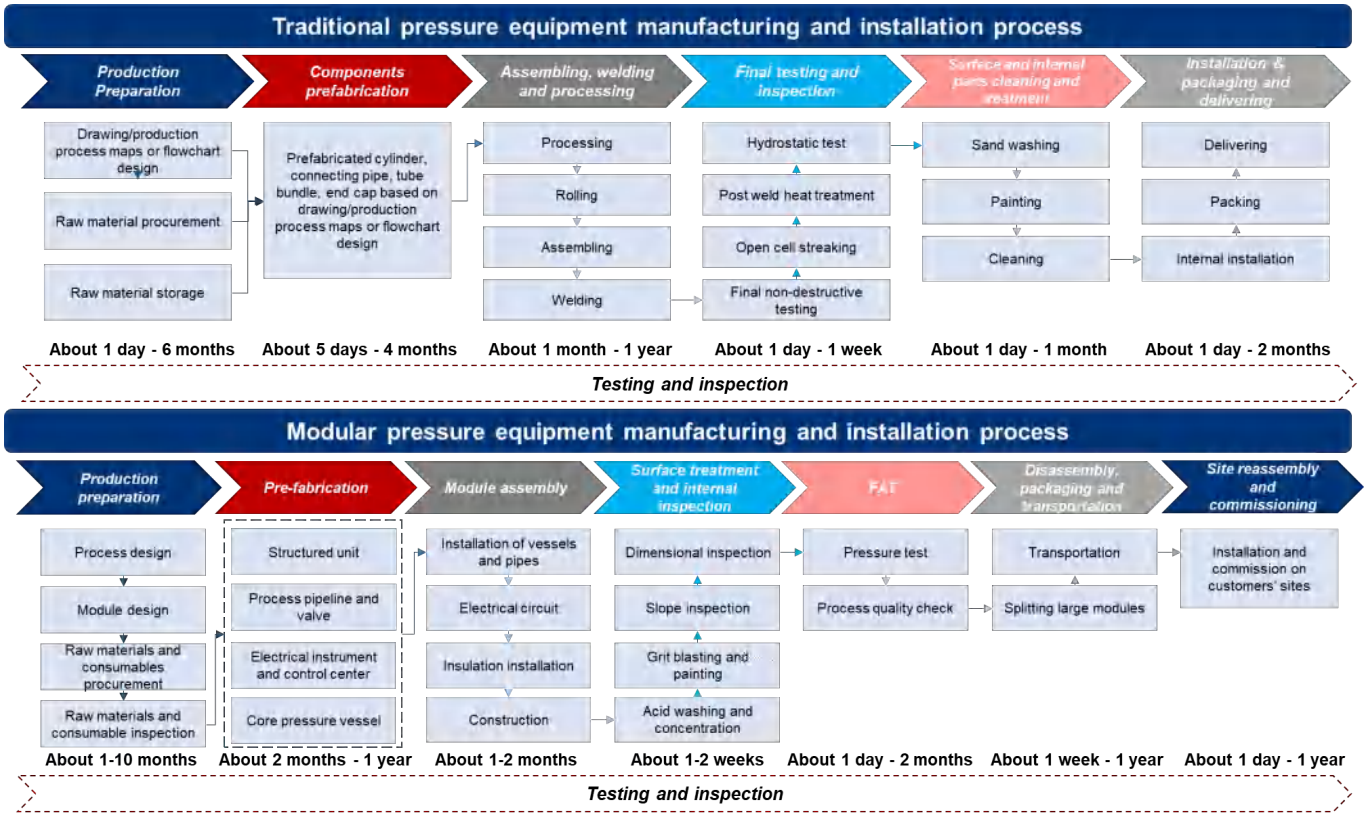
Fig.11: Revenue breakdown of China's pressure equipment industry (2019)



Source: Morimatsu prospectus, Frost & Sullivan estimates, Huatai Research

Pressure equipments are usually characterized by non-standardized customization. As the products are highly customized, the duration of the production process of each piece of pressure equipment varies depending on the equipment size, application, design, and manufacturing requirements and specifications (modular pressure equipment typically takes longer to install). In addition, traditional pressure equipment manufacturing and installation is typically internal installation, packing, and delivering, while modular pressure equipment is typically splited and installed at the customer's site.

Fig.12: Manufacturing and installation process of pressure equipment

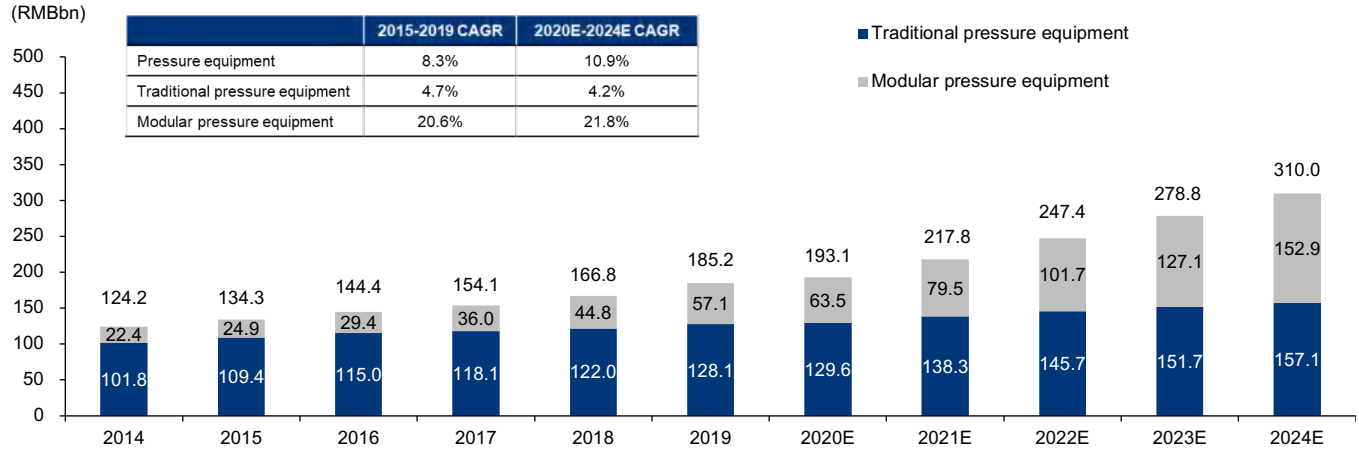


Source: Morimatsu prospectus, Huatai Research

Long-term prosperity under tech advancement and robust demand

China pressure vessel industry will meet long-term prosperity. The market size of China's pressure vessel industry has been growing steadily in the past few years, on the basis of Frost & Sullivan, from RMB124.2bn in 2014 to RMB185.2bn in 2019 (2015-2019 CAGR: 8.3%); in addition, it will continue to climb to RMB310.0bn by 2024 (2020E-2024E CAGR: 10.9%, with the modular pressure equipment growing rapidly at 21.8% 2020E-2024E CAGR), given: 1) policy support regarding the technology advancement in the traditional manufacturing industry; 2) upgraded customization demand under downstream industry innovation; 3) the development of pressure equipment technology is in full swings (modular technology/intelligent plant, etc.); 4) the high entry barriers of the industry resulting from the strict industry qualification standard and heavy capital expenditure required；and 5) the oversea demand continues to be strong.

Fig.13: Market size and breakdown of China's pressure equipment industry

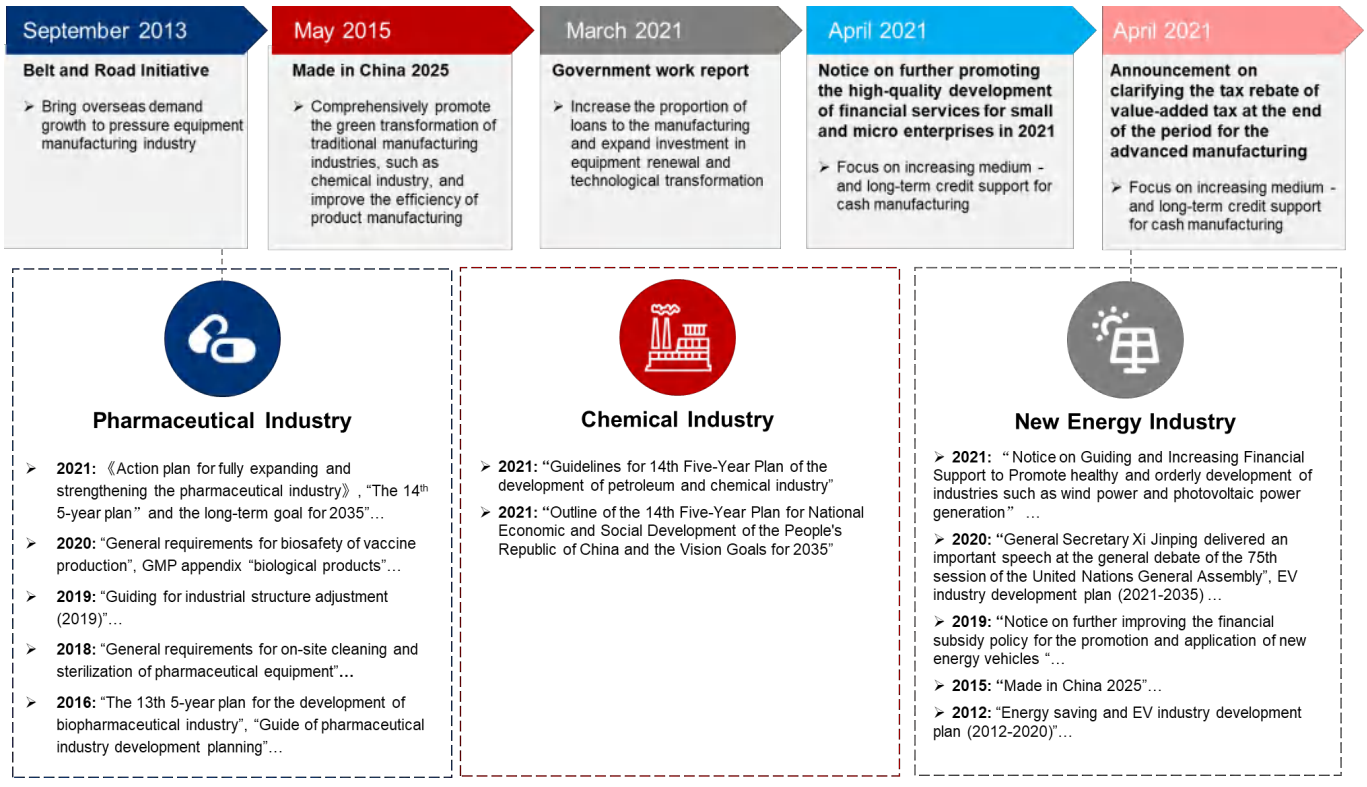


Source: Morimatsu prospectus, Huatai Research, Frost & Sullivan estimates

Policy support regarding the tech advancement in the traditional manufacturing industry

In recent years, the Chinese government has issued multiple policies in supporting the development of pressure vessel industry, for example: 1) the "Made in China 2025" promoted the structural adjustment of the pressure equipment industry and stimulated the demands for intelligent and high-end pressure equipment with better energy saving performance and less emission; and 2) the "Belt and Road Initiative" has brought more international opportunities to domestic players.

Fig.14: Industrial policy of pressure equipment manufacturing



Source: Morimatsu prospectus, gov.cn, Huatai Research

Downstream industries' evolving innovation drives the terminal demand

The continuous innovation in the downstream clients would often create more customized demand for pressure vessel players. For example: 1) in the pharmaceutical industry: the rise of biologics, monoclonal antibodies, bispecific antibodies, vaccines and CXO has created the vigorous demand for stainless steel bioprocessors and single-use bioprocessors; 2) in the chemical industry: the development of eco-chemicals such as adiponitrile and biodegradable plastics such as PBAT has brought new demands for the pressure vessel; and 3) in the mining the metallurgical industry: the electric vehicles (EV) battery market has maintained robust growth, benefiting from the ramp-up of EV production and sales and the improvement of single-vehicle charging capacity

Fig.15: Innovation in downstream industries increases the demand for pressure equipment

Pharmaceutical industry

- The rise of biologics, monoclonal antibodies, bispecific antibodies, vaccines, gene therapy and CXO created vigorous demand for stainless steel bioprocessors and single-use bioprocessors;
- The national macro strategy from "generic strategy" to "innovative drug strategy" transformation;
- In order to cope with price pressure and competitiveness, such as collection, rapid industrialization demand is strong.

Mining and metallurgical industry

- CO_2 emissions aim to peak by 2030 and strive to achieve carbon neutrality by 2060;
- The power battery market has maintained rapid growth, benefiting from the expansion of marketing scale of new energy vehicles and the improvement of single-vehicle charging capacity.

Chemical industry

- High-end polyolefin material: POE polyolefin elastomer;
- Functional film materials: PI film (polyimide film), electronic polarizing film, LCP, PTFE, ETFE;
- Engineering Plastics: adiponitrile(raw material of nylon 66), molten salt reactor, fixed bed tubular oxidation reactor;
- Biodegradable plastics: PBAT, PBS, and eco-chemicals

Note: PBAT - poly (butyleneadipate-co-terephthalate); PBS - poly (butylene succinate); CXO - contract X organization.; LCP - liquid crystal polymer; PTFE - poly-tetra-fluoro-ethylene; ETFE - ethylene-tetra-fluoro-ethylene; POE - polyolefin thermoplastic elastomer
Source: Morimatsu prospectus, the general debate of the 75th session of the UN General Assemebly, Huatai Research

The development of pressure equipment technology is in full swing

From the initial single large pressure equipment (such as pressure vessel, reactor, heat exchanger, and tower) to the modular plant assembled from pressure vessels and other equipments, the entire evolution has laid a solid foundation for the development of the pressure equipment industry. Furthermore, intelligent modular factories will be widely adopted as they can greatly shorten the construction period, reduce the construction cost, improve the full-cycle project management, and further optimize their production process and simulate the modified solutions through digital design.

Fig.16: Development and technical innovation of pressure equipment

Traditional pressure equipment	Modular pressure equipment/plant	Intelligent plant
A single large pressure device, such as pressure vessels, reactors, heat exchangers, etc.	An integrated system assembled from pressure vessels and other equipment	An integrated system assembled from modular pressure devices and other IoT devices

Technical development trend of pressure equipment industry

- **Increase of vessel wall thickness:** the wall thickness of large-scale vessels gradually increase to adopt high temperature and pressure, so replacing forgings with thick wall plates is the trend to reduce the cost
- **Cold press forming:** compared to hot forming, the cold press forming reduces material cost and eliminate complex heat treatment for restoring material properties
- **High-efficiency welding:** double wire narrow gap welding tech is adopted by large pressure vessels to improve welding efficiency and shorten the manufacturing cycle

- **Material specialization:** pressure vessels have high requirements for material quality. The thickness of extra-thick steel plates, the properties stability of special steel, and the control of trace elements still need to be strengthened in China
- **Head splicing:** the splicing technology needs develop further as it is difficult to purchase the broad scale if the head is made of the whole plate
- **On-site manufacturing:** due to the transportation constraints, the large-scale equipment is often delivered in sections, and then assembled at the construction site

Note: IoT – Internet of Things;
Source: Morimatsu prospectus, Huatai Research

High entry barriers resulting from the strict industry qualification standard

The qualification certification and entry barriers of the pressure equipment industry are high: 1) qualification of production and regulatory requirements: the pressure equipment industry is subject to the management of national compulsory license and global standards; 2) capital investment: The production of pressure equipment requires a large amount of capital investment in plant construction or leasing, manufacturing equipment, testing equipment, raw material procurement, and technology development; 3) specialized talents: talents specialized in module design and manufacturing are rare in the market; 4) customer base and relationship: downstream customers often have customized requirements for the equipment; and 5) project experience: rich experience in projects can help to shorten the project cycle and guarantee the quality of project.

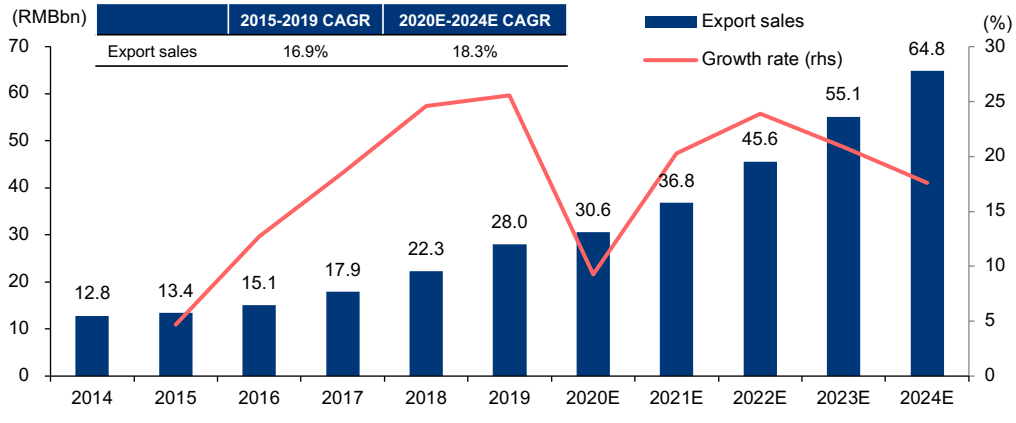
Fig.17: The pressure equipment industry faces high entry barriers

Source: Morimatsu prospectus, Huatai Research

The oversea demand continues to be strong.

The export sales of China's pressure equipment industry has increased year by year, from RMB12.8bn in 2014 to RMB28.0bn in 2019 (2015-2019 CAGR: 16.9%). Frost & Sullivan predicts that the export sales of China's pressure equipment industry will increase to RMB64.8bn in 2024 (2020E-2024E CAGR: 18.3%), given: 1) the quality gap between China and international peers' pressure equipment is narrowing under China's maturing technology; and 2) encouraging policies such as "Belt and Road Initiative" brings more export opportunities for manufacturing enterprises.

Fig.18: Pressure equipment export sales and growth rate (China)

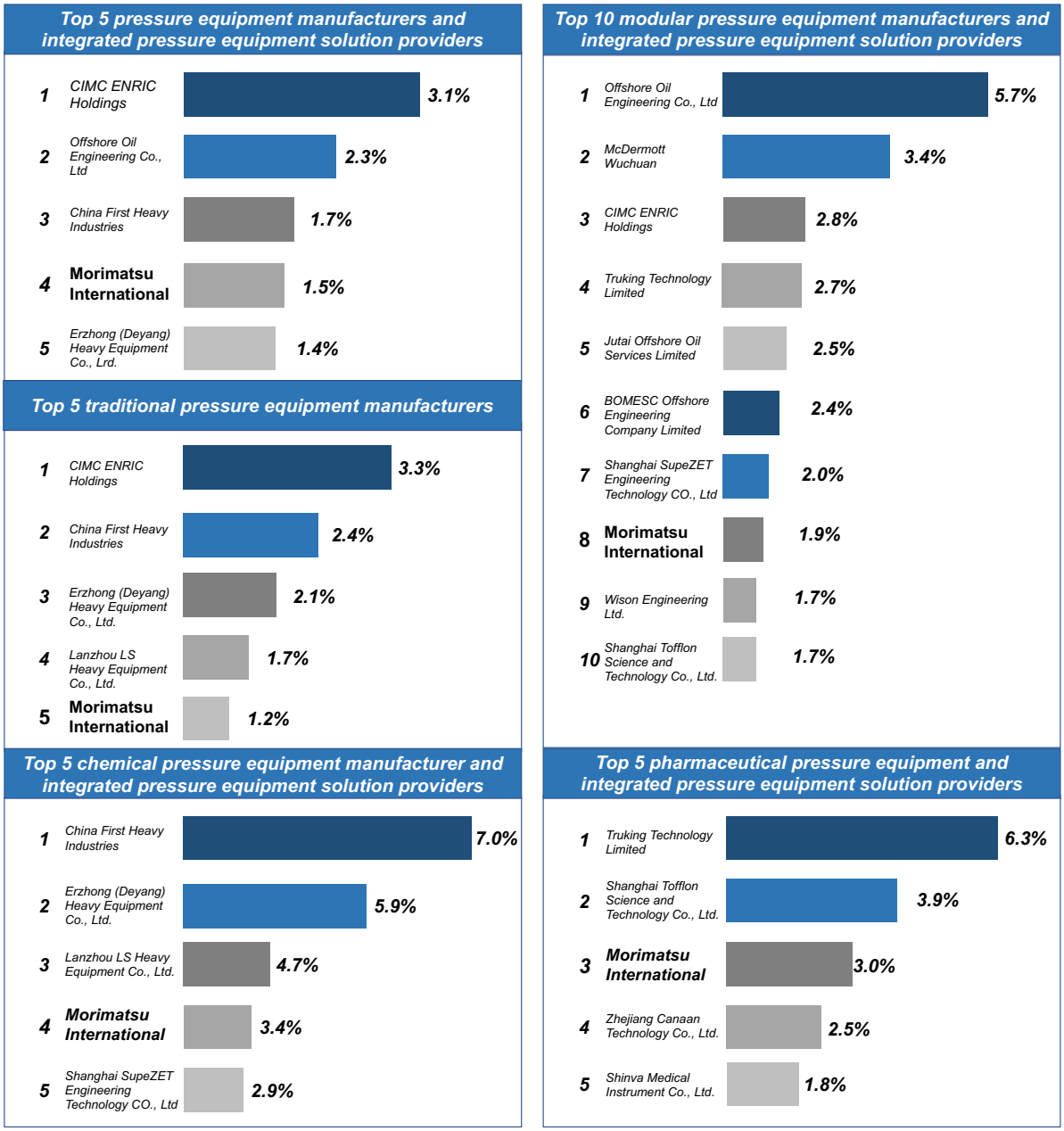


Source: Morimatsu prospectus, Frost & Sullivan estimates, Huatai Research

Winner analysis under extremely fragmented industry competitive pattern

The domestic players are facing extremely fragmented market. CR_5 of the pressure equipment industry is 10.0% (CR_5 of traditional pressure equipment is 10.7%, and CR_{10} of modular pressure equipment industry is 26.8%), mainly because the industry players usually faces various downstream industries and the demand of each downstream industry varies greatly.

Fig.19: Competitive landscape of pressure equipment industry in China (core manufacturers and market share, 2019)



Source: Morimatsu prospectus, Huatai Research, Frost & Sullivan estimates

Market leaders usually has wide areas of expertise and capacity availability. We notice current industry leaders have the following characteristics: 1) facing more downstream clients in different industries: the top five pressure equipment enterprises have platform enterprises covering various downstream areas; for example CIMC Enrico has covered clean energy, chemical environment, and liquid food industries, and Morimatsu has covered chemical, pharmaceuticals, oil and gas and so on; and 2) sufficient capacity and well-planned expansion plan: the top five pressure equipment enterprises usually has sufficient capacity in supporting its orders. Interestingly, most top players with ability in providing pressure equipment to pharmaceutical industry (etc. Morimatsu, Tofflon, and Truking) has the capacity expansion plan.

Fig.20: Introduction of the head pressure vessel manufacturers

Company	Areas of expertise	Capacity
Truking Technology Limited	Pharmaceutical equipment manufacturer, including dispensing systems, bioreactor systems, sanitary containers, etc	• After the completion of the fourth phase of the project, to reach the global scale of 10 billion capacity planning
Shanghai Tofflon Science and Technology Co., Ltd.	Pharmaceutical pressure equipment manufacturer, including abandoned reactor systems and stainless steel reactor systems	• Jiangsu intelligent equipment manufacturing and Shanghai Jinshan biopharmaceutical system equipment industrialization project are under construction and are planned to be put into use next year
Morimatsu International	Traditional pressure equipment and modular equipment manufacturing enterprises such as chemical industry, oil and gas exploitation and pharmaceutical industry, etc.	• 179,000 square meters • 23 production workshops • As of December 31, 2020, the capacity is 44,000 tons
Zhejiang Canaan Technology Co., Ltd	Powder process equipment, solid system agent equipment, Chinese medicine extraction equipment and fluid process equipment	/
China First Heavy Industries	Petrochemical heavy reaction vessels, complete metallurgical equipment, nuclear power pressure vessels, large forgings, etc.	• The annual output of petrochemical containers is 50,000 tons • The annual output of five sets of nuclear island primary circuit main equipment, five sets of conventional island rotor forgings and cylinder block castings, etc.
Erzhong (Deyang) Heavy Equipment Co., Ltd.	The manufacturing of large-scale complete sets of equipment, large-scale casting &forging, nuclear power and heavy petroleum pressure vessels and large-scale driving parts, which can provide systematic equipment manufacturing and services for metallurgy, mining, energy, transportation, automobile, petrochemical, aerospace and other significant industries.	• With the overall equipment manufacturing capacity of manufacturing a single super large and super thick heavy pressure vessel of more than 2500 tons, it is the backbone supply of large nuclear power and chemical heavy pressure vessels in China
Lanzhou LS Heavy Equipment CO., LTD.	It integrates high-end pressure vessel equipment for oil refining, chemical industry and coal chemical industry, rapid forging unit equipment, plate heat exchanger, nuclear power, photovoltaic, photothermal, hydrogen energy and other high-end energy equipment	• 1.2mn square meters • the annual production capacity of the three production bases is 130,000 tons
Shinva Medical Instrument Co., Ltd	Pharmaceutical equipment sector, by biopharmaceuticals, special infusions, Chinese medicine preparations, solid system agents four major engineering and technical centers	• BioYD provides reaction tanks, preparation, culture tanks, storage tanks, purified water/injection water, inactivated tanks, slurry tanks, mobile tanks, special materials
CIMC ENRIC Holdings Limited	Design, development, manufacture, engineering, sales and operation of various types of transportation, storage and processing equipment for the clean energy, chemical environment and liquid food industries, and provide technical maintenance services.	• By 1H22, the production line will have an annual production capacity of approximately 100,000 hydrogen storage bottles
Offshore Oil Engineering Co. Ltd.	Set offshore oil, natural gas development engineering design, land manufacturing and offshore installation, commissioning, maintenance and liquefied natural gas, refining projects as one of the large-scale general contracting company	• Annual steel processing capacity of 330,000 tons

Source: Morimatsu prospectus, official websites of the companies, Huatai Research

Winner analysis: players with sufficient capacity and good innovation ability will outperform. We think the industry players who have the following characteristics will ourperform the market: 1) the one with sufficient incremental capacity; 2) the one who has breakthrough the underlying core technology and has strong R&D to cover various downstream; 3) the one with self-controlled transportation ability; and 4) the one with strong soft power including interdiscipline professionals, stable customer relationships, and abundant project experience. With the foremetioned market winner analysis, we noticed that Morimatsu is well positioned to face the robust development of the pressure equipment industry, and has high potential to outperform the market.

Fig.21: Potential characteristics of outstanding enterprises

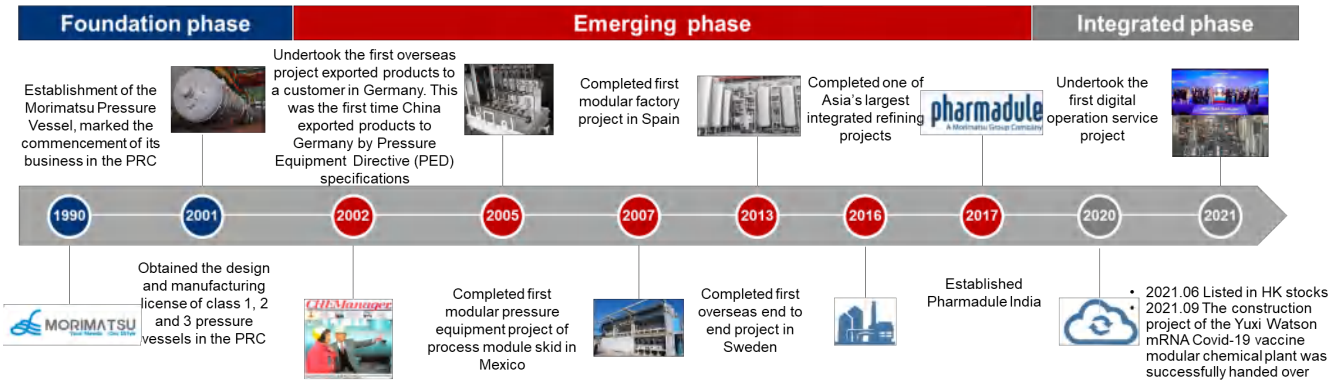
Potential characteristics of outstanding enterprises	
Core technology	➢ Proprietary technologies such as module design, core equipment manufacturing and module installation are not easy to master ➢ Customers in different industries such as chemistry and pharmacy have additional requirements for module design and manufacturing
Transportation capacity	➢ The pressure equipment industry needs high transportation capacity ➢ Leading manufacturers have open berths and rolling docks to reduce shipping time and costs
Professionals	➢ It is not an easy job to find suitable persons who can master the knowledge of module design and core facility manufacturing, such as high-end pressure vessels and suitable project managers who have rich management experience.
Customer relationship	➢ Projects usually require a long preparation time to negotiate with potential downstream customers and provide pre-sales services ➢ Customers in the industry are dominated by large multinational companies with long-term and stable demand
Project experience	➢ The project involves overall project planning, module design, transportation, installation, project testing, etc. ➢ For project bidding, the qualification certificate of solicitation shall be provided at the bidding stage to explain the importance of experience

Source: Morimatsu prospectus, Huatai Research

Morimatsu: top industry player with ample oversea experience

Morimatsu: domestic pressure equipment pioneer with international footprint. Morimatsu was established in 1990 and listed on the Hong Kong Stock Exchange in 2021. The development of the company can be divided into three phases: 1) foundation phase (1990-2001): from its establishment in 1990 to obtaining the design and manufacturing license of class 1, 2, and 3 pressure vessels in 2001; 2) emerging phase (2002-2017): from undertaking the first overseas project exported to Germany in 2002 to establishing Pharmadule India in 2017; and 3) integrated phase (2018-now): transformation to modular, systematic solution and digital operation service supplier.

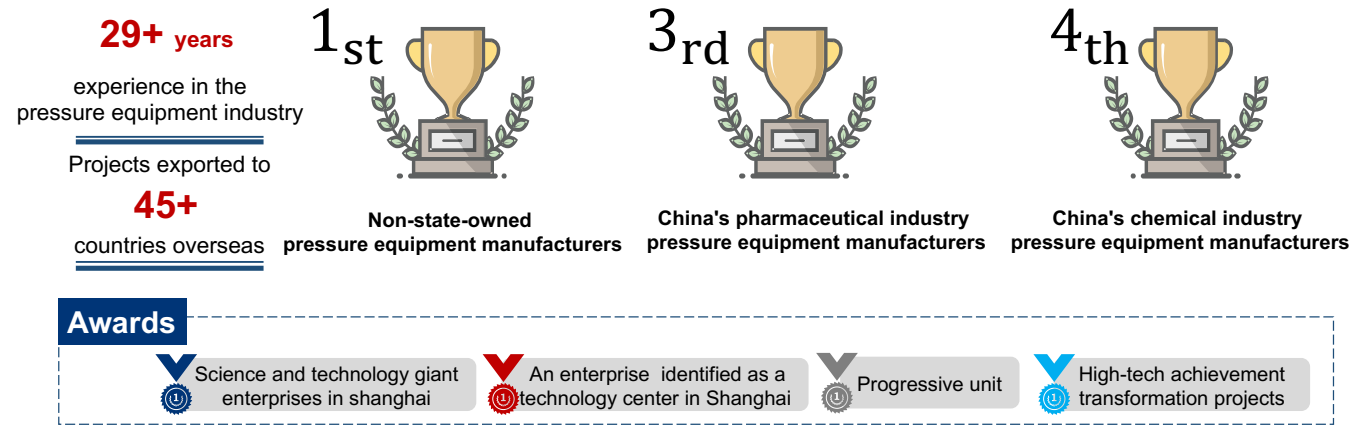
Fig.22: Company history and milestones



Source: Morimatsu prospectus, Huatai Research

Morimatsu has leading market share in the extremely fragmented market. Morimatsu has over 29 years of experience in the pressure equipment industry, with projects exported to more than 45 countries. Morimatsu is the pressure equipment manufacturer with the fourth domestic market share in 2019, but it ranks first among non-state-owned manufacturers (market share 1.5%), third among pharmaceutical pressure equipment and integrated pressure equipment solution providers (market share: 3.0%), and fourth among chemical pressure equipment manufacturer and integrated pressure equipment solution providers (market share: 3.4%) in China.

Fig.23: Morimatsu: a leading enterprise of domestic pressure equipment

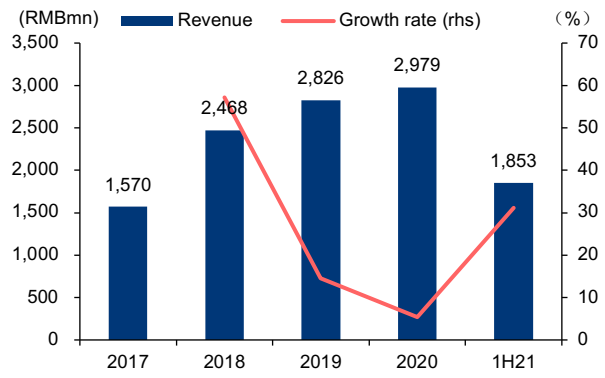


Source: Morimatsu prospectus, Huatai Research

The backlog value has spotlighted revenue growth with high certainty. Morimatsu delivered revenue of RMB2.98bn in 2020 (yoy: 5%, 2017-2020 CAGR: 23.79%) and net profit of RMB289mn with a net profit margin of 9.7%. In addition, the backlog value was RMB3.32bn in 2020 (2016-2020 CAGR: 26.22%) and the new contract value was RMB35.26bn (2017-2020 CAGR: 23.01%). In 1H21, the company has booked revenue of RMB1,853mn (yoy 28.5%), attributing to: 1) the substantial increase in product deliveries in the chemical industry, and the strong growth of new chemical products applied to high-performance chemical materials, degradable plastic raw materials, industrial waste processing and other new chemical products; and 2) the pharmaceutical industry increased deliveries in the first half of the year due to the increase in orders in the field of COVID-19 vaccines and biopharmaceuticals. In addition, 1H21 backlog value has achieved RMB4,881mn,

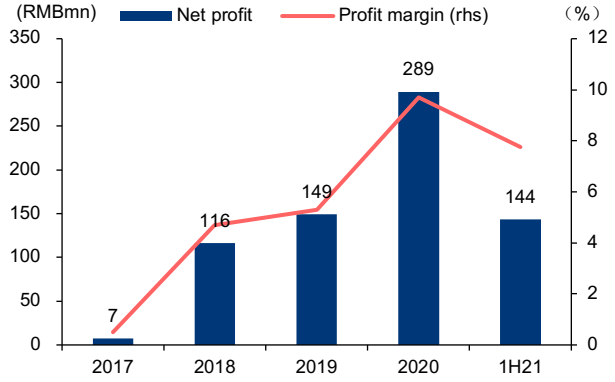
which has ensured the robust revenue growth for the following years.

Fig.24: Morimatsu: revenue and growth rate



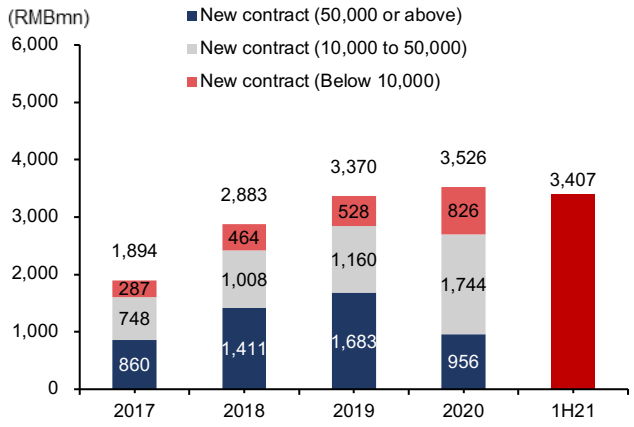
Source: Morimatsu prospectus, 1H21 semi-annual report, Huatai Research

Fig.25: Morimatsu: net profit and profit margin



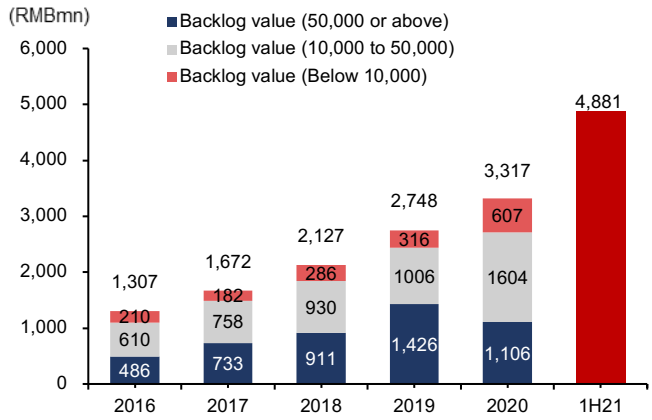
Source: Morimatsu prospectus, 1H21 semi-annual report, Huatai Research

Fig.26: Morimatsu: new contract



Note: The data in 1H21 is total backlog value
Source: Morimatsu prospectus, 1H21 semi-annual report, Huatai Research

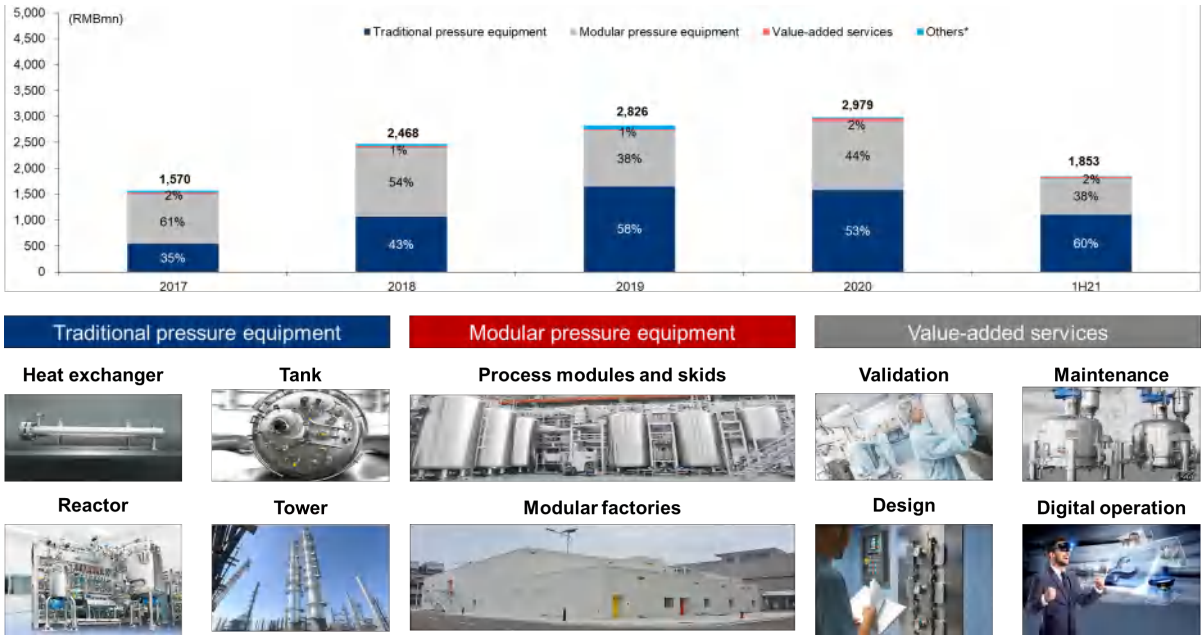
Fig.27: Morimatsu: backlog value



Note: The data in 1H21 is total new contract value
Source: Morimatsu prospectus, 1H21 semi-annual report, Huatai Research

Deep experience in stainless steel tanks, featured by modular plants. Morimatsu's major product line includes: 1) traditional pressure equipment (contributing 60% of the revenue in 1H21): including heat exchangers, tanks, reactors, and towers, which are applied in various industries; 2) modular pressure equipment (contributing 38% of the revenue in 1H21): including process modules and skids, and modular factories; and 3) value-added services related to pressure equipment(contributing 2% of the revenuein 1H21): including validation, maintenance, design, and digital operation services.

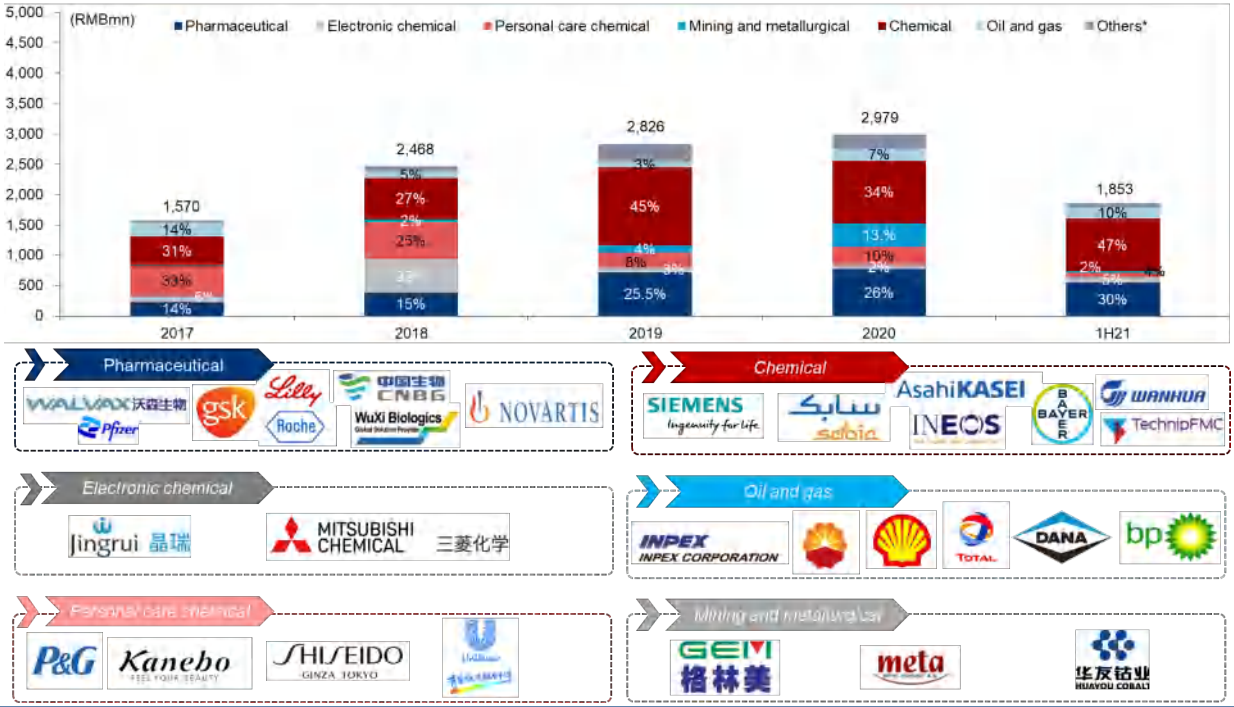
Fig.28: Characterized by modular business, supplemented by digital operation and maintenance



Source: Morimatsu prospectus, 1H21 semi-annual report, Huatai Research
Note: others mainly include sales of raw materials and scrap materials.

Facing various downstream customers, pharmaceutical and mining as dual engine. Under the encouraging policies, the rapid technological advancement, and the acceleration of the import substitution, we expect Morimatsu's three related business sector (pharmaceutical, mining & metallurgical and electronic chemicals) to become the major drivers of the company. Divided by downstream applications, the company's business include: 1) SMP: (38.08% in 1H21): including pharmaceutical (29.7% in 1H21), personal care chemical (3.5% in 1H21) and electronic chemical (4.8% in 1H21); and 2) Morimatsu Heavy Industry (61.92% in 1H21): including mining and metallurgical (1.7% in 1H21), chemical (46.7% in 1H21) and oil and gas (9.8% in 1H21). In recent years, the revenue of pharmaceutical (14.3% in 2017 vs. 25.8% in 2020), and mining and metallurgy (0.1% in 2017 vs. 13.1% in 2020) have gradually increased.

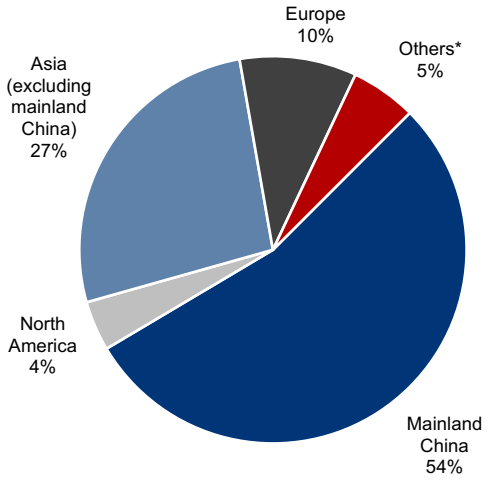
Fig.29: Downstream customers from diversified industries



Source: Morimatsu prospectus, 1H21 semi-annual report, Huatai Research
Note：others primarily include shipping industry, water treatment industry and food industry

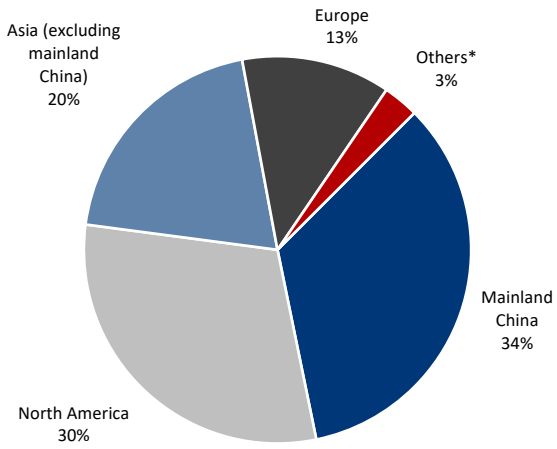
Great exposure to international business under the two centers + two chains strategy. The revenue of Morimatsu outside mainland China increased from 46% in 2017 to 66% in 2020. The international layout of Morimatsu includes: 1) two centers: pharmadule front end, verification consulting technology and R&D center in Europe and engineering center in Japan; and 2) two chains: production chain in China (Shanghai and Nantong) and production chain in Malaysia, which can significantly reduce the impact of geopolitical factors.

Fig.30: Revenue breakdown by region in 2017



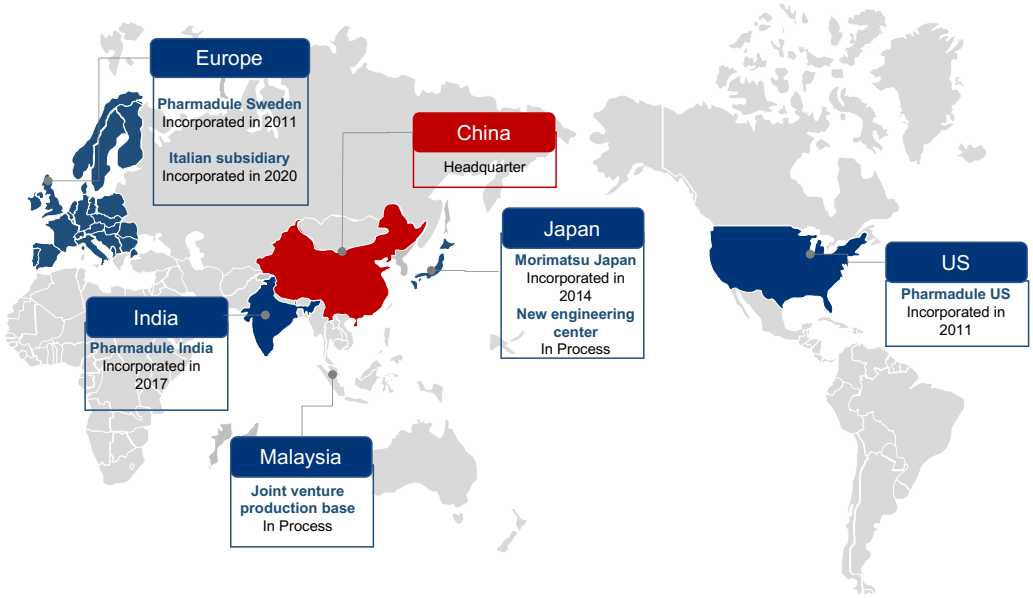
Source: Morimatsu prospectus, Huatai Research

Fig.31: Revenue breakdown by region in 2020



Source: Morimatsu prospectus, Huatai Research

Fig.32: Morimatsu layout at home and abroad



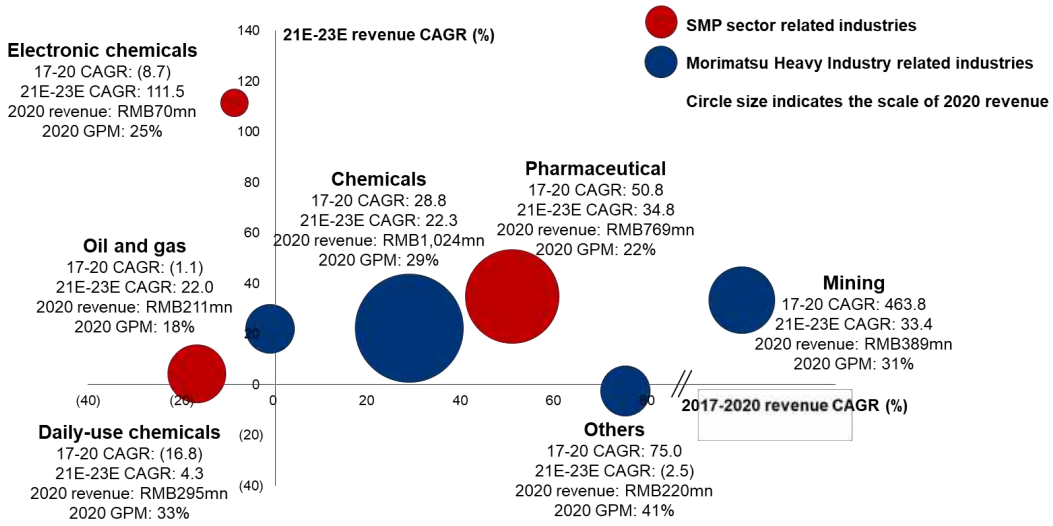
Source: Morimatsu prospectus, 1H21 semi-annual report, Huatai Research

Morimatsu: business across multiple high prosperity industries

Because of its ability to breakthrough the underlying subjects (etc. metalogy, material science, pressure vessel, chemical engineering, bioengineering), Morimatsu's highly customized products/equipments face the demands of multiple downstream industries, including: pharmaceutical, electronic chemicals, daily-use chemicals, mining & metallurgical, chemicals, oil & gas, and others. We expect Morimatsu's revenue to grow at 28% 21E-23E CAGR, contributing from the following sectors:

1) Shanghai Morimatsu Pharmaceutical (SMP) is composed with projects related to pharmaceutical, electronic chemicals, and daily-use chemicals industry. We expect the sector to grow at 36% 21E-23E revenue CAGR and to achieve RMB2,881mn by 2023E, contributing 46% of the company's total revenue. Major drivers of the sector include pharmaceutical and electronic chemicals, which would grow at 35% / 112% 21E-23E revenue CAGR respectively.
2) Morimatsu Heavy Industry is composed with projects related to mining and metallurgical, chemicals, oil and gas, and other industry. And we expect the sector to grow at 22% 21E-23E revenue CAGR and to achieve RMB2,768mn by 2023E, contributing 54% of the company's total revenue. Mainly driver of the sector includes mining and metallurgical, which would grow at 33% 21E-23E revenue CAGR.

Fig.33: Morimatsu downstream sector revenue forecast



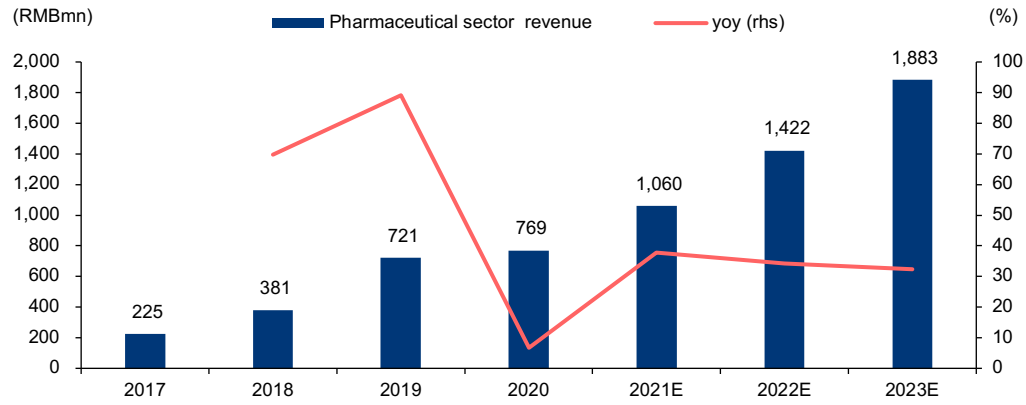
Note: the red circle represents industries related to Shanghai Morimatsu Pharmaceutical; the blue circle represents industries related to Morimatsu Heavey Industry;
Source: company data, Huatai Research estimates

To further elaborate the company's drivers, we have addressed the detailed analysis on each industrial sector in below chapters.

Pharmaceutical: well-positioned to face the long-term cycle

Morimatsu's pharmaceutical sector has achieved RMB769mn revenue in 2020 (yoy: +6.7%), representing 25.8% of the total 2020 revenue. We expect Morimatsu's pharmaceutical sector to deliver 35% CAGR in 2021E-2023E, mainly because of: 1) the rapid industry growth under supportive biopharmaceutical industry policy, the dynamic development of big pharmas/biotechs, and the imperative downstream clients' demand in optimizing production efficiency; 2) Morimatsu's leadership in providing stainless steel bioprocessor and potential in accelerating the pace of import substitution; 3) Morimatsu's distinctive modular plant in accelerating clients' time to market; and 4) its extensive R&D pipeline.

Fig.34: Morimatsu pharmaceutical sector revenue and forecast



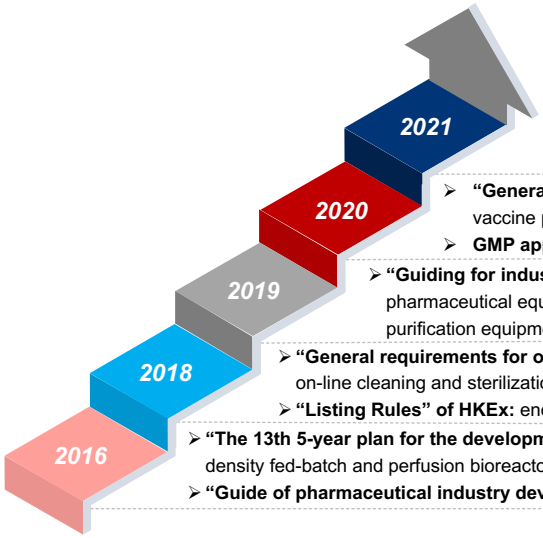
Source: Morimatsu prospectus, 1H21 semi-annual report, Huatai Research estimates

Domestic medical equipment is entering the golden development cycle

We expect to see domestic medical equipment providers in entering a golden development cycle, because of: 1) the encouraging policy; 2) downstream clients' impending demand in increasing production effiency under China's centralized drug procurement environment; 3) the import substitution opportunity under COVID and evolving domestic technology; 4) the continuous development and advances of current biopharmaceutical technology; and 5) the demand for both stainless steel and single-use bioprocessor will remain high in the long term.

China's supporting policy has opened the capacity expansion cycle for pharmaceutical industry. Review the relevant policies regarding biopharmaceutical industry in the past 5 years, there are four major trends benefiting the development of domestic medical equipment players: 1) incentivizing pharmaceutical industry innovation and capacity expansion; 2) increasingly stringent GMP requirements; 3) encouraging development of key medical equipment such as drug cleaning equipment and sensors, large-scale protein purification equipment and bioreactors; and 4) encouraging the automation, digitization and intelligence of the pharmaceutical equipment.

Fig.35: Policy in encouraging the development of domestic medical equipment in the past 5 years

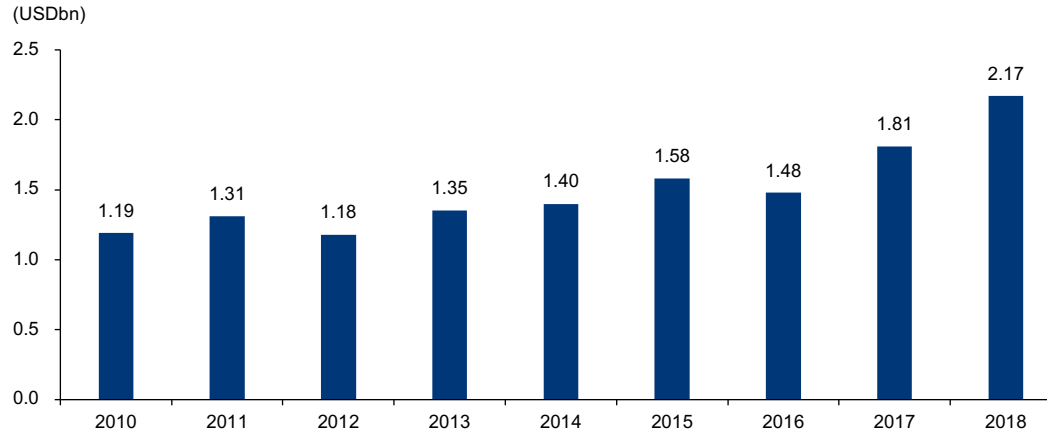


- 2021
  - **《Action plan for fully expanding and strengthening the pharmaceutical industry》：** aim to improve the automation, digitization and intelligence level of pharmaceutical equipment;
  - **"The 14th 5-year plan" and the long-term goal for 2035：** form and expand capacity of the whole industrial chain in biomedical industry, key development area includes bioreactor and equipment…
- 2020
  - **"General requirements for biosafety of vaccine production":** promote the construction of COVID-19 vaccine production line;
  - **GMP appendix "biological products"**: improve vaccine management and standardize the production.
- 2019
  - **"Guiding for industrial structure adjustment (2019)":** encourage the development and production of high-end pharmaceutical equipment, includes large scale bioreactors and auxiliary systems, protein separation and purification equipment…
- 2018
  - **"General requirements for on-site cleaning and sterilization of pharmaceutical equipment":** promote the upgrading of on-line cleaning and sterilization technology in the pharmaceutical industry;
  - **"Listing Rules" of HKEx:** encourage the listing and the development of more biotech.
- 2016
  - **"The 13th 5-year plan for the development of biopharmaceutical industry":** develop drug cleaning equipment and sensors,..., high-density fed-batch and perfusion bioreactors, large-scale protein purification equipment...
  - **"Guide of pharmaceutical industry development planning":** improve the automation, digitization and intelligence of the equipment.

Source: National Development and Reform Commission, National Medical Products Administration, Shijiazhuang government official website, Huatai Research

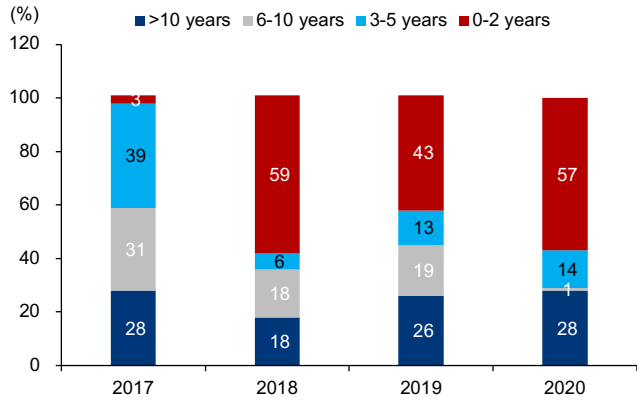
Mismatch between R&D expense and price leads to more demand for production efficiency. China's healthcare system is special under the relatively unitary payer system，where the national healthcare security administration has large bargaining power over the drug pricing. Even the average R&D cost of a single new durg has increased from USD1.2bn in 2010 to USD2.2bn in 2018 (implying 2010-2018 CAGR of 7.8%), the price cut after the medical insurance price negotiation has become larger (2017 average price cut of 44% vs. 2020 average price cut of 56%). In addition, the time for a new drug from its commercialization to enter the medical insurance list has become shorter (in 2020, 57% of the new covered drug entered the list 0-2 years after the commercialization). Therefore, the mismatch between increasing R&D cost but declining durg price has led biotechs/big pharmas in considering to maximize their production efficiency to secure the profitability.

Fig.36: Average R&D cost of a single new drug



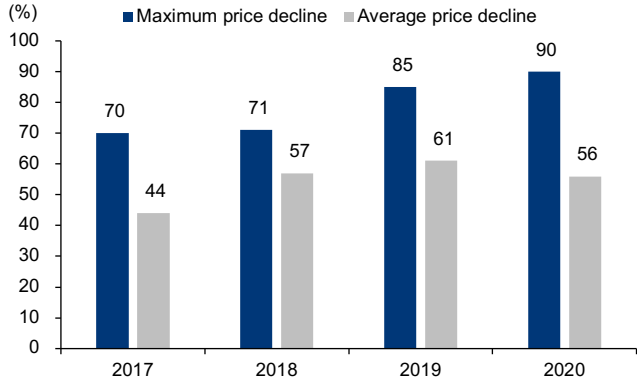
Source: Pharmcube, Huatai Research

Fig.37: Time for new medical insurance covered drug from commercialization to enter the list



Source: Pharmcube, Huatai Research

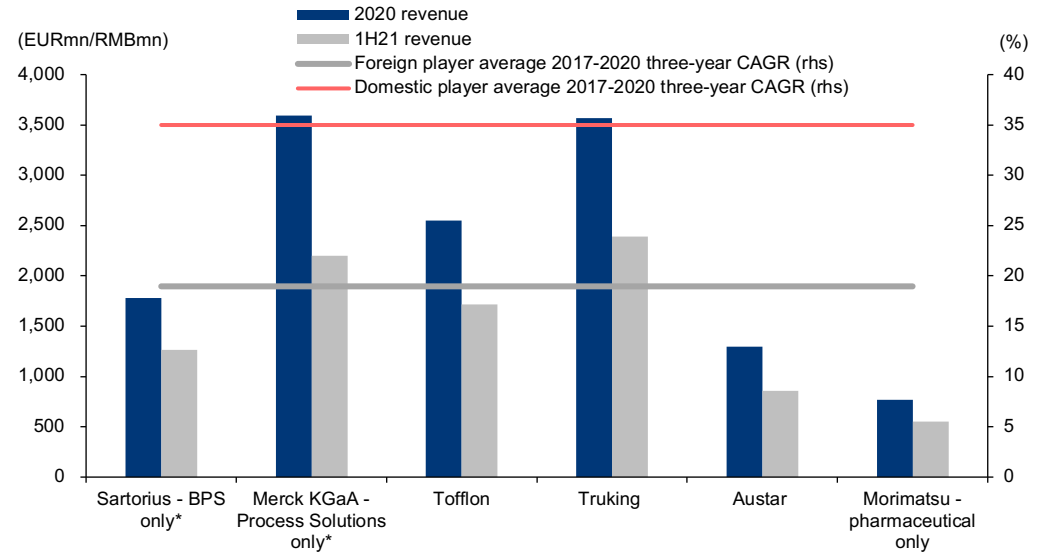
Fig.38: 2017-2020 results of medical insurance price negotiation



Source: Pharmcube, Huatai Research estimates

Under the pandemic, medical equipment may accelerate import substitution. China's medical equipment market has been dominating by foreign top players such as Sartorius, Cytiva, Merck KGaA and Thermo Fisher. In contrast, leading domestic players such as Tofflon and Trucking only have c.2%/2% market share respectively in the broad medical equipment market. The current competitive landscape has lit up the import substitution opportunity for domestic players. Although the import substitution rate for different types of medical equipment (such as stainless-steel bioreactors, single-use bioreactors, freeze dryer, chromatographic column, etc.) may depend on the maturity of domestic technology, we believe it is relatively easy for players such as Morimatsu to substitute foreign players based on its technology know-hows and past experiences in manufacturing and selling bioreactors abd fermentators.

Fig.39: Average R&D cost of a single new drug

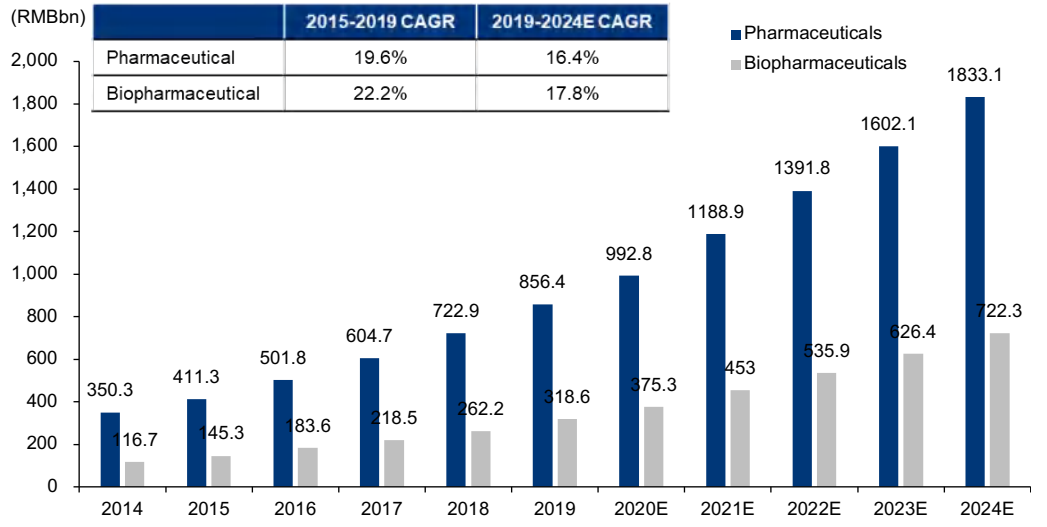


Note: Sartorius and Merck KGaA's revenue currency is EURO, while Tofflon, Truking, Austar, Morimatsu's revenue currency is RMB

Source: Wind, Sartorius and Merck KGaA 10K, Huatai Research

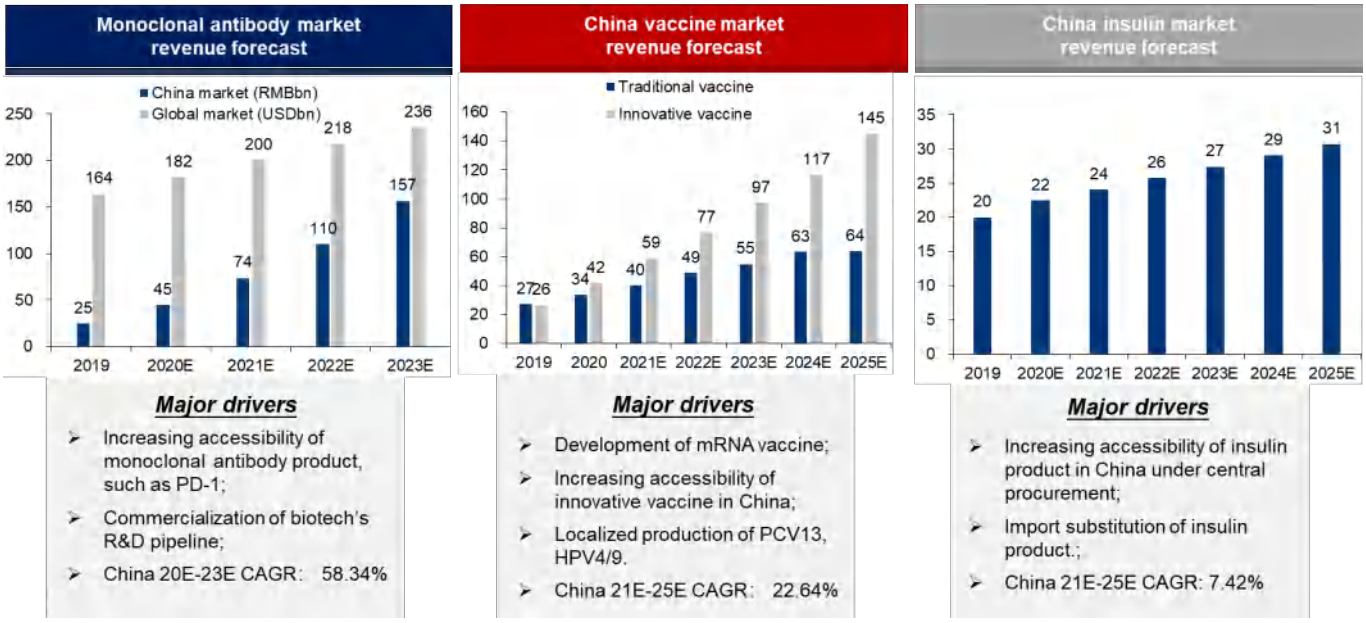
Biologics, vaccine and insuline are stepping into the accerlerated development cycle. According to Frost & Sullivan, the market size for China's biopharmaceutical industry has achieved RMB319bn in 2019, with the potential to grow at 2020E-2024E CAGR of 17.8% and to reach RMB722mn in 2024E. Among the biopharmaceutical market, three subdivisions would experience rapid growth: 1) Monoclonal antibody – the market in China is expected to grow from RMB25bn in 2019 to RMB157bn in 2023E; 2) vaccine – the traditional vaccine market is expected to grow from RMB34bn in 2020 to RMB64bn in 2025E, and the innovative vaccine is expected to experience faster growth where the market grow from RMB42bn in 2020 to RMB145bn in 2025E; and 3) insulin – the Chinese market is expected to grow from RMB20bn in 2019 to RMB31bn in 2025E.

Fig.40: Market size of the China's pharmaceutical industry



Source: Frost & Sullivan estimates, Huatai Research

Fig.41: Revenue forecast of monoclonal antibody, vaccine, and insulin market in China and the major drivers



Source: Frost & Sullivan estimates, Huatai Research

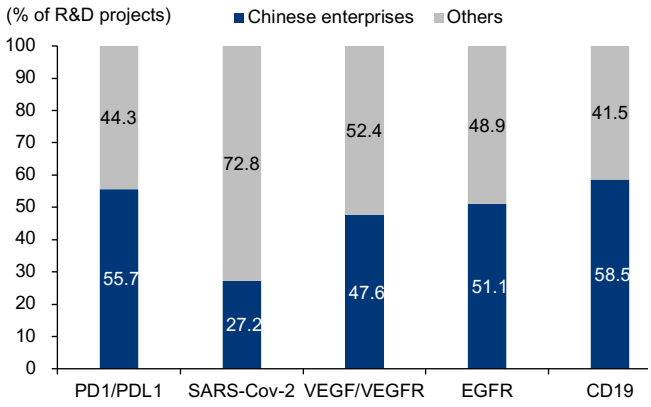
Fig.42: Future capacity planned by major pharmas and biotechs in China

Company	Current capacity (L)	Note	New capacity planned (L)	Note
Innovent Bio	24,000	6*3,000 +6*1,000	36,000	12*3,000
Junshi Bio	34,500			
Shanghai Henlius Biotech	28,000	10*2,000+4*2,000	16,000	
BeiGene	54,000		10,000	
Jiangsu Hengrui Medicine	265,000		Phase II under construction	
Wuxi Biologics	54,000		376,000	
Alphamab Oncology			Over 30,000	
Lepu Bio	2,000		12,000	2*6,000
SinoMab BioScience	1,200		Over 30,800	
RemeGen	12,000	6*2,000	24,000 by 2H21 69,000 by 2H25	
Keymed Bio	1,600	3*200+ 1*1,000	16,000	8*2,000
I-MAB			6,000	3*2000
Akeso	20,000		120,000	
Cstone			26,000	
Sansheng Guojian	38,000			
Biocytogen			5,400	2*200+2*500+2*2,000

Source: Pharma DJ, Huatai Research

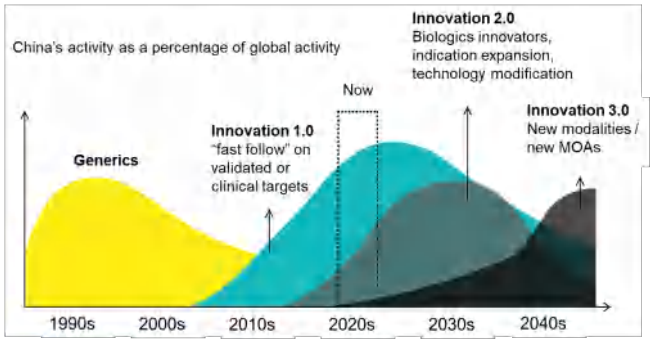
Innovative medical technologies emerge, extending China's long-term biomedical cycle. According to pharmcube, Chinese enterprises have layout 55.7% in terms of the number of the global PD1/PDL1 targets, 51.1% of the EGFR, and 58.5% of the CD19 (for all projects in pre-clinical, clinical, and commercial stage). These target layouts have implied the activeness of the domestic R&D pipeline and the future blowout of commercialized biopharmaceutical products. According to Sartorius, China is standing at a relatively early-stage of biologics development; under new indication expansion, technology modification, and the development of new modalities, China's biomedical industry cycle may extend until 2040s.

Fig.43: Chinese enterprises lead in developing global hot targets



Note: including projects in pre-clinical, clinical, and commercial stage
Source: Pharmcube, Huatai Research,

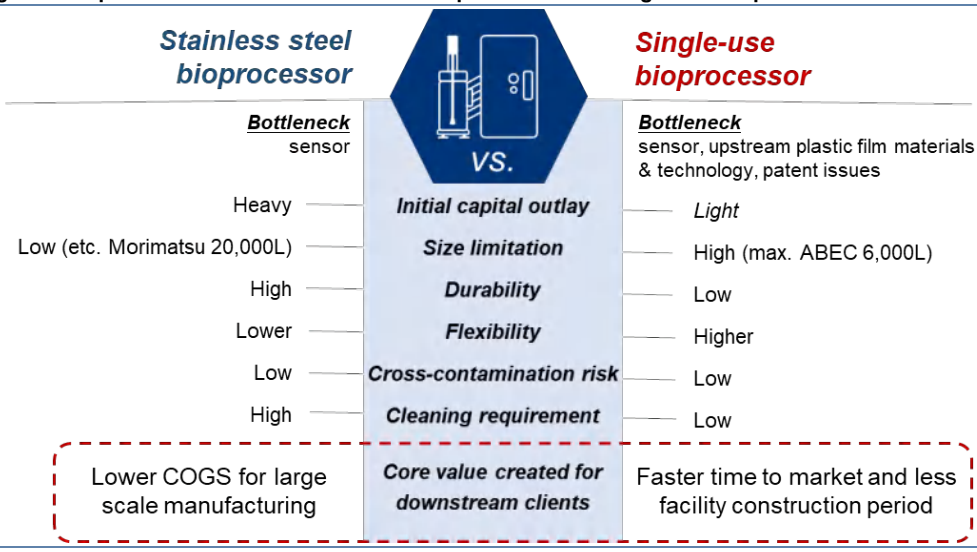
Fig.44: China's increasing focus on innovative medicines



Source: Sartoius website, Huatai Research estimates

Single-use / stainless steel bioprocessor would coexist in the China market. The development of China's biopharmaceutical industry has brought strong demand for bioprocessors (the key equipment in upstream bioprocessing) when biochtechs/pharmas start to add their capacity. For single use bioprocessors, the pros include light initial capital outlay, better flexibility, low cross-contamination risk and low cleaning requirement. As a result, for downstream clients, single-use bioprocessors bring faster time to market and less facility construction period. For stainless steel bioprocessors, the pros include limited size limitation and better durability, which results in lower cost of good solds for large scale manufacturing. For example, Innovant has achieved 87.3% GPM in 1H21 (vs. 79.9% in 1H20), the significant improvement in GPM is mainly attributable to the six 3000L stainless steel bioprocessors which were put in use in 4Q20.

Fig.45: Comparison between stainless steel bioprocessor and single-use bioprocessor

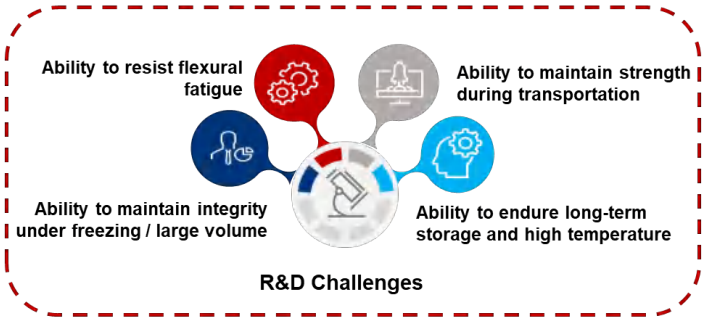


Source: company data, Sartorius IR slides, Cytiva wechat official account, Huatai Research

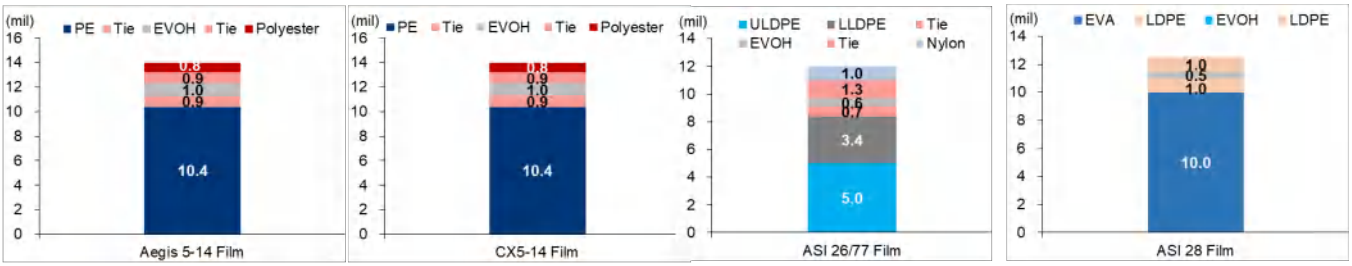
Single-use bioprocessor film technology faces a blue ocean commercial landscape. The film for single-use bioprocessor is usually composed with different layers of polymer material and the challenges for its R&D include: 1) the ability to resist flexural fatigue; 2) the ability to maintain strength during transportation; 3) the ability to maintain integrity under freezing / large volume; and 4) the ability to endure long-term storage and high temperature. Currently, there is only one domestic film that has been commercialized (Jiangsu Bosheng's film), which leaves good competitive landscape for the followers in conducting import substitution.

Fig.46: Single-use bioprocessor film competitive landscape

	Country	Major products
Renolit	Netherlands	Infuflex, Tubeflex, Franuflex
Sartorius	Germany	Flexsafe, Flexel, Blexboy, Celsius
Cytiva	US	Fortem
Thermo Fisher	US	CS5-14, Aegis 5-14, CV3-9
Merck Millipore	Germany	Pureflex, Pureflex Plus
Avantor	US	FlexFilm, NxFlex Film
SSY Group / Lepure	China	
Duoning	China	DuoFilm
Morimatsu	China	Under R&D



Thermo Fisher film product schematic cross-section



Note: PE-polyethylene; EVOH – ethylene vinyl alcohol; ULDPE – ultra low density polyethylene; LLDPE – linear low-density polyethylene; LDPE – low density polyethylene; EVA – ethylene vinyl acetate;

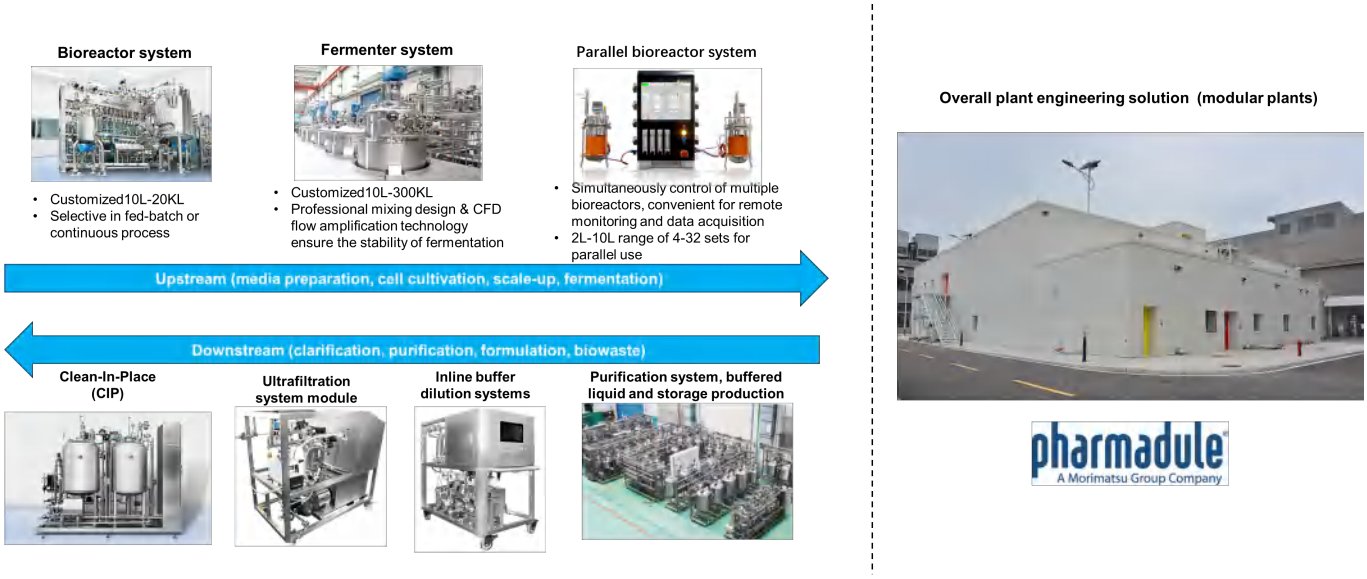
Source: Thermo Fisher, Renolit, Sartorius Merck Millipore official website, Morimatsu company data, BoydTechnologies, Huatai Research

Top stainless steel bioprocessor provider, to meet clients' evolving needs

Morimatsu's current products could meet the evolving needs for both big/small molecule's manufacturing process. Review the historical development of Morimatsu's pharmaceutical sector, the company can catch the industry's CAPEX cycle and meet the clents' evolving technological needs through its know-hows in pressure control and the tank environment balance. Morimatsu's current product offering includes:

1) For chemical drugs and APIs: the API production line composed with reactor, crystalluser and multi-function filter, the liquid dosing and mixing system, the solid dosage production line
2) For biologics - upstream solution: the stainless steel bioreactor system (customized 10L-20KL), the fermenter system (customized 10L-300KL), and the media preparation equipments.
3) For biologics - downstream solution: the purification system, buffered liquid, and storage production line.
4) For the overall plant engineering solution: Pharmadule's modular plant.

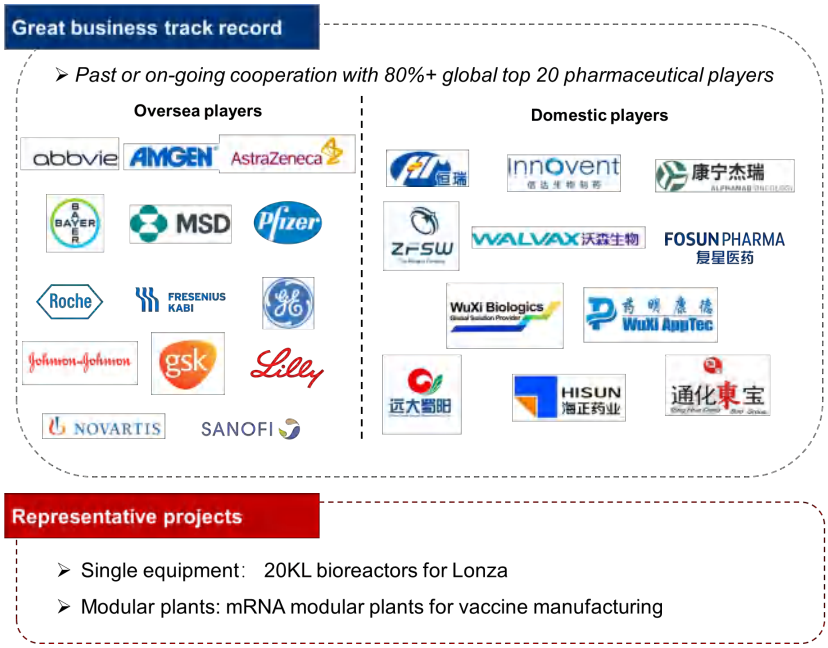
Fig.47: Morimatsu current product layout for biopharmaceutical industry



Source: company data, Morimatsu website, Huatai Research

As a top stainless steel bioprocessor provider, Morimatsu can receive orders from well-known client. Facing both global and domestic pharmaceutical clients, Morimatsu has the following advantages over its foreign competitors: 1) fast delivery period: less than a year for the 20KL stainless steel reactor vs. over two years for foreign players; 2) reasonable pricing: c. 30% lower than the price of the foreign player; 3) Morimatsu's past effort and current knowhows in solving the magnify design stability under customized manufacturing techniques, which is the key concern for downstream clients when choosing stainless steel bioprocessor design; 4) Morimatsu's proven track record in delivering qualified and efficient equipment to top foreign pharmaceutical players (etc. Morimatsu has delivered six 20KL stainless steel bioreactors to Lonza); 5) Morimatsu's accumulated reputation with past clients (Motimatsu used to cooperate with 80%+ global Top 20 pharmaceutical players).

Fig.48: Morimatsu's downstream clients and representative projects

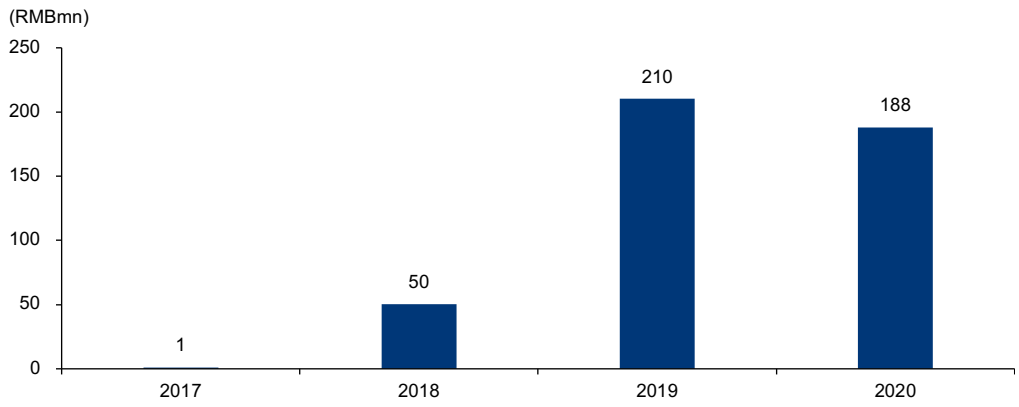


Source: company data, Huatai Research

Pharmadule: vanguard of the modular plant business

Morimatsu has acquired Pharmadule in 2011 which is the top modular plant manufacturers in Europe. In 2020, the modular plant has generated RMB188mn in revenue, yoy -10.7%. The revenue decline was mainly because the pandemic has delayed the delivery of international projects. We believe the modular plant could become the second engine on the growth of the pharmaceutical sectors' revenue, because: 1) modular plants' value in convenience, lower project risks and faster-to-market period for downstream clients; and 2) Morimatsu's accumulated reputation and expertise from the past delivered projects.

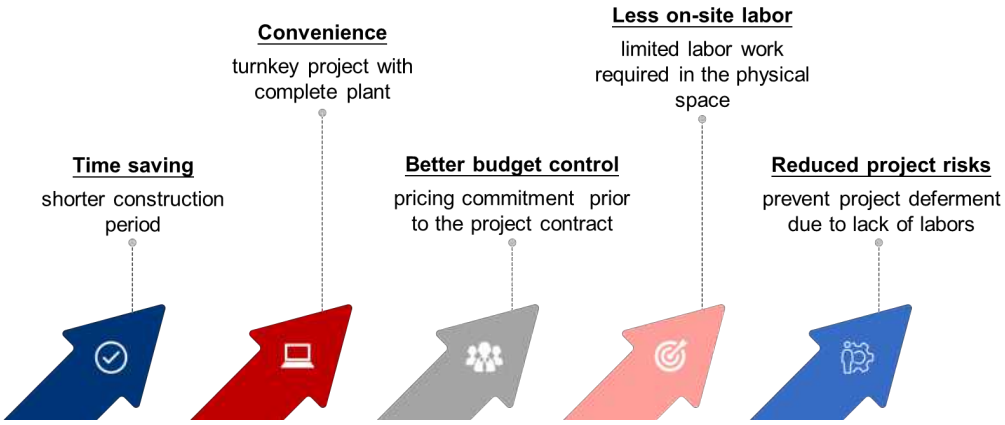
Fig.49: Modular plant historical revenue



Source: company data, Huatai Research

Delivering value to clients through convenience, lower project risks and faster speed. The construction mode of the modular plant is like the process of building Lego, where Pharmadule builds and assembles the the plant box in Pharmadule's factory; after the work is done, Pharmadule transports and installs the final plant box to the clients' factory site. The advantages of this construction mode include: 1) shorter construction period; 2) convenience with the turnkey complete plant; 3) better budget control for clients; 4) less on-site labor for the clients; 5) reduced project risks from the project deferment due to different reasons (etc. lack of labors and engineers). These advantages altogether would significantly increase clients' manufacturing efficiency.

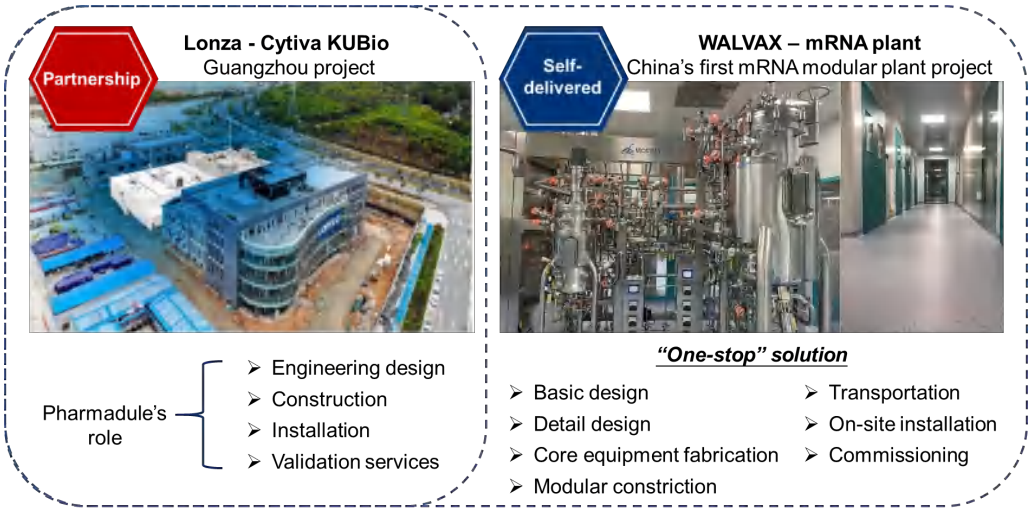
Fig.50: Major advantages of modular plants



Source: Cytiva wechat official account, Huatai Research

Gradually accumulate reputation from successful past projects with top clients. The representative projects done by Pharmadule include: 1) the partnership with Cytiva in vuilding Lonza's Guangzhou project. In this project, Pharmadule is responsible in engineering design, site construction, installation, and validation services; 2) the self-delivered China's first mRNA modular plant project with WALVAX. In this project, Morimatsu has provided the one-stop solution to WALVAX in volume production of the COVID-19 vaccine; and most importantly, Pharmadule's own core equipment is adopted in this project. The project takes Pharmadule 7.5 months in delivering, which implies the high efficiency of the application of modular plant.

Fig.51: Great track record in the past modular plant projects



Source: company data, Pharmadule website, Huatai Research

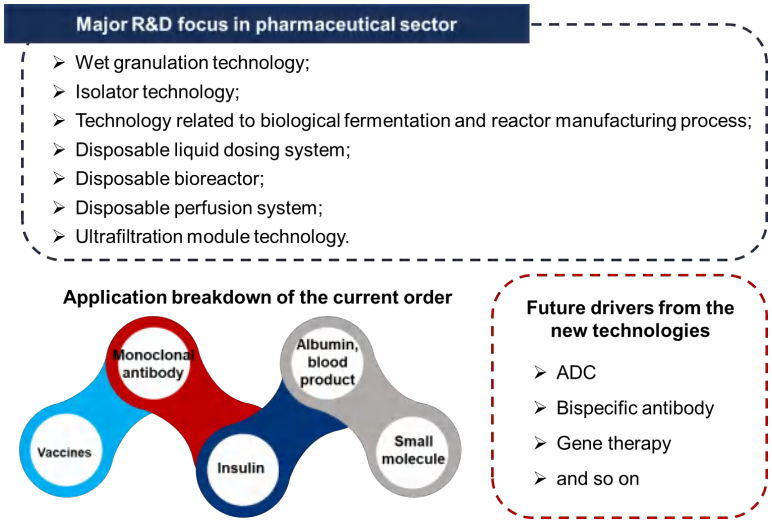
Long-term engine: well-planned R&D layout in products and applications

Morimatsu has a well-planned R&D pipeline in deepening its customized product offering across the entire bioprocessing. In addition, with its close relationship with downstream clients, Morimatsu is able to provide related equipment for the manufacturing of ADC, bispecific antibody, gene therapy. We expect the following development in securing the company's long-term competitiveness and growth:

1) The commercialization of its single-use bioreactors and other bioprocessing related products.
2) Single-use bioreactors' upstream film technology: Morimatsu is cooperating with its Japan R&D team in developing the cast film technology.
3) The development and commercialization of downstream biotech applications, such as ADC, bispecific antibody, gene therapy, CAR-T, COVID-19 vaccines and so on. Although the company

is currently focusing on the equipment related to biopharmaceutical field, the future development of innovative small molecule may also have the potential in benefiting the company's long-term growth based on its knowhows in chemical drug equipments.

Fig.52: Breakdown of pharmaceutical orders and future drivers

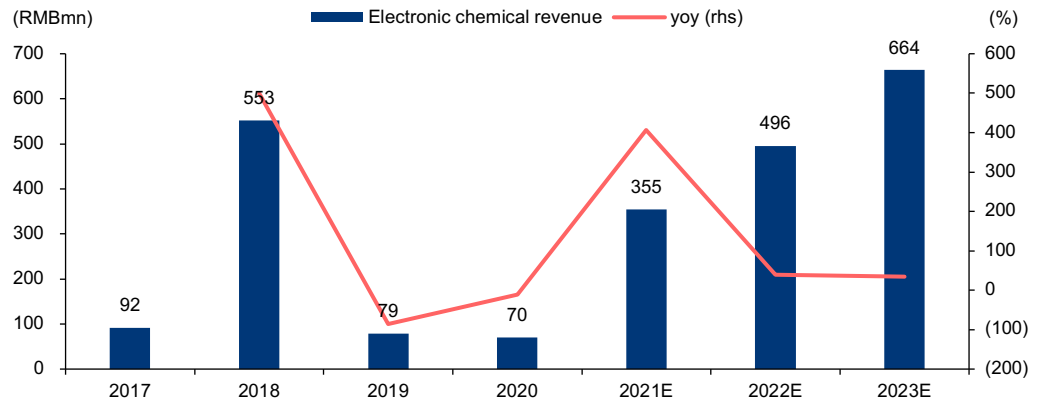


Source: company data, Huatai Research

Electronic chemical: anticipate demand recovery

Morimatsu's electronic chemical sector has achieved revenue of RMB70mn in 2020 (yoy: -11.3%), representing 2.4% of the total 2020 revenue. The sector achieved notable 2018 revenue of RMB553, mainly due to the surging demand for reduction furnaces from two electronic chemical manufacturer clients. We expect the sector to experience rapid development in 2021E-2023E with revenue CAGR of 112%, attributing to: 1) encouraging policy on the development of domestic semiconductor and solar; 2) the import substitution for high-purity reagents may start another CAPEX cycle of the electronic chemical manufacturers; 3) Morimatsu's ability to provide equipments for the manufacturing of high-purity reagents; 4) Morimatsu's future potential in ultra high-purity reagents, special electron gas and other industry-related equipments.

Fig.53: Electronic chemical sector revenue and forecast



Source: company data, Huatai Research estimates

High purity reagent: broad application in semis, display panel and solar

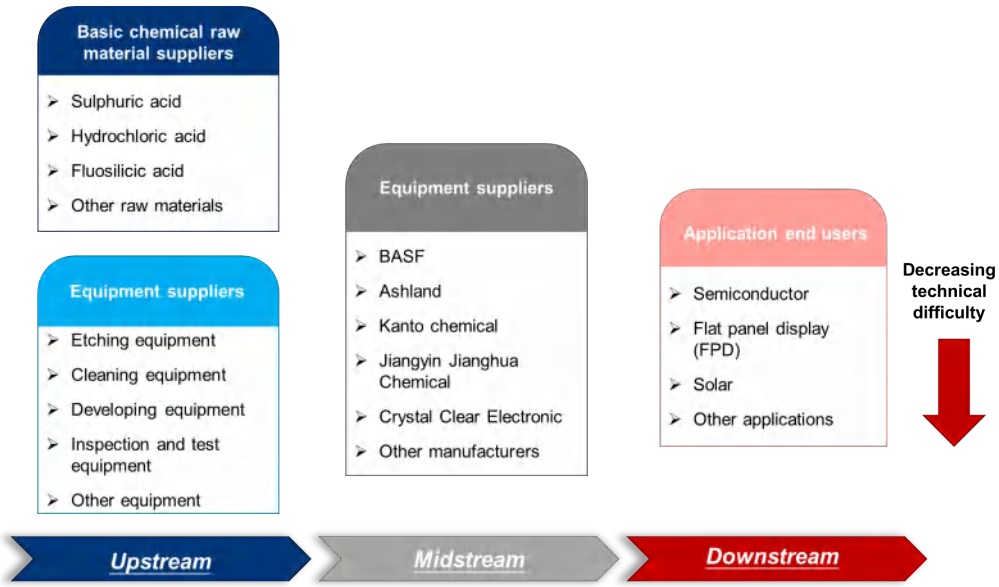
High purity reagents are chemicals with guaranteed metal impurity ppb level and reduced organic impurities. The SEMI standard has distinguished the high purity reagents into 5 major classes: G1, G2, G3, G4, and G5 with increasing requirements for metal impurity, control of granule magnitude, and component of organic impurities. For ultra high purity reagents, the purity is usually over 99.99%, the granule magnitude is usually less than 0.5um, and the impurity content is below ppm grade. These indicators would significantly impact the performance and reliability of the electronic component. The high purity reagents have broad applications, including semiconductor, solar and flat panel display. Among the downstream application, the semiconductor has more strict requirements (usually over G3).

Fig.54: SEMI standards for ultra high purity reagent

	G1	G2	G3	G4	G5
Metal impurity (ug/L)	≤100 (0.1ppm)	≤10 (10ppm)	≤1 (1ppb)	≤0.1 (0.1ppb)	≤0.01 (10ppt)
Control of granule magnitude /um	≤1.0	≤0.5	≤0.5	≤0.2	*
Number of particles /（unit/mL）	≤25	≤25	≤5	*	*
IC linewidth range/um	>1.2	0.8-1.2	0.2-0.6	0.09-0.2	<0.09
Major application	Solar batteries,	Flat panel display	Flat panel display, LSI	VLSI	VLSI

Note: IC – integrated circuit; LSI – large-scale integration; VLSI – very large-scale integration
Source: Jingrui-chem prospectus, Huatai research

Fig.55: Value chain of the electronic chemical industry



Source: LeadLeo, Huatai Research

Supportive policies regarding semis and solar lead higher demand for upstream core material. In China, the import substitution rate of the high purity reagents for the use of solar industry is high (c.95%), while the import substitution rate for the use of semiconductor is still low (c.50% for 6-inch wafer; less than 20% for 8-inch wafer and over G6 generation flat panel display). According to Leadleo, the market output of the high purity reagent has achieved 720,000 tons in 2018, and it is expected to grow at 27.1% CAGR and to achieve 2,348,000 tons by 2023E. The rapid growth of the market is due to: 1) the supportive policies in China regarding to downstream semiconductor and the new energy (solar) players; 2) the ability for domestic players to breakthrough the preparation difficulties and start to manufacture the ultra high purity reagents (etc. Crystal Clear is able to manufacture the G5-class hydrogen peroxide and sulfuric acid, Jiangyin Jianghua is able to manufacture the G5-class sulfuric acid, ammonium hydroxide).

Fig.56: Supportive policies related to the development of domestic semiconductor and solar industry

Policies related to domestic semiconductor industry

2016
- **"The 13th five-year plan":** to speed up the production and construction of advanced manufacturing process, memory, characteristic process, etc.,
- **"The 13th five-year plan – environmental protection":** strengthen the R&D of insulated grid power transistor (IGBT), special amorphous motor and amorphous reactor, so as to promote the R&D of energy-saving motor system.

2017
- **"Guidance for strategic new industries":** encourage new generation of IT industry, including new components under the core electronic industry.
- **"Opinions of the General Office of the State Council":** support the construction of such as integrated circuits, aeroengines and gas turbines, cybersecurity & AI.

2018
- **"Notice on issue income tax policies of integrated circuit enterprises":** preferential tax relief policies shall be implemented for qualified integrated circuit enterprises.

2019
- **"Guiding for industrial structure adjustment (2019)":** encourage development of materials for new electronic components and other electronic products.

2020
- **"Outline of national informatization development strategy":** formulate the outline of national strategy for the development of core technology...
- **"Policies to promote the high-quality development of integrated circuit and software industry in the new era":** focus on the R&D of key core tech.

2021
- **"The 14th five-year plan and the long-term goal for 2035":** encourage the development of integrated circuits.

Policies related to domestic solar industry

2016
- **"The 13th five-year plan":** balance the energy layout and transfer the photovoltaic layout to the East and central regions. Among the new solar installed capacity, the middle and eastern regions account for about 56%, and focus on distributed solar and local consumption.

2017
- **"Guidance on building a strong manufacturing country by promoting private investment":** support advantageous industries such as photovoltaic with international competitiveness.

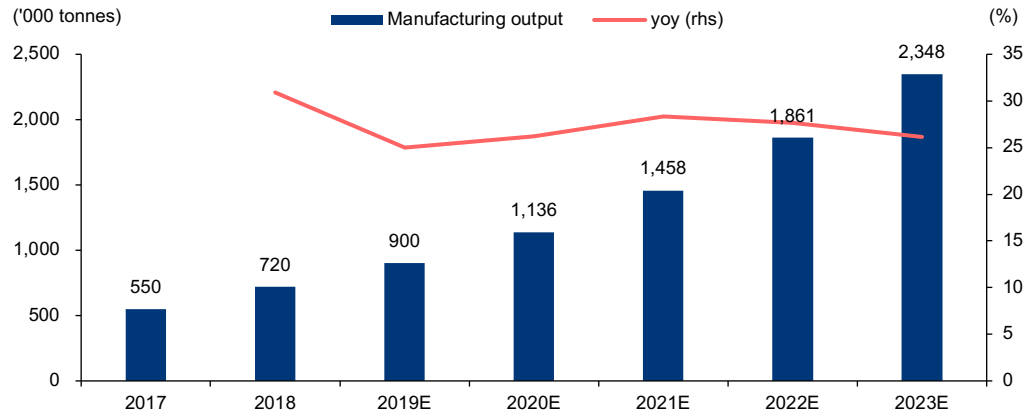
2018
- **"Action plan for the development of intelligent photovoltaic industry (2018-2020)":** Make remarkable result of the construction of intelligent photovoltaic plants by 2020 (automation, informatization and intellectualization)... Form a number of competitive suppliers.

2019
- **"Notice on issues related to improving on-grid electricity price mechanism for solar":** guided pricing of centralized photovoltaic power stations of on-grid electricity.
- **"2019 notice on construction of wind power and photovoltaic power projects":** actively promote the construction of wind power and photovoltaic power projects, …optimize the construction investment and business environment.

2020
- **"2020 notice on matters related to the construction of wind power and photovoltaic power generation projects":** actively promote the construction of wind power and photovoltaic projects... actively support the construction of decentralized wind power projects

Source: Huatai Research estimates

Fig.57: Manufacturing output of the high purity reagents market



Source: LeadLeo, Huatai Research

New CAPEX cycle already started, creating opportunities for equipment providers. With the market growth, the major domestic players (such as Crystal Clear Electronic Material, Jiangyin Jianghua, Denoir Ultra Pure) are expanding their capacity in manufacturing the high purity reagents. Crystal Clear has delivered its phase 1 ultra high purity sulfuric acid projects in May, 2021; in addition, the company has made directional add-issuance in supporting the ultra high purity sulfuric acid capacity expansion of incremental 60,000 ton annually. Jiangyin Jianghua and Denoir Ultra Pure both have the plan in capacity expansion for their ultra high purity reagents. We expect this trend to benefit top pressure equipment players with abundant experience with chemical industry, such as Morimatsu.

Fig.58: High purity reagent related manufacturers expansion plan (partly)

Company	Capacity expansion plan	Estimated construction completion date
Crystal Clear Electronic Material	The high purity sulfuric acid projects: Phase 1 (30,000 ton integrated circuit grade (G5); Phase 2 (60,000 ton annual capacity)	Phase 1: May 2021 Phase 2: 2022E/2023E
Jiangyin Jianghua	Zhenjiang base: 228,000 ton in total (mainily for sulfuric acid, ammonium hydroxide, and hydrochloric acid); Phase 1: 58,000 ton	Phase I to put in use by the end of 2021
Denoir Ultra Pure	300,000 ton high purity reagents	

Note: IC - integrated circuit;
Source: Company data, Huatai Research

Morimatsu: potential to support the emerging wet electron chemical market

Leveraging on its existent knowhows in chemical engineering, Morimatsu is able to provide customers with CVD equipments and equipments in manufacturing the high-purity reagents （etc. high purity sulfuric acid, ammonium hydroxide, fluoride amine, and hydrogen peroxide）and special electron gas in supporting the devepments of its downstream clients. Notably, Morimatsu is one of the rare companies who can provide equipments to manufacture G5 grade high-purity reagents. Its current product offerings also include the electronic high-purity gas equipmen (facing ideal competitive landscape), the wet electronic chemicals production unit, the electronic grade polishing liquid grinding liquid device, photoresist production unit, and the solvent recovery unit.

Fig.59: Morimatsu's product and client accumulation


Electronic high-purity gas equipment


Wet electronic chemicals production unit


Solvent recovery unit


Electronic grade polishing liquid grinding liquid device

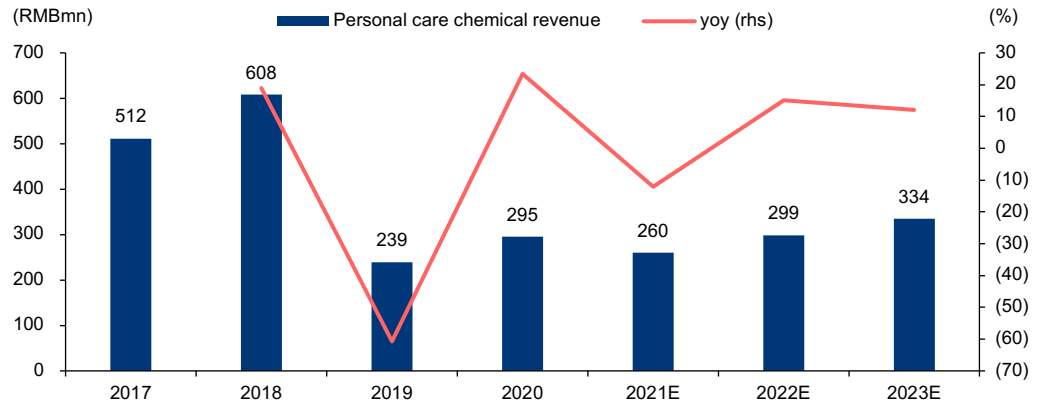

Photoresist production unit

Source: Company data, Huatai Research

Personal care chemical: stable growth post pandemic

The personal care chemical sector has achieved RMB295mn in 2020 (yoy +23.4%), representing 9.9% of Morimatsu's total revenue, the revenue growth was mainly due to the three purchases orders of process modules and by a client located in Japan. We expect the sector to deliver stable growth of 4% 2021E-2023E CAGR, because: 1) Morimatsu faces more of the foreign clients in this sector who has stable terminal demand and does not need to have excessive technological innovation; 2) the purchase orders in 2021 was negatively impacted due to the pandemic, and the impact from the COVID might keep going on.

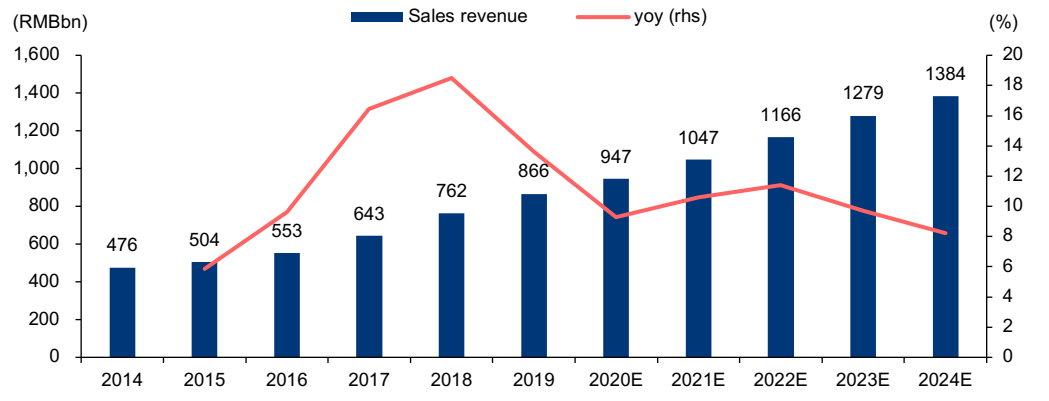
Fig.60: Personal care sector revenue and forecast



Source: company data, Huatai Research estimates

China personal care market would maintain stable growth under the end-consumer needs. According to Frost & Sullivan, China personal care market has maintained relatively stable in the past (2014-2019 revenue CAGR: 12.7%), and the industry is expected to experience a relatively slow but stable growth in the future (2020E-2024E CAGR: 9.8%). The major rationales include: 1) China's personal care market is facing a more competitive landscape and the end-consumers have developed more diversified and customized demand; therefore, the major industry players may facing challenges such as product iterations and quick formula upgrade；and 2）domestic production supervision has become stricter; relevant policies such as "the measures for the supervision and management of cosmetics production" and "the operation and the norms for the evaluation of cosmetics efficacy claim" have put higher standards for domestic manufacturing.

Fig.61: China personal care industry market size forecast (revenue)



Note: the market size includes the export revenue of the domestic manufacturers
Source: company data, Frost & Sullivan estimates, Huatai Research

Well cooperation with global giants. Morimatsu has years of experience in providing the personal care industry leaders with pressure vessals such as the mixing system the material transportation system, the storage tanks, and the tank area processing system. We believe its advantages include the following in supporting its stable growth: 1) the expertise in modular equipment that brings value to clients by shortening the delivery time and constantly meet the demands of the upgrading high-end formula; 2) the company's historical cooperation and accumulated reputation with the global lead personal care manufacturers, such as Procter & Gamble, Unilever, Johnson & Johnson and so on.

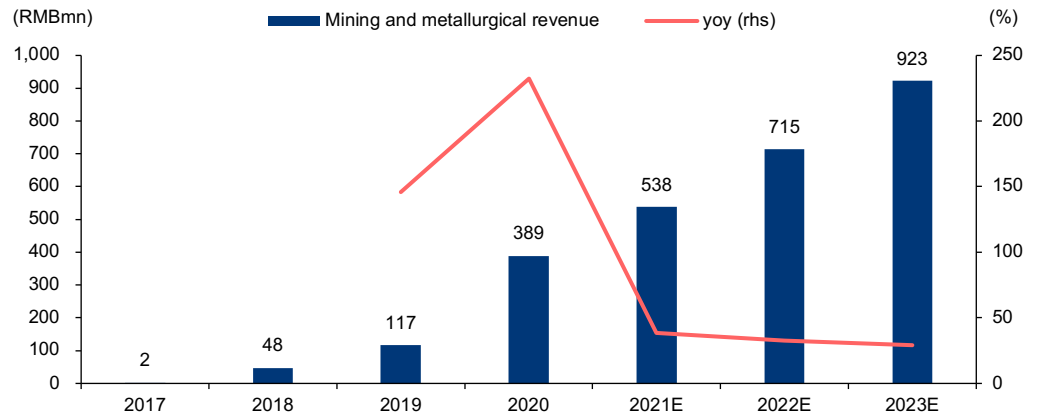
Fig.62: Major product and clients of the personal care chemical sector

Source: company data, Morimatsu website, Huatai Research

Mining and metallurgical: unlocking another engine for growth

The mining and metallurgical sector has achieved RMB389mn in 2020 (yoy +232.3%), reflecting 13.1% of Morimatsu's total revenue. The rapid development of the sector was mainly due to the revenue recognition of the purchase orders from two clients' projects located in Indonesia and one clients' in Australia and Finland, where Morimatsu provided them with reactors, process modules and skids. We believe the mining and metallurgical sector is another engine of Morimatsu and is able to achieve 33% revenue CAGR to secure the company's future growth, mainly because: 1) the industry prosperity under the policies regarding new energy, the rapid technology innovation/upgrade, and the industry capacity expansion plan; 2) Morimatsu's comprehensive equipment layout in fulfilling the upstream manufacturing of the lithium-ion battery; and 3) Morimatsu's self effort in exploring the future application to separator, LFP and lithium-ion recovery.

Fig.63: Mining and metallurgical sector revenue and forecast

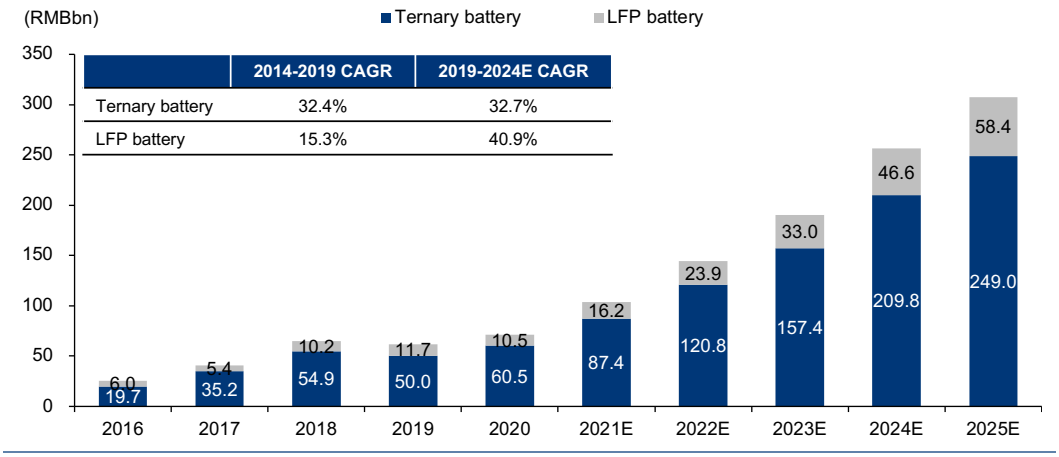


Source: company data, Huatai Research estimates

"Green Revolution" drives surgine demand across Li-ion battery chain

Domestic Lithium-ion cell market will experience rapid growth under clear incentive policies. According to LeadLeo, the overall China Li-ion battery market is expected to grow at 34.1% 2021E-2025E CAGR and to achieve RMB307.4bn market revenue by 2025E. The entire market is mainly composed with two types of batteries with different cathode component: ternary batter and LFP battery, each would grow at 32.7% and 40.9% 2021E-2025E CAGR respectively. The rapid development of the industry is strongly supported by Chinese governments' effort in encouraging EV (including detailed policies regarding the electric vehcle (EV) subsidity, technology improvement, and capacity expansion).

Fig.64: Lithium-ion battery market size forecast (revenue)



Source: LeadLeo, Huatai Research estimates

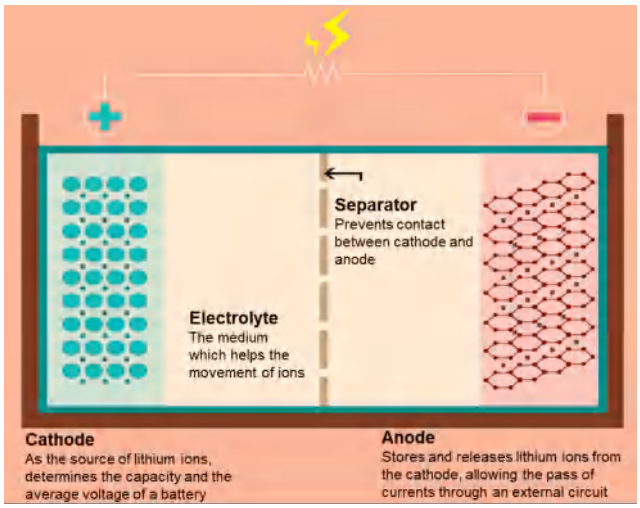
Fig.65: Domestic policy regarding EVs and new energy batteries

Time	Policy	Issuer	Major content
2009	Adjustment and revitalization plan of automobile industry	State Council of the People's Republic of China	Start to implement EV-related supportive policies, plan to form capacity of 500,000 pure EV or hybrid EV, the new sales of EV should take 5% of the entire vehcle sales.
2010	Interim Measures for the administration of pilot financial subsidies for private purchase of new energy vehicles	Ministry of Finance of the People's Republic of China	Start to issue subsidity due to the EV cell power dencity; for qualified EV, offer subsidy of RMB3,000 / kWh. Maximum subsidy is RMB50,000 for hybrid EV and RMB60,000 for pure EV.
2012	Energy saving and EV industry development plan (2012-2020)	State Council of the People's Republic of China	Target to achieve 500,000 pure/hybrid EV sales by 2015; target to form 2mn pure/hybrid EV capacity by 2020.
2015	Made in China 2025	Ministry of Industry and Information Technology	Continue to support the development of EV industry, push the home brand to achieve similar technological level with the global advanced peers
2019	Notice on further improving the financial subsidy policy for the promotion and application of new energy vehicles	Ministry of Finance , Ministry of Industry and Information Technology of the People's Republic of China	Optimize the technical indicators and adhere to "supporting the excellent and the strong"; improve the subsidy standard and release the pressure stage by stage; improve the liquidation system and improve capital efficiency…
2020	EV industry development plan (2021-2035)	State Council of the People's Republic of China	Target to reduce the average power consumption of the pure EV to 10kWh/hundred kilometer; the EV sales should take 20% of the new car sales; and the pure EV care would become the mainstream car among the new vehcle sales.

Source: gov.cn, Huatai Research

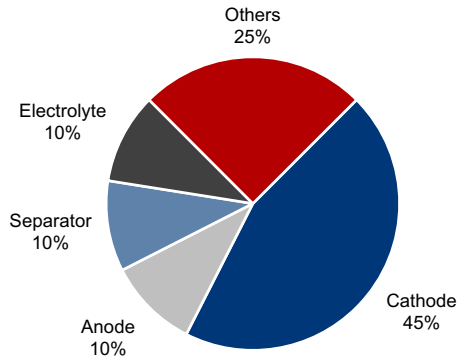
Cathode：Ternary and LFP are the two major materials under battery technology iterations. Cathode is an important component of Li-ion battery. The lithium-ion battery is mainly composed with four parts: 1) the cathode, which determines the capacity and the average voltage of the battery; 2) the anode, which allows the pass of currents through an external circuit; 3) the electrolyte, which helps the movement of ions; and 4) the separator, which prevents contact between cathode and anode. Acccording to Leadleo, the cathode takes 45% of the manufacturing of the lithium-ion battery, which reflecting the value of the cathode manufacturers in the industry chain.

Fig.66: Structure of the Li-ion battery



Source: Samsung SDI website, Huatai Research

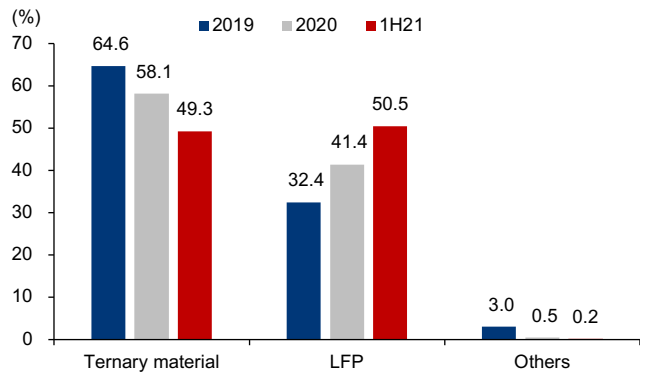
Fig.67: Cost breakdown for the lithium-ion battery



Source: LeadLeo, Huatai Research

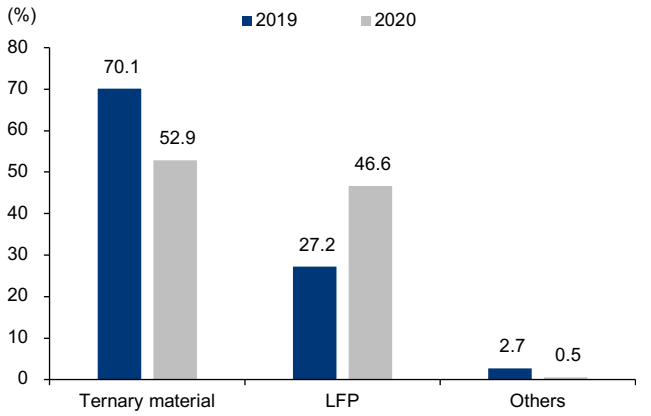
Ternary cathode is still the mainstream material in the current market: 1）market share: t 64.6%/58.1%/ 49.3% in 2019/2020/1H21 respectively; 2) market size: according to Leadleo, the ternary material market has achieved RMB30bn revenue in 2020 and the market is expected to grow at 32.7% 2021E-2025E CAGR and to achieve RMB122bn by 2025E; 3) current landscape: the market is relatively concentrated: Ronbay, Tianjin Bamo, Beijing Easpring and Changyuan Lico in combined control 42.5% total market share.

Fig.68: Market share of different types of batteries（output）



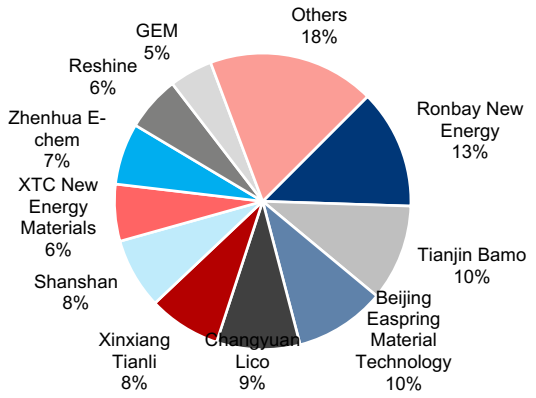
Source: Large, China Industry Technology Innovation Strategic Alliance for EV, LeadLeo, Huatai Research

Fig.69: Market share of different types of batteries（revenue）



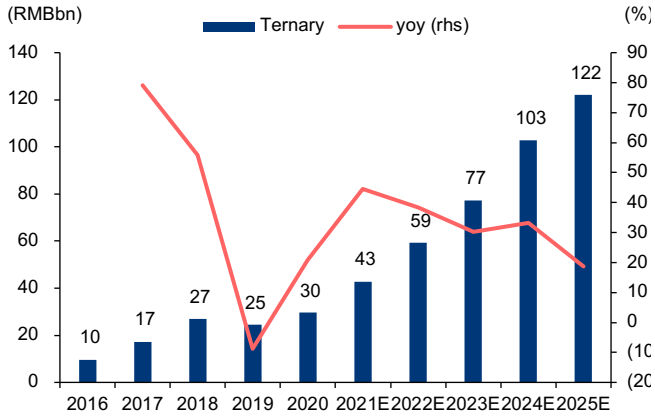
Source: Leadleo, Huatai Research

Fig.70: Market landscape of the ternary cathod material (2020)



Source: LeadLeo, Huatai Research

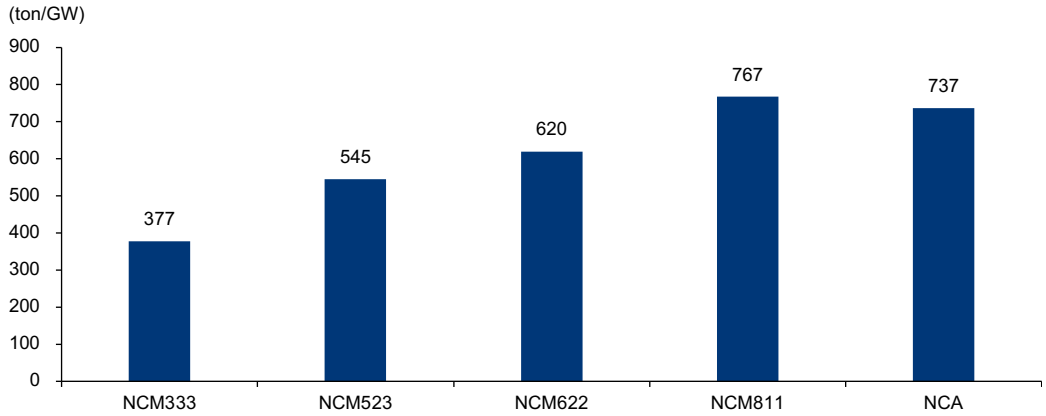
Fig.71: Domestic ternary material market size (revenue)



Source: Leadleo, Huatai Research

High-nickel ternary positive electrode is trending under demand for higher energy density. The endurance of the EV is the one of the major performances considered by the consumers, and the balance between the endurance and safety of the lithium-ion battery is the focus in the R&D of the lithium-ion batteries. Nickel helps to deliver higher energy density and greater storage at a lower cost; therefore, the high bickel-base Li-ion batteries is the trending technological path. With the technology iterations, the the nickel consumption in the NCM811 ternary battery has increased 41% compared with 523NCM ternary battery. Therefore, the technology iterations in the battery industry has led to higher demand for nickel.

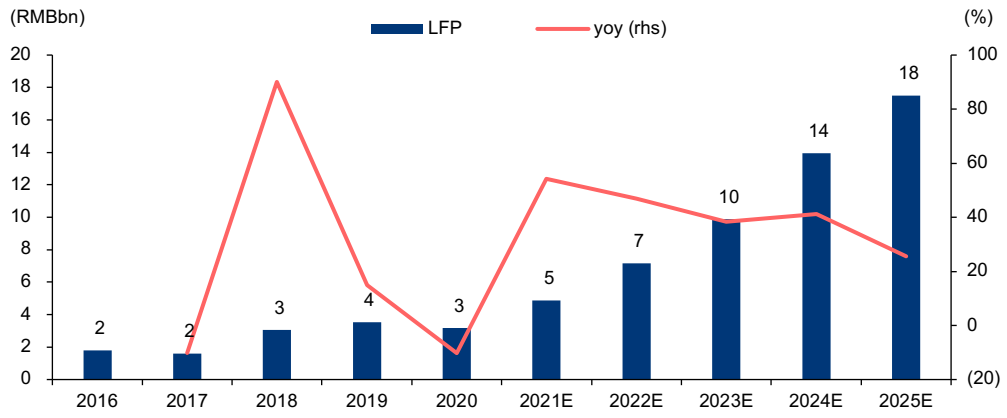
Fig.72: Increasing nickel consumption in the Li-ion batteries



Source: CBEA, Huatai Research

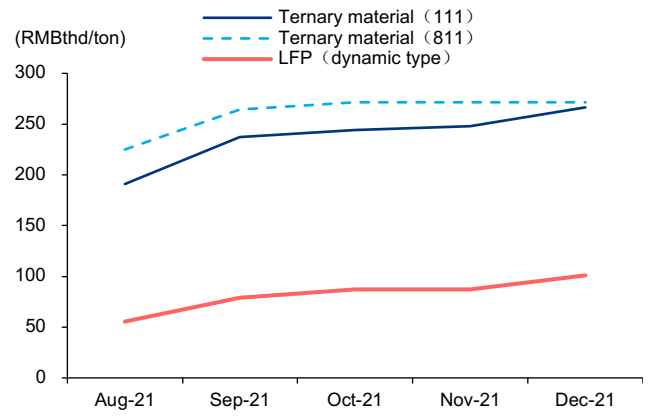
Phosphate material's growth accelerates under cost effectiveness and technology iteration. According to Leadleo, the LFP material market is expected to reach RMB18bn by 2025E (2021E-2025E CAGR: 40.9%). This market growth acceleration is mainly due to: 1) China's subsidy cut results in the focus on the cost effectiveness of the entire car, instead of the battery density and the run time of the battery (LFP material: RMB101thd/ton vs. ternary material (811): RMB271.5/ton); 2) technology iteration such as BYD's blade battery （the battery efficiency is gradually improving, with volume utilization to increase from 40% to 60% and the battery density to increase 50%）.

Fig.73: Domestic LFP material market size (revenue)



Source: LeadLeo, Huatai Research

Fig.74: Battery material cost



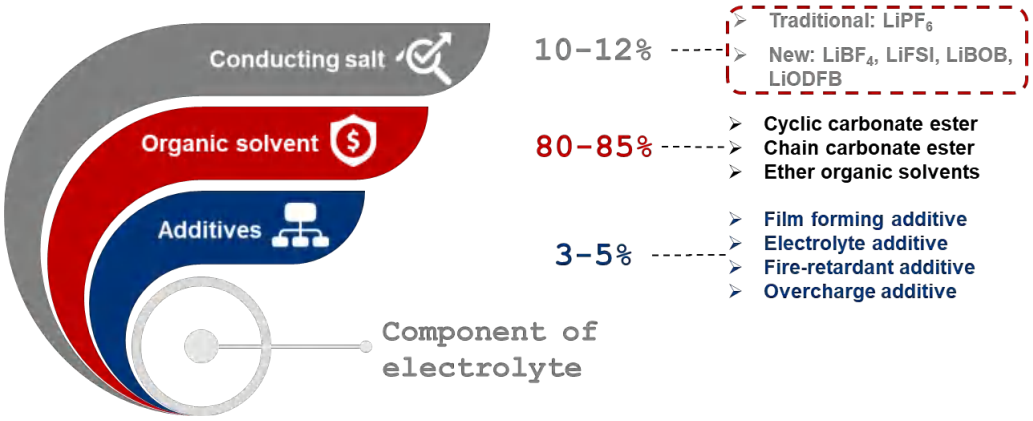
Source: Iccsion.com , Huatai Research estimates

Fig.75: BYD's blade battery

Source: BYD website, Huatai Research

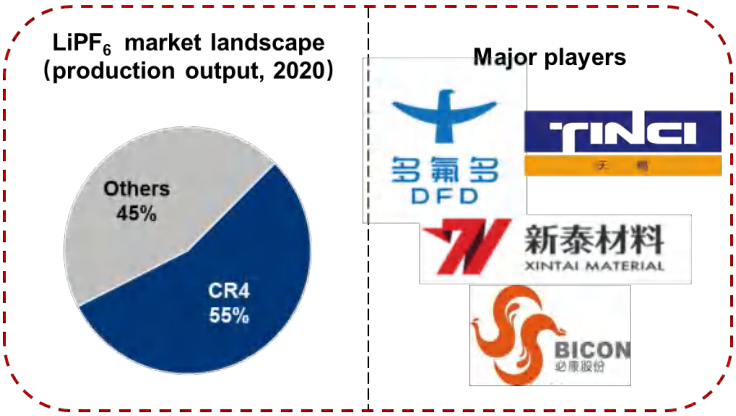
Electrolyte: thriving capacity expansion for both $LiPF_6$ and LiSFI on the way. $LiPF_6$ is the mainstream conducting salt in the current market. According to LeadLeo, the conducting salt usually takes 10-12% of the proportion of electrolyte. The $LiPF_6$ is the traditional conduting salt used for Lithium-ion battery. The $LiPF_6$ faces a relatively concentrated market, where the CR_4 has achieved 55% (four major players are DFD, Tinci, Xintai Material, and Bicon). As the mainstream conducting salt, $LiPF_6$ has the following features: 1) pros: balanced performance of solubility, electrochemical stability, conductivity, and cycle life; in addition, its manufacturing process is relatively mature characterized by lower COGS; 2) cons: poor thermal stability and easy hydrolysis; 3) bottleneck in manufacturing: accurate control of feed ratio, clening control and drying control.

Fig.76: Major component of the electrolyte



Source: LeadLeo, Huatai Research

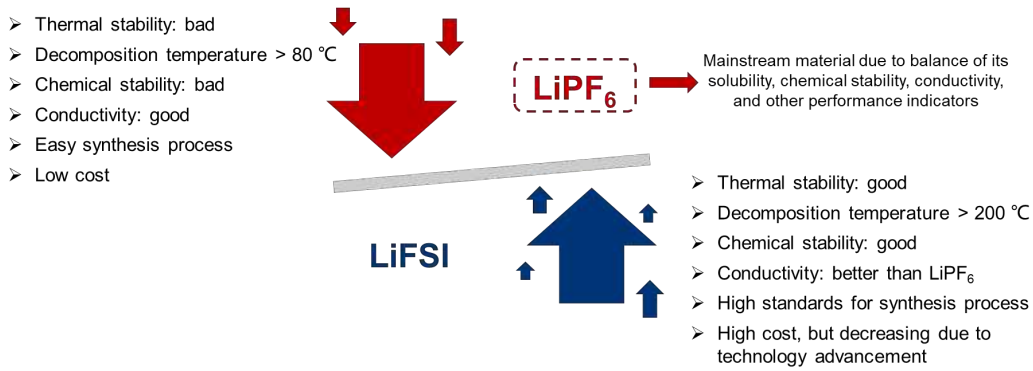
Fig.77: Competitive landscape of conducting lithium electrolyte market



Source: LeadLeo, Huatai Research

LiFSI is still standing at the early stage of the capacity expansion cycle. As the new kind of lithium salt, LiFSI's advantages over $LiSF_6$ include: 1) better thermal stability; 2) high chemical stability; and 3) better conductivity than $LiPF_6$. These chemical advantages altogether result in higher battery capacity and better endurance for Li-ion batteries. In addition, the cost of LiFSI production is declining under the maturing of the manufacturing process. Therefore, we see clear capacity expansion plan from the leading electrolytes manufacturers such as DFD, Tinci and Zhejiang Yanyi: 1) DFD has planned to add 40,000 tons annual capacity by 2025E (deliver in three phases) and Zhejiang Yanyi has planned to add 10,000 tons annual capacity for LiSFI.

Fig.78: Comparison between $LiPF_6$ and LiFSI



Source: LeadLeo, Huatai Research

Fig.79: Future capacity planned by LiFSI manufacturers

Company	Current capacity (t)	Capacity under construction (t)	Note
Do-Fluoride New Materials	1,600	40,000	Deliver in three phases from 2022-2025
Guangzhou Tinci Materials	2,300	4,000+20,000	Estimated delivery: 4,000 in 2021; 20,000 in 2023
Zhejiang Yanyi		10,000	
Shidai Sikang		3,750	
HSC Coporation		3,000	
Shenzhen Capchem	200	800+1,600	Deliver in two phases
Zhejiang Yongtai Technology	500	1,500	Estimated delivery in 2021
Fute	300	700	
Chemspec	1,700		
Nippon Shokubai (Japan)	300	3,000	Estimated delivery in 2023
Chunbochem (Korea)	740		

Source: company data, Huatai Research

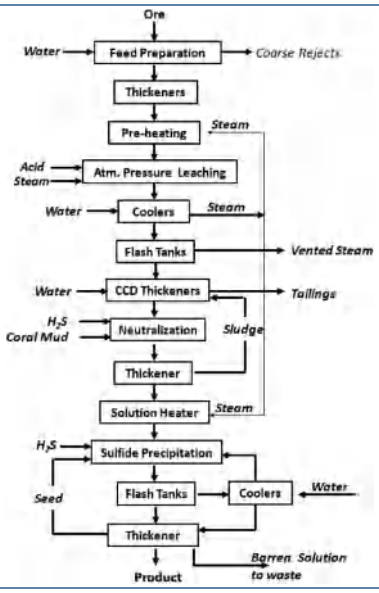
HPAL reactor pioneer, extending to more Li-ion batteries applications

Facing the booming Li-ion battery industry chain, we see the below characteristics of Morimatsu as its competitive advantages: 1) its comprehensive layout for the upstream manufacturing of lithium-ion batteries and its accumulated client base in China; 2) in terms of the ternary cathode, Morimatsu is the domestic HPAL reactor pioneer and is able to provide modular equipment for the manufacturing of ternary precursor; 3) in terms of electrolyte, Morimatsu has accumulated equipment purchasing orders for the manufacturing of both LiSFI and $LiPF_6$; 4) for future applications, Morimatsu is exploring the business related to LFP, separator, PVDF/CPT, and lithium-ion battery recovery.

Morimatsu is the domestic pioneer in providing equipments for hydrometallurgy. The hydrometallurgy for the laterite-nickel ore refine has involve several challenges which results in strick standards for the HPAL reactor provider: 1) core hydrometallurgy procedures: feed preparation, pressure leaching, CCD thickeners, and precipitation; 2) core reaction condition: high temperature and high pressure; 3) bottleneck for the reactor: corrosion & erosion, autoclabe level control, operating and maintenance procedure, and energy requirement. Even there is strict standards for the reactor provider, Morimatsu has delivered its third-generation HPAL reactors for leading players such as Legions, Huayou Cobalt and GEM with reasonable delivery time (14 months for Legions and c. 20 months for Huayou even under the impact of the global pandemic).

Fig.80: The HPAL process operating at Moa Bay

Fig.81: Morimatsu's HPAL reactor



Source: Huatai Research estimates

Source: company data, Huatai Research

Cooperation with top domestic players relying on comprehensive equipment offering. Morimatsu's current equipment offering has covered the two important components of lithium-ion batteries: the cathode and the electrolyte. The most significant product includes the HPAL reactors provided for the oversea nickel mines, the modular equipment for the manufacturing of ternary precursor, and the production unit for the conducting salt (both $LiSF_6$ and LiFSI). Relying on the successful equipment delivery in the past, Morimatsu has developed in-depth cooperation with leading industry players, such as Huayou Cobalt, Legions, and GEM. Taking Huayou Cobalt as example, after delivering the HPAL reactor for its Huayue program in Indonesia, Morimatsu has received returned orders from Huayou to support Huayou's effort in exploring the production of ternary precursor.

Fig.82: Major clients and orders of Morimatsu's mining and metallurgical sector

Application	Client	Product	Status
Mining - nickel	Ramu Nick	HPAL reactor	Delivered in 2008
	Legions Holdings (OBI program – phase one)	HPAL reactor	Delivered in 2020
	Huayou Cobalt （Huayue program）	HPAL reactor (two)	Delivered in 2020
	GEM （Qingmeibang program）	HPAL reactor (three)	Delivered in 2021
Ternary cathode	Huayou Cobalt	Modular equipment for ternary precursor 12*200L system + 4*500L system	Delivered in November, 2021

Note：HPAL – high pressure acid leaching
Source: Morimatsu website, Huatai Research

Electrolyte and ternary material are becoming the next driver of the sector. Morimatsu has disclosed its new contract cooperation with several industry leaders in manufacturing electrolyte, including the production unit for LiSFI for Zhejiang Yanyi New energy, the electrolyte production unit for Sichuan Yanyi New materials and the $LiSF_6$ production of a listing electrolyte additive manufacturer in China. Considering the current industry capacity expansion wave in China and Morimatsu's breakthrough of the underlying technology, we expect the company to accumulate more relavant contract to support the mid-term growth.

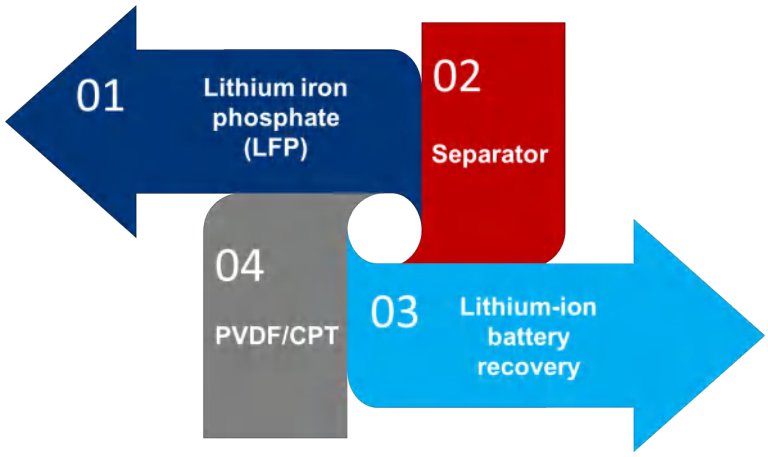
Fig.83: Major clients and orders of the electrolyte application

Application	Client	Product	Status
Electrolyte	Zhejiang Yanyi New energy	New LiX production unit	Contract signed in September, 2021
	Sichuan Yanyi New materials	Electrolyte production unit with 50,000 tons annual capacity	Contract received in September, 2021
	A lithium battery material supplier in China	LiX production unit	Contract signed in October, 2021
	A listing electrolyte additive manufacturer in China	Design, manufacturing, and installation of solid $LiSF_6$ production unit	Contract signed in November, 2021

Note：HPAL – high pressure acid leaching
Source: Morimatsu website, Huatai Research

Future application focusing on comprehensive coverage of the entire Li-ion battery chain. Apart from Morimatsu's past success in HPAL reactors, the company is also trying to extend its application to other components of the lithium-ion batteries (such as separator and the LFP cathode). In addition, it is also exploring the opportunity to the most downstream lithium-ion battery recovery. Therefore, we expect the capacity expansion in the oversea market to support EV penetration in foreign contries overlays Morimatsu's self efforts in downstream application expansion would altogether support Morimatsu's future growth.

Fig.84: Future downstream application planned by the company

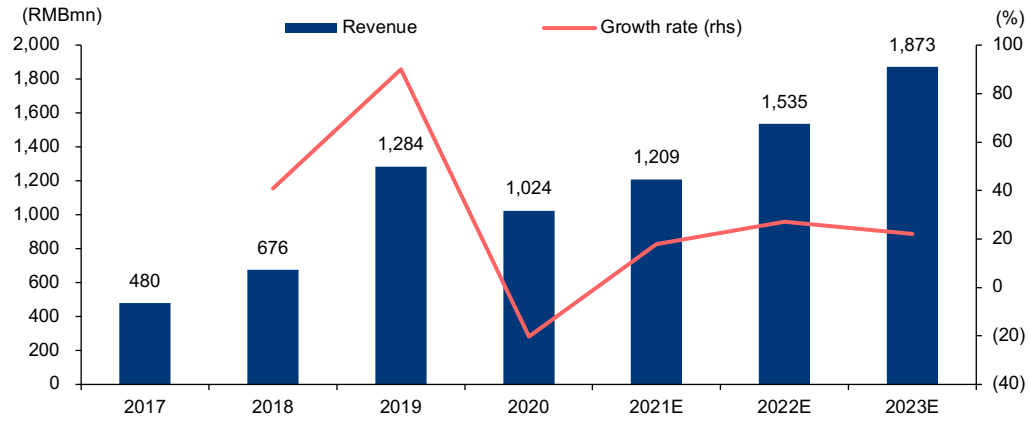


Note: PVDF – poluvinylidene fluride; CPT – cell to pack
Source: company data, Huatai Research

Chemicals: stable growth under emergence of new tech

Morimatsu has achieved RMB1.02bn revenue from the chemical sector in 2020 (2017-2020 CAGR: 28.75%), representing 34.4% of the total 2020 revenue. We believe that the company's chemical sector will grow steadily, and expect Morimatsu's chemical sector to deliver 22.28% CAGR in 2020-2023E, mainly because: 1) industry: the chemical subdivision cycle is emerging one after another, and we are optimistic about the long-term and steady development of the chemical industry; 2) mature fields: there are many orders from PTA, PVC and acetic acid equipment, which can maintain the growth rate; and 3) new fields: we are optimistic about ABS, PBAT, PBS, PTH, environmental chemistry and other new areas to support subsequent growth and to lead a new cycle.

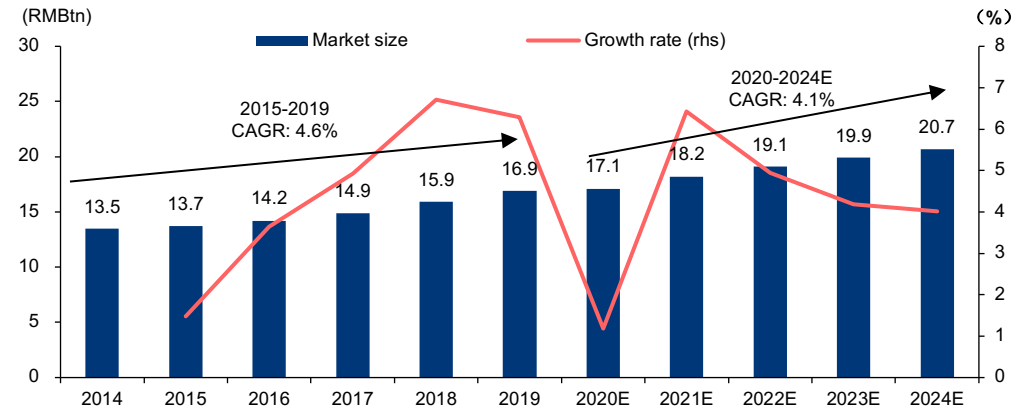
Fig.85: Chemical sector revnue and forecast



Source: company data, Huatai Research estimates

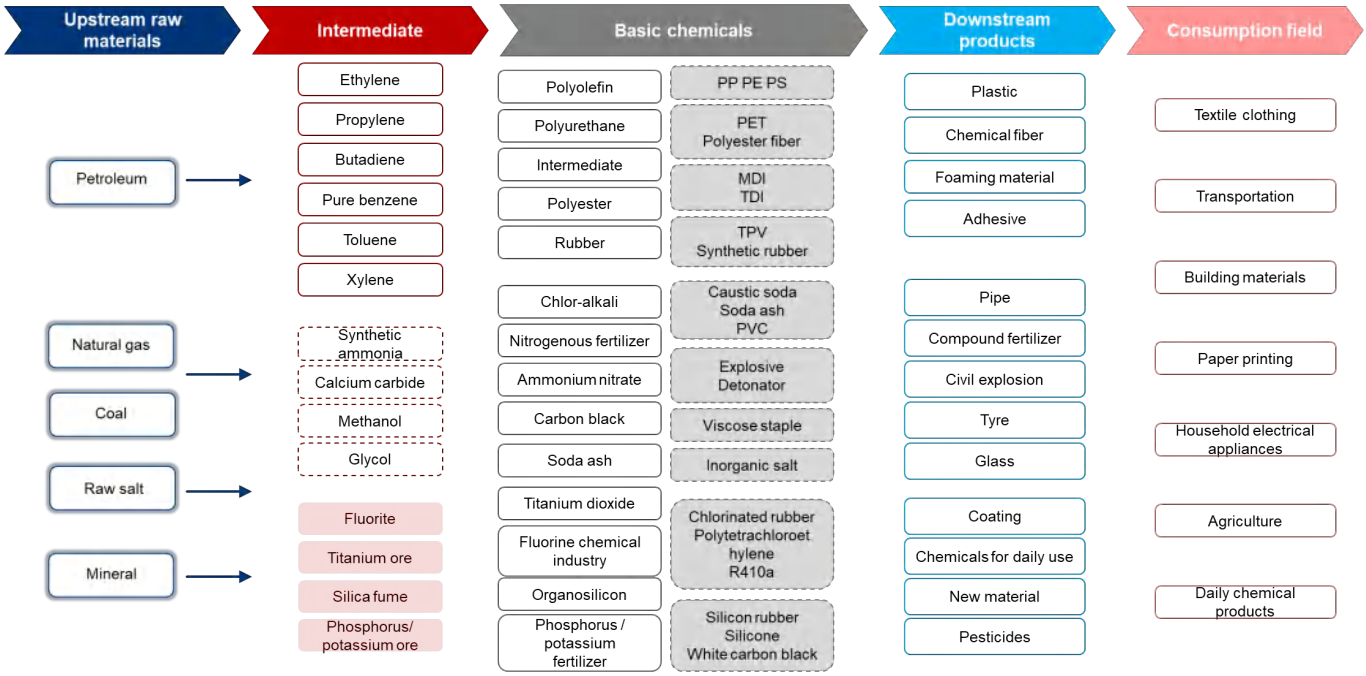
Chemical industry will matain stready growth under emerging chemical subdivision cycles. The chemical industry grew steadily, from RMB13.5tn in 2014 to RMB16.9tn in 2019 (2015-2019 CAGR: 4.6%). In 2020, affected by the outbreak of COVID-19 and the decrease of crude oil price, the development of the chemical industry in China has slowed down. Afterward, the chemical industry's sales revenue is expected by Frost & Sullivan to maintain a steady increase along with the further development of fine chemicals and new chemical materials (2020E-2024E CAGR: 4.1%).

Fig.86: Market size of China's chemical industry



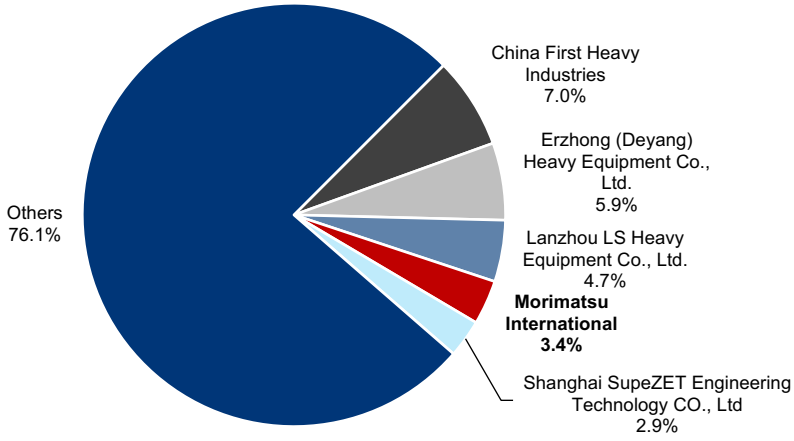
Source: company data, Huatai Research, Frost & Sullivan estimates

Fig.87: Chemical industry chain



Source: VZKOO, Huatai Research

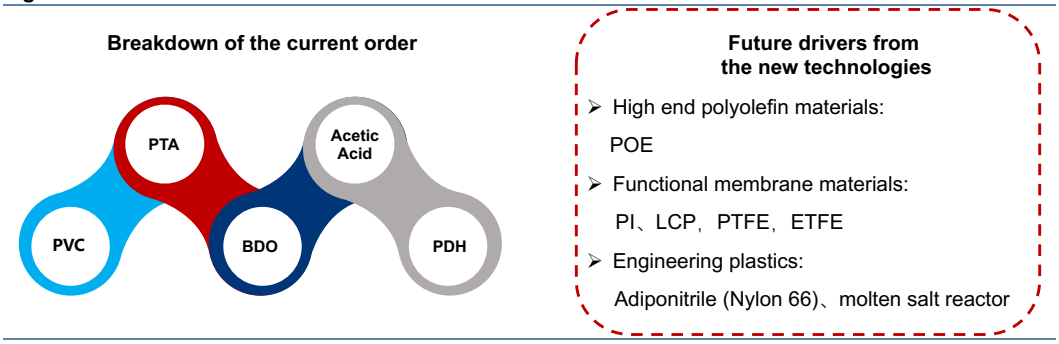
Fig.88: Landscape of China chemical pressure equipment market



Source: company data, Frost & Sullivan, Huatai Research

Mature in providing PTA, PVC and acetic acid equipment, which ensures stable growth. At present, Morimatsu's customers cover many mature traditional chemical enterprises at home and abroad, such as Asahi KASEI and WanhuaS. The projects also involve PTA, BDO, PVC, acetic acid, and other mature chemical material projects. We expect that the mature chemical materials will contribute stable and considerable income to the chemical sector of Morimatsu in the future.

Fig.89: Breakdown of chemical orders and future drivers



Note: PVC - polyvinyl chloride, PTA - pure terephthalic acid, BDO - 1,4-butanediol, PDH - propane dehydrogenation, POE - polyolefin elastomer, PI – polyimide, LCP - liquid crystal polymer, PTFE - poly tetra fluoro ethylene, ETFE – ethylene tera fluoro ethylene.
Source: company data, Huatai Research

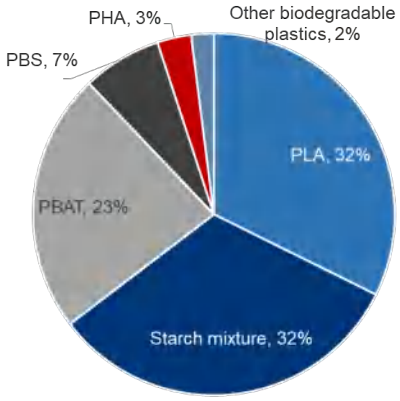
Fig.90: Downstream clients of the chemical sector

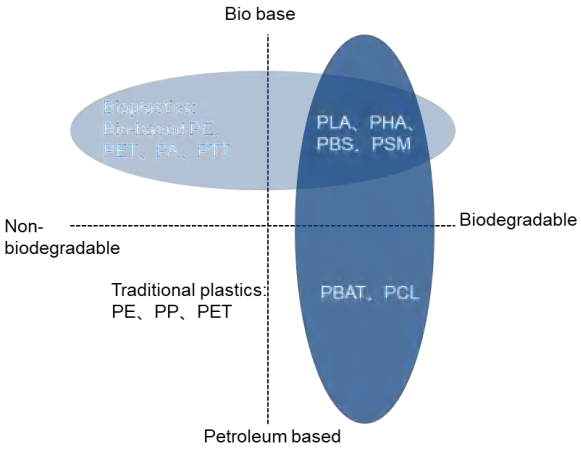
Source: company data, Huatai Research

Development of ABS, PBAT, PBS and other chemicals would support future sector growth.

We are optimistic about ABS, PBAT, PBS, PTH, environmental chemistry and other new fields to support subsequent growth and to lead a new cycle. According to the data of the European bioplastics Association in 2020, PLA accounted for 32%, and PBAT accounted for 23% in the global biodegradable plastics industrial structure. In terms of performance, we believe that PBAT and PLA are the most promising degradable plastics, and new materials will contribute new increments to the chemical industry in the future.

Fig.91: Introduction of the biodegradable plastics industry in the chemical industry





	Strength	Weakness	Application area	Manufacturer
PBAT	Good mechanical properties, high flexibility and elongation at break, good heat resistance	Low crystallinity, high viscosity and frequent adhesion	Packaging materials, sanitary products, biomedical field, industrial compost, etc.	Lanshantunhe, Zhuhai Wantong, Kinfa Sci.&Tech., Hengli petrochemical, etc.
PLA	Good heat resistance, high hardness, high tensile strength and tensile modulus	High hardness, poor blending and toughness	Biomedicine, coatings, industrial materials and packaging, etc.	Corbion-Pur, NatureWorks, Anhui Fengyuan, Zhejiang Haizheng, etc.
PBS	Biocompatibility, good heat resistance, high tensile strength and fast cooling forming speed	High cost and poor toughness	Food packaging, disposable tableware, film, etc.	BASF, Eastman, Yingkou Kanghui, Shandong Huiying, etc.
PHA	Good biodegradability and biocompatibility	Poor thermal stability, slow crystallization speed, and general toughness	Disposable plastics, sanitary products, etc.	Danimer Scientific, Tianjin Guoyun, Shenzhen yikeman, etc.
PCL	Good ductility and biocompatibility, easy to process and shape	Low melting point, low molecular weight, and poor strength	Biomedical and food packaging materials	Perstorp, Daicel, BASF, etc.
Starch plastic	Low cost and recyclable	Insufficient mechanical and barrier properties	Disposable packaging, tableware, etc.	Novamont in Italy, Cereplast in US, Ecoplast Technologies, Suzhou Hanfeng, etc.

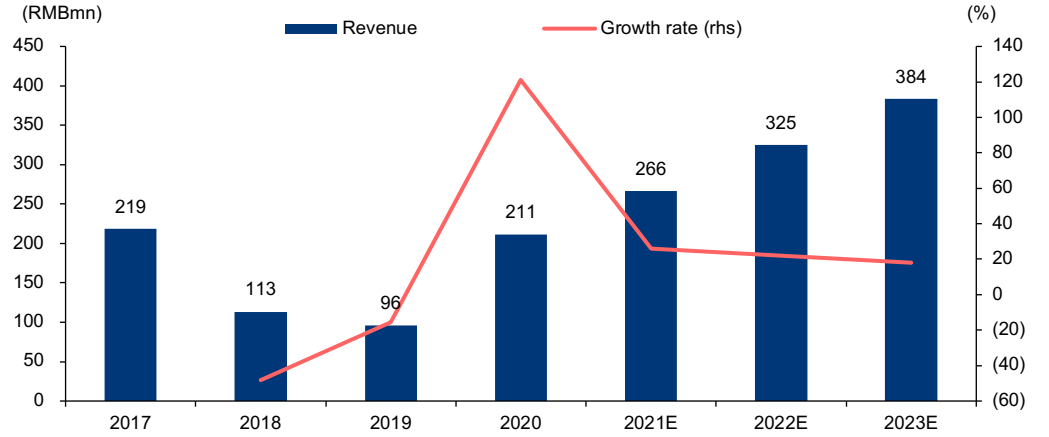
Note: PBAT - Poly (butyleneadipate-co-terephthalate), PLA - polylactic acid, PBS - poly (butylene succinate), PHA – poly hydroxyl alkanoates, PCL - Poly(ε-caprolactone), PSM - Plastarch material, PP - polypropylene, PE - polyethylene, PET - polyethylene glycol terephthalate, PA – polyamide, PTT - polytrimethylene terephthalate

Source: Study on Preparation and properties of PBAT based biodegradable material film, synthesis and modification of branch biodegradable plastics, European bioplastics Association, Huatai Research

Oil and gas: maintain steady growth

Morimatsu has achieved RMB211mn revenue from the oil and gas sector in 2020 (yoy: 121.1%), representing 7.1% of the total 2020 revenue. We believe the company's oil and gas sector will grow steadily and expect it to deliver 22% CAGR in 2021-2023E, mainly driven by stable downstream high-quality customer's demand and the company's complete product offerings.

Fig.92: Oil and gas sector revenue and forecast



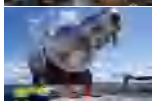
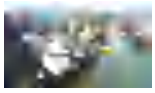
Source: company data, Huatai Research estimates

Morimatsu serves top oil and gas enterprises at home and abroad, including: 1) domestic: the CNPC and SINOPEC; and 2) abroad: the DANA, INDEX, and Shell group of companies. From the CNOOC Lingshui 17-2 gas field development project in the "deep-sea No. 1" atmospheric field in June 2021, the MEG module, undertaken by the company, is the project's core module with the highest value, weight, and size in the whole Lingshui upper module, indicating the company's strong R&D and production capacity in the field of oil and gas sector. Therefore, we believe that customers in the oil and gas sector will steadily contribute revenue in the future.

Fig.93: Downstream clients of the oil and gas sector

Source: company data, Huatai Research

Fig.94: Major products of the oil and gas sector

Traditional Pressure Equipment		
Key products		Functions
	Double tube-sheet heat exchanger	A heat exchanger which is two tube sheets with a particular gap either at one end or equivalently. It is generally used in the following two situations: 1) to prevent the mixing of the medium between the tube and the shell; and 2) where the pressure difference of the medium between the tube and the shell is significant
	Decompression dispensing tank	A pressure vessel for separating gas and liquid through decompression method.
	Vacuum tower	One of the core equipment in the oil refinery for vacuum distillation in the refinery production process.
	Gasoline quench tower	One of the key equipment in the oil and gas integration project, to separate material through cooling and condensation.

Modular Pressure Equipment		
Key process modules/modular factories	Key components	Functions
SRU Module 	Filter equipment	Desulfate production
MEG Module 	Flash tank, flash separator and tower, etc.	Glycol production
Well Pad Separator Skids 	Separation equipment	Wellhead separation of oil and water mixture

Source: company data, Huatai Research

Fig.95: Introduction of the major products under the oil and gas sector

Project description	Traditional/ modular pressure equipment	Product type	Customer background	Contract amount
Oil and gas process module	Modular pressure equipment	Process modules and skids	A member of a New York Stock Exchange listed company which is principally engaged in oil and gas drilling and production operations, oilfield services, and supply chain integration services to the upstream oil and gas industry.	RMB52.8mn
Equipment production on FPSO	Traditional pressure equipment	Reactor and tank	A member of a Tokyo Stock Exchange listed company which is principally engaged in engineering, procurement, construction and installation of floating production systems including Floating Production Storage and Offloading vessels, Floating Storage and Offloading vessels, Tension Leg Platforms, Production Semi-Submersibles, Mobile Offshore Production Units and other new technologies.	RMB71.5mn

Source: company data, Huatai Research

Backed by top technology, releasing new capacity

Apart from its solid business performance and strong in-hand orders, we prefer Morimatsu for the following competence: 1) a management and R&D team with global vision and strong background in Japanese manufacturing expertise and technology; 2) rich talent reserves, focusing on patent and intellectual property protections; 3) precise capacity expansion plan, which brings incremental orders in the future; 4) attempts to explore value-added services and digital operation, which enhance the end user stickness; and 5) prominent cornerstone investors composed with downstream customers, indicating expertise recognition from the industry.

Visionary management team with in-depth industry expertise

Morimatsu's management team is composed with talents who has years of global insight and pressure vessel industry expertise. We expect the team to seek business opportunities, and to effectively implement development strategies: 1) Matsuhisa Terumoto, non-executive Director and the Chairman, has more than 30 years of business operations and business management experience; 2) Nishimatsu Koei the executive Director and CEO, has around 29 years of experience in pressure equipment industry, and was a recipient of 2018 Magnolia Award; 3) Hirazawa Jungo, the executive Director and CFO, has around 12 years of experience in accounting, auditing and financial management; and 4) Tang Weihua has over 21 years of experience in pressure equipment industry.

Fig.96: Experienced management team with oversea background

Mr. Terumoto Matsuhisa

Non-executive Director and Chairman, Controlling Shareholder

- *More than 30 years of business operations and business management experience*

Mr. Koei Nishimatsu

Chief executive officer and executive Director

- *About 29 years of experience in the pressure equipment industry*

Mr. Jungo Hirazawa

Chief finance officer and executive Director

- *Approximately 12 years of accounting, auditing, and financial management experience*

Mr. Wei Hua Tang

Executive Director

- *Over 21 years of experience in the pressure equipment industry*

Mr. Ye Sheng

Executive Director

- *About 25 years of experience in the pressure equipment industry*

Mr. Kawashima Hirotaka

Executive Director

- *About 24 years of experience in the pressure equipment industry*

Source: company data, Huatai Research

Backed by strong R&D to continuously follow clients' needs

Morimatsu's moat also includes its strong R&D team and sufficient copyright reserve. 1) R&D team: the in-house R&D team of Morimatsu comprised approximately 329 employees, with a head with over 20 years of experience in research, design and management. 2) Academic collaboration: Morimatsu has collaborated with several universities in Japan and China (Nagoya University, Shanghai Jiao Tong University, and East China University of Science and Technology) to further enhance the research and development capability. 3) Copyright reserve: in light of the R&D efforts, Morimatsu had 167 registered patents (including 29 invention patents, 136 utility model patents and two industrial designs), 22 copyrights for the software, and 111 applications for patent in the PRC. Morimatsu has also registered a total of 94 trademarks in the PRC, Hong Kong and overseas. In addition, Morimatsu is the registered owner of seven domain names.

Fig.97: R&D innovation and talent reserve

Award & recognition received

- The certificate of High Technology Enterprises
- Shanghai Enterprise Technology Centre
- Shanghai "Specialized, Special and New" Enterprise
- Shanghai Science and Technology Little Giant Enterprise

R&D overview

Registered patents
- 167 registered patents, including 29 invention patents, 136 utility model patents, 2 items of industrial design
- 94 registered trademarks
- 22 software copyrights

Partner institutions
NAGOYA UNIVERSITY

R&D team
- R&D team of 329 person
- The average experience is more than ten years, and the R&D director has more than 20 years of experience in research, design, and management
- In 2020, R&D expenditure accounted for about 4.2% of the total revenue

R&D focus
- Diversify product portfolio and improve product performance
- Create innovative and leading solutions and services for customers according to customer needs and industry development
- Develop owned platform and software, such as iMES

Source: company data, Huatai Research
Note: data as of Morimatsu's listing

Well-planned capacity expansion brings incremental orders

At present, Morimatsu has fourteen/fourteen workshops in Shanghai and Nantong respectively. The utilization rate of the company has achieved 95.0%/97.1%/86.8% in 2018/2019/2020, which indicate the company has almost achieved full capacity (2020 resulting from the postponement and resumption of production due to COVID). To support the booming downstream demands and rapidly growing orders, Morimatsu intends to strengthen its capacity through the new area released in Nantong and Changshu . As a result, we expect the plant area of Morimatsu to increase 127% from the end of 1H21 to the end of 2025, and the additional area would increase the capacity in Nantong by 25% and bring c.RMB3-5bn incremental revenue from the Changshu plant.

Fig.98: Morimatsu's capacity expansion plan

Shanghai
- 14 production workshops
- It mainly manufactures small and medium-sized pressure equipment
- Mainly clean plate
- The total construction area of the base is 57,150 square meters

Nantong
- 14 production workshops
- The total construction area of the base is 122,000 square meters
- Its own wharf can accommodate 10,000 tons of barges, with an annual shipping volume of 511,500 tons

Capacity expansion

197,150 m^2 (As of December 31, 2020) → +127% → 44,150 m^2 (2025E)

New capacity planned

Nantong: 50,000 square meters
- Used for both SMP and Morimatsu Heavy Industry
- **2H21 gradually put in use**
- Estimated to increase 2020 overall capacity by **25%** to 55,455 tons

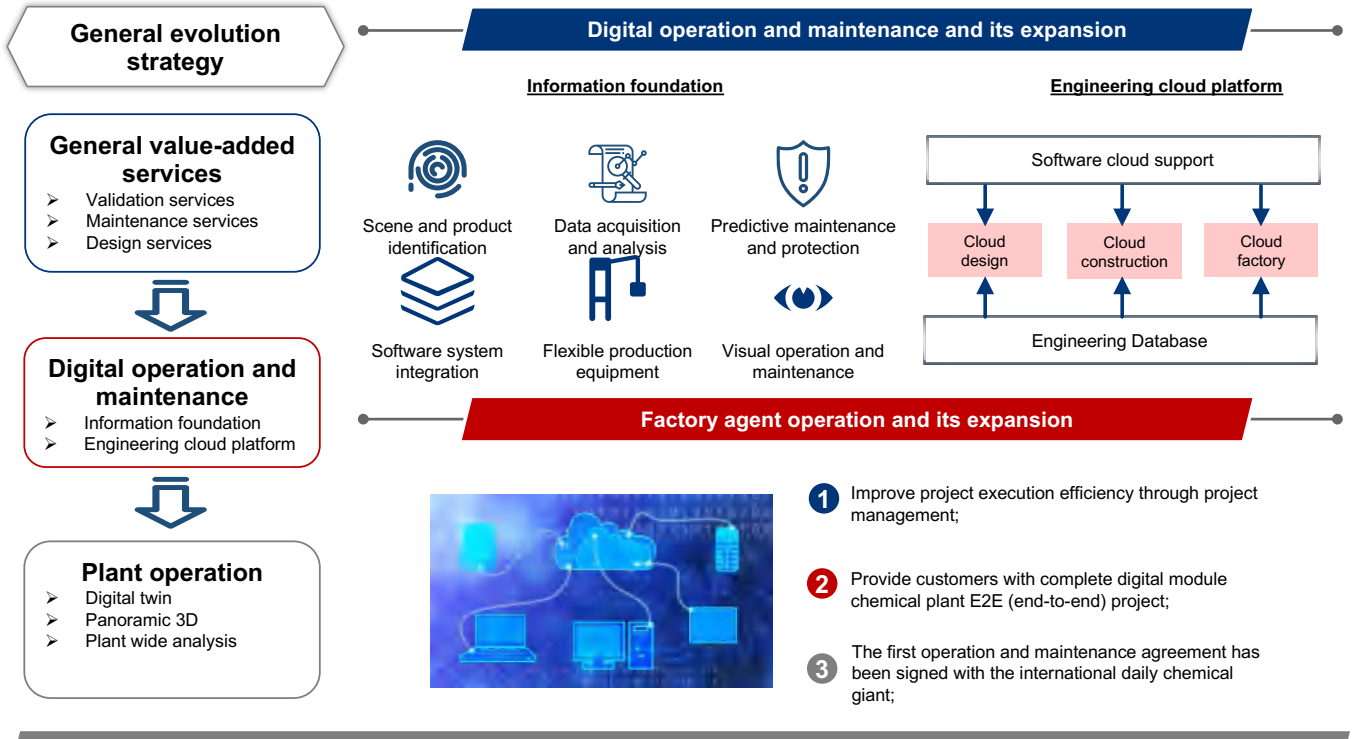
Changshu: 20,0000 square meters
- Mainly used for SMP
- Phase 1 project: 130,000m^2
- **2H23 gradually put in use**
- Phase 1 CAPEX: USD180mn
- Total est. incremental revenue: **c. RMB3-5bn**

Source: company data, Huatai Research

The platform informatization construction is advancing steadily

The overall evolution strategy of platform informatization of Morimatsu can be divided into: 1) general value-added services: including current validation services, maintenance services and design services; 2) digital operation and maintenance: including information foundation (such as data acquisition and analysis, scene and product identification, visual operation and maintenance, software system integration, etc.) and engineering cloud platform (engineering database and software cloud support the cloud design, cloud construction and cloud factory); and 3) plant operation: including digital twins, panoramic 3D and plant wide analysis.

Fig.99: The construction of the information platform is advancing in an orderly manner



Source: company data, Huatai Research

Support from industry background cornerstone investors

Cornerstone investors composed with downstream customers reflect industry recognition and brand awareness: 1) Huayou HK is a wholly-owned subsidiary of Zhejiang Huayou that is one of the controlling shareholders of Huayou. Huayou is the leading mining enterprise in China and has cooperated with Morimatsu since March 2019; 2) WuXi Biologics: the company has developed business cooperation with WuXi Co and WuXi Biologics (Hangzhou) Co. since 2016; 3) Suzhou Jingrui (300655) has been a customer of the company purchasing the pressure equipment since October 2017; and 4) Ms. Zhang Ning founded Red Avenue in August 1999, which has been a customer of Morimatsu since 2011.

Fig.100: The cornerstone investors of Morimatsu

Cornerstone Investors	Investment amount (USDmn)	Relationship
Huayou HK	10.00	A limited liability company incorporated in Hong Kong and it is a wholly-owned subsidiary of Zhejiang Huayou that is one of the controlling shareholders of Huayou(603799), which has been a customer of Morimatsu purchasing the pressure equipment since March 2019
WuXi Biologics	6.00	A limited partnership enterprise incorporated in Hong Kong and is an indirect-wholly owned subsidiary of WuXi Cayman(2269). WuXi Co and WuXi Biologics (Hangzhou) Co., are both indirect-wholly owned subsidiaries of WuXi Cayman, and have been customers of our Group purchasing the pressure equipment since 2016
CUAM	6.00	/

Cornerstone Investors	Investment amount (USDmn)	Relationship
Jingzhirui Suzhou	5.00	Suzhou Jingrui (300655) has been a customer of the company purchasing the pressure equipment since Oct. 2017. Suzhou Jingrui, Morimatsu Solar Technology and an Independent Third Party jointly established Anhui Jingrui, a limited liability company established in the PRC in January 2020
Hwa-An HK	5.00	/
Ms. Zhang Ning	5.00	Ms. Zhang Ning founded Red Avenue(603650) in Aug. 1999, which has been a customer of our Group purchasing the pressure equipment since 2011

Source: company data, Huatai Research

Financials

Morimatsu: revenue boosted by capacity expansion of downstream clients

Overall, we expect Morimatsu to deliver revenue of RMB3.89/4.98/6.26bn (up by 30%/28%/26%) in 2021E-2023E, for the following rationales:

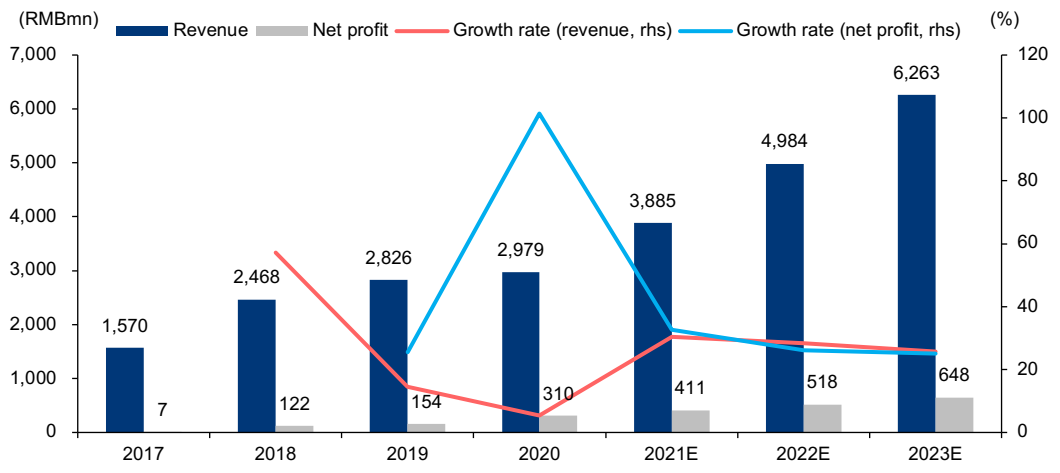
For the SMP business, we estimate overall revenue in 2021E-2023E to be RMB1.67/2.22/2.88bn (up by 48%/32%/30%), contributing by:

1) Pharmaceuticals: we expect the sector to achieve rapid revenue growth of 35% 2021E-2023E CAGR, mainly driven by the supportive policy, accelerating import substitution, and Morimatsu's ability in providing the one-stop solutions for lead downstream enterprises.
2) Electronic chemicals: we expect the sector to deliver 2021E-2023E revenue CAGR of 112%, due to the thriving development of downstream enterprises (etc. semiconductor-related and solar enterprises) and Morimatsu's ability in providing G5 grade high-purity reagent manufacturing equipment.
3) Daily-use chemicals: we expect the sector to grow at 4% 2023E-2023E CAGR, because of the potential new demand from high-end daily-use chemicals and the recovery of COVID-19.

For the Morimatsu Heavy Industry business, we expect the segment to achieve revenue of RMB2.34/2.91/3.55bn in 2021E-2023E (up by 27%/24%/22% yoy), contributing from:

1) Mining: we expect 2021E-2023E revenue CAGR to 33%， due to capacity expansion demand from the ternary cathode materials and mining (nickel, copper, etc.) enterprises.
2) Chemicals: we expect the sector to deliver 2021E-2023E revenue CAGR of 22%, given the the evolving demand for different and new kinds of chemicals from downstream clients.
3) Oil and gas: we expect the sector to achieve 22% CAGR in 2021-2023E, considering the stable downstream demand from the oil and gas industries..

Fig.101: Morimatsu: revenue and profit performance



Source: company data, Huatai Research estimates

Fig.102: Morimatsu: assumptions and revenue breakdown

(RMB'000)	2018	2019	2020	2021E	2022E	2023E
Revenue	**2,467,869**	**2,826,330**	**2,978,626**	**3,885,359**	**4,984,373**	**6,263,239**
yoy%	*57.2*	*14.5*	*5.4*	30.4	28.3	25.7
Cost of sales	**(1,955,935)**	**(2,223,441)**	**(2,134,522)**	(2,864,695)	(3,643,964)	(4,545,066)
Gross profit	**511,934**	**602,889**	**844,104**	**1,020,665**	**1,340,409**	**1,718,172**
Gross margin (%)	*20.7*	*21.3*	*28.3*	26.5	26.9	27.4
Selling and distribution expenses	(77,424)	(88,074)	(73,110)	(89,363)	(104,672)	(125,265)
As % of revenue	*3.1*	*3.1*	*2.5*	*2.3*	*2.1*	*2.0*
Administration expenses	(143,562)	(223,322)	(274,532)	(372,994)	(468,531)	(576,218)
As % of revenue	*5.8*	*7.9*	*9.2*	*9.6*	*9.4*	*9.2*
Research and development expenses	(120,683)	(126,146)	(125,779)	(174,841)	(234,266)	(306,899)
As % of revenue	*4.9*	*4.5*	*4.2*	*4.5*	*4.7*	*4.9*
Financial cost-net	(5,506)	(6,381)	(12,456)	(17,886)	(18,160)	(23,029)
As % of revenue	*0.2*	*0.2*	*0.4*	*0.5*	*0.4*	*0.4*
Net profi	**116,223**	**149,104**	**289,385**	**316,634**	**443,091**	**588,858**
Net margin (%)	*4.7*	*5.3*	*9.7*	8.3	8.9	9.4
Revenue breakdown						
Pharmaceutical	**381,141**	**720,891**	**769,314**	**1,060,037**	**1,421,758**	**1,882,810**
yoy%	70	89	7	38	34	32
As % of revenue	15	26	26	27	29	30
Gross margin (%)	19.9	18.8	22.4	22.5	23.5	24.5
Electronic chemicals	**552,519**	**79,005**	**70,100**	**354,592**	**495,725**	**663,601**
yoy%	500	(86)	(11)	406	40	34
As % of total revenue	22	3	2	9	10	11
Gross margin (%)	22.3	17.8	25.2	25.5	26.5	27.5
Personal care chemical	**608,466**	**239,052**	**294,975**	**259,578**	**298,515**	**334,336**
yoy%	19	(61)	23	(12)	15	12
As % of total revenue	25	8	10	7	6	5
Gross margin (%)	22.3	17.8	25.2	25.5	26.5	27.5
Mining and metallurgical	**47,570**	**116,986**	**388,799**	**538,309**	**714,508**	**922,708**
yoy%	2,092	146	232	38	33	29
As % of revenue	2	4	13	14	14	15
Gross margin (%)	20.6	26.3	31.2	30.0	30.5	31.0
Chemical	**675,874**	**1,284,233**	**1,024,330**	**1,208,709**	**1,535,061**	**1,872,774**
yoy%	41	90	(20)	18	27	22
As % of revenue	27	45	34	31	31	30
Gross margin (%)	19.2	20.0	28.9	28.0	29.0	29.5
Oil and gas	**113,258**	**95,656**	**211,490**	**266,477**	**325,102**	**383,621**
yoy%	(48)	(16)	121	26	22	18
As % of total revenue	5	3	7	7	7	6
Gross margin (%)	(15.7)	13.4	18.1	18.0	18.0	18.0
Others	89,041	290,507	219,618	197,656	193,703	203,388
yoy%	117	226	(24)	(10)	(2)	5
As % of total revenue	4	10	7	5	4	3
Gross margin (%)	28.4	25.9	40.8	36.0	36.0	36.0

Source: Company data, Huatai Research estimates

Expenses: SG&A costs to decline; strengthened R&D input

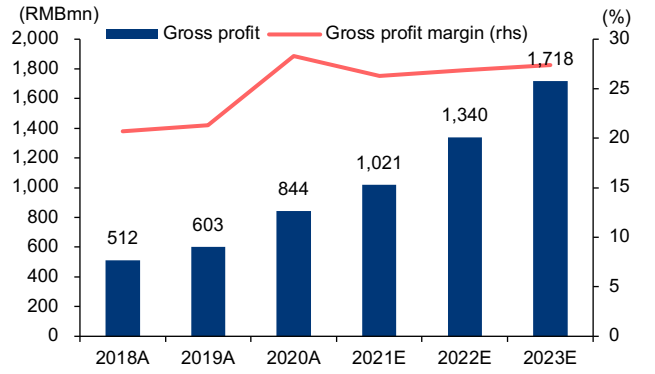
Selling and distribution expenses: we forecast RMB89/105/125 (2.3/2.1/2.0% of total revenue) in 2021E/2022E/2023E, due to the selling and distribution expenses being effectively controlled.

General and administrative expenses: we forecast RMB373/469/576mn in 2021E/2022E/2023E, with a gradual decline in these expenses as a proportion of total revenue due to operating efficiency improvement amid economies of scale, equivalent to 9.6/9.4/9.2% of total revenue.

R&D expenses: we forecast RMB175/234/307mn in 2021E/2022E/2023E, with the ratio to revenue at 4.5/4.7/4.9% due to the company's focus in research and development.

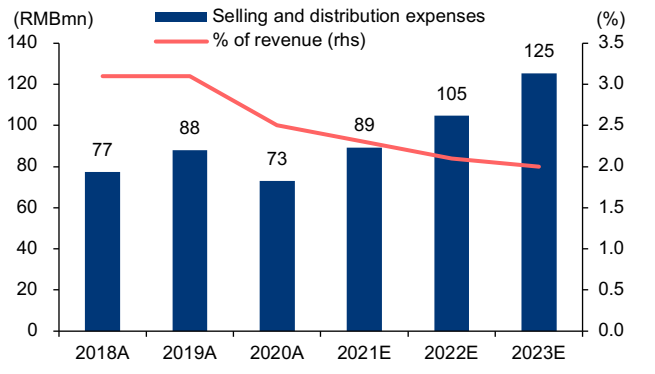
In conclusion, we forecast Morimatsu's net profit to be RMB316/443/589mn in 2021E-2023E (up by 9/40/33%), and the adjusted net profit to be RMB404/517/651mn in 2021E-2023E (up by 30/28/26% .

Fig.103: Gross profit and gross profit margin



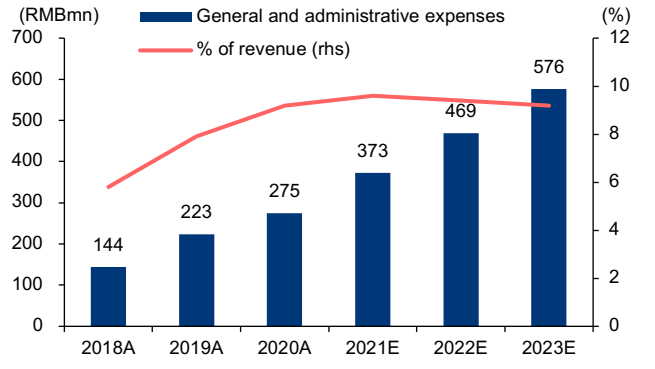
Source: company data, Huatai Research estimates

Fig.104: Selling and distribution expenses



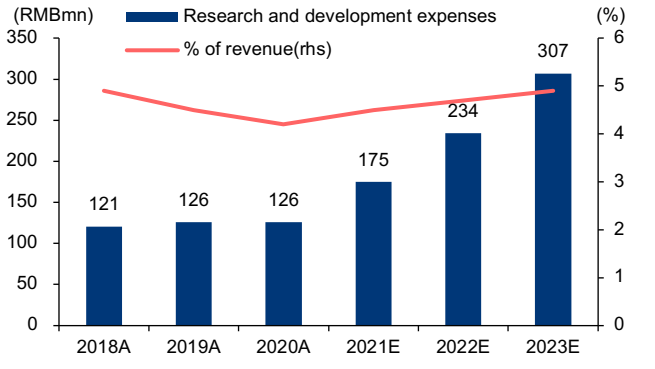
Source: company data, Huatai Research estimates

Fig.105: General and administrative expenses



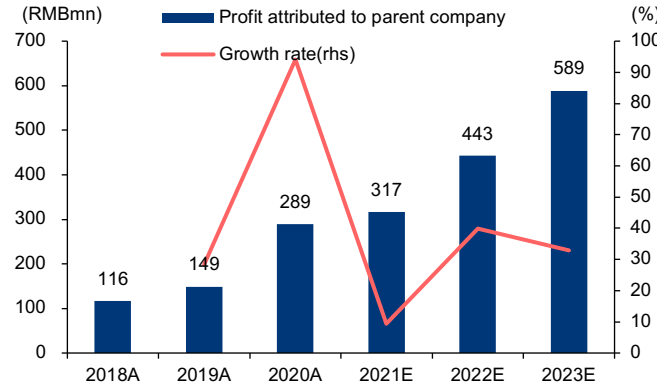
Source: company data, Huatai Research estimates

Fig.106: Research and development expenses



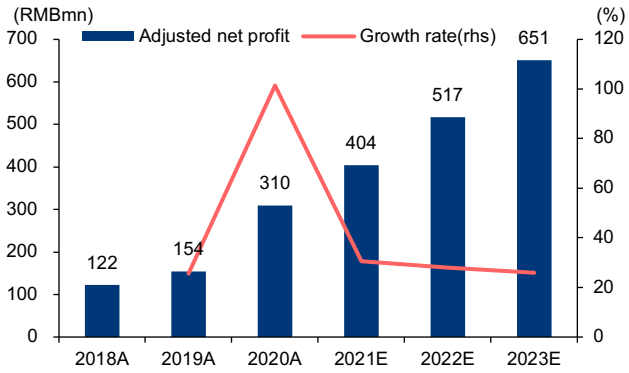
Source: company data, Huatai Research estimates

Fig.107: Profit attributed to parent company



Source: company data, Huatai Research estimates

Fig.108: Adjusted net profit



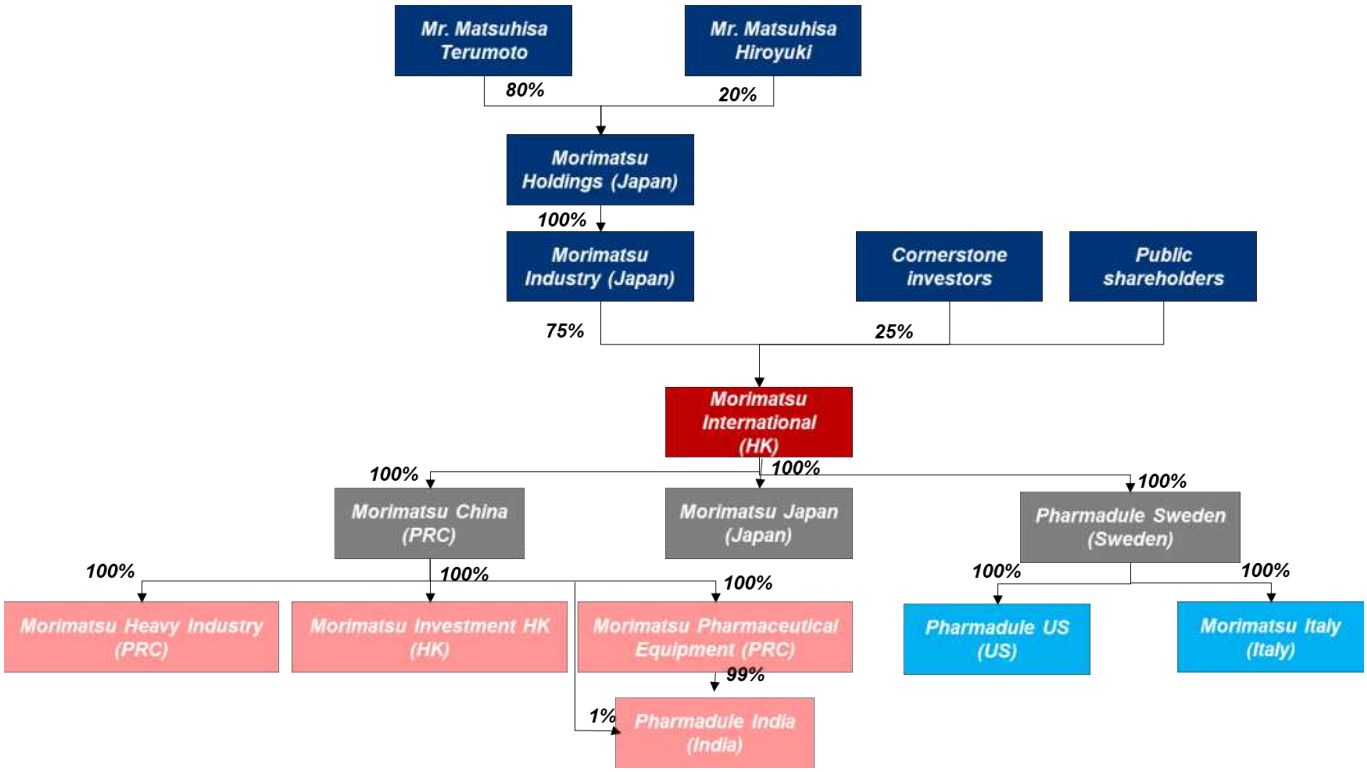
Note: Adjusted items: share-based payment, listing expenses, and social insurance exemptions granted by local government
Source: company data, Huatai Research estimates

Appendix

Shareholding Structure

Morimatsu's controlling shareholders are Morimatsu Industry (Japan) (Mr. Matsuhisa Terumoto together with Mr. Matsuhisa Hiroyuki), cornerstone investors and other public shareholders. Morimatsu Industry (Japan) held 75% of the enlarged total issued share capital as of 31 December 2020, according to the Morimatsu prospectus.

Fig.109: Morimatsu: shareholding structure

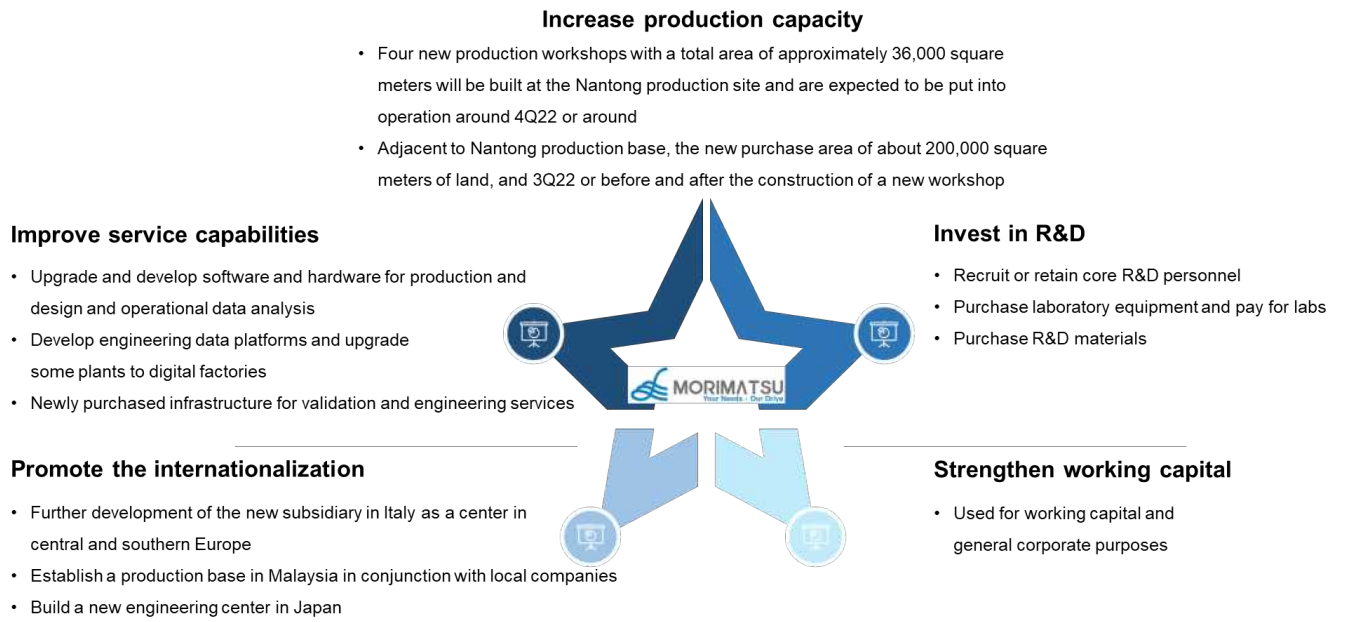


Note: data as of 28 June, 2021
Source: company data, Huatai Research

Use of the proceeds

Morimatsu currently intends to apply the net proceeds from the global offering in the following manner: 1) increase production capacity in Nantong and Rugao; 2) invest in R&D to recruit R&D personnel and purchase R&D materials and equipment; 3) improve service capabilities: Upgrade and develop software and hardware for production and design and operational data analysis; 4) promote the internationalization strategy to further develop the new subsidiary in Italy as a center in central and southern Europe; and 5) strengthen working capital and general corporate purposes.

Fig.110: Morimatsu: use of the proceeds



Source: company data, Huatai Research

Risks

Liquidity risks

Morimatsu has not entered the Hong Stock Connect and its equity structure is relatively condensed. If it could not enter the Hong King Stock Connect, it would face certain liquidity risks.

The CAPEX cycle of pharmaceutical, EV battery, and semis might delay

Although the current capacity plan of the major players in phatmaceutical, EV battery industry chain, and semis industry seems to be positive or relatively aggressive. If the actual capacity release has delayed, it would hurt Morimatsu's downstream demand

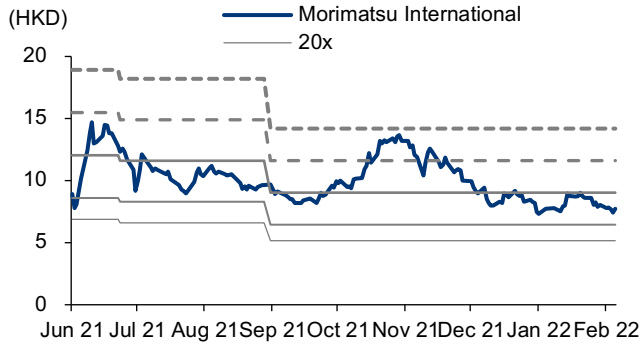
Long project duration creating short-term risks in booking revenue

The project cycle of the mining business is relatively long (typically take 12-16 months), although the company might have the orders in hand, if it could not book the revenue in 12 months, there might make the apparent growth of the mining sector seems decreasing.

Slow margin improvement

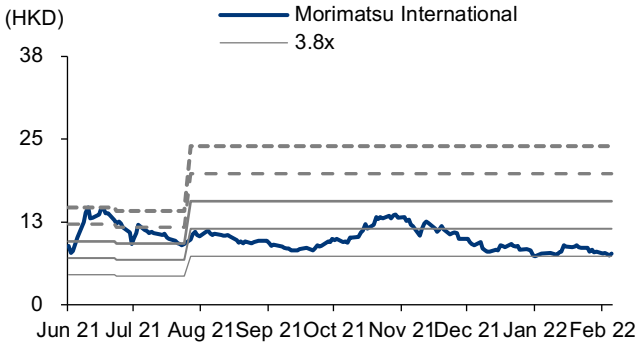
Although increasing the profit margin has become one of the major focus of the company's management, if the company could not improve its margin, it would impact our final net profit forecast.

Fig.111: Morimatsu International Holdings PE-Bands



Source: S&P, Huatai Research

Fig.112: Morimatsu International Holdings PB-Bands



Source: S&P, Huatai Research

Full financials

Income statement

YE 31 Dec (RMBmn)	2019	2020	2021E	2022E	2023E
Revenue	2,826	2,979	3,885	4,984	6,263
Cost of goods sold	(2,223)	(2,135)	(2,865)	(3,644)	(4,545)
Gross margin	602.89	844.10	1,021	1,340	1,718
Selling and distribution cost	(88.07)	(73.11)	(89.36)	(104.67)	(125.26)
Admin expenses	(223.32)	(274.53)	(372.99)	(468.53)	(576.22)
Other income/expenses	(119.08)	(142.58)	(166.84)	(226.27)	(298.90)
Financial cost-net	(6.38)	(12.46)	(17.89)	(18.16)	(23.03)
Share of P&L of associate	0.00	0.00	0.00	0.00	0.00
Profit before tax	166.03	341.43	373.58	522.78	694.76
Tax expense	(25.09)	(52.05)	(56.95)	(79.69)	(105.90)
Minority interest/other	(2.49)	0.00	0.00	0.00	0.00
Net profit	149.10	289.39	316.63	443.09	588.86
Discount and amortization	(61.23)	(71.94)	(80.21)	(90.14)	(101.86)
EBITDA	233.64	425.82	471.68	631.08	819.65
EPS (RMB, basic)	0.14	0.28	0.31	0.43	0.57

Balance sheet

YE 31 Dec (RMBmn)	2019	2020	2021E	2022E	2023E
Inventories	1,132	804.07	1,099	1,298	1,494
Account & bill receivables	735.22	824.92	958.03	1,229	1,544
Cash & cash equivalents	451.40	424.43	1,228	1,926	2,836
Other current assets	5.76	0.00	0.00	0.00	0.00
Total current assets	2,325	2,053	3,284	4,453	5,875
Fixed assets	810.41	838.53	926.63	1,037	1,171
Intangible assets	15.87	29.90	23.78	17.65	11.53
Other non-current assets	122.99	112.60	112.60	112.60	112.60
Total non-current assets	949.27	981.03	1,063	1,167	1,295
Total assets	3,274	3,034	4,347	5,620	7,170
Accounts payable	817.00	730.75	1,039	1,321	1,648
Short-term loans	456.08	444.41	579.43	743.08	933.51
Other liabilities	1,264	842.65	1,414	1,798	2,243
Total current liabilities	2,537	2,018	3,032	3,862	4,824
Interest -bearing bank borrowings	16.46	1.73	0.85	(0.03)	(0.91)
Other long term liabilities	13.74	16.58	0.00	0.00	0.00
Total non-current liabilities	30.20	18.32	0.85	(0.03)	(0.91)
Equity	389.23	0.17	0.00	0.00	0.00
Reserves/other items	317.53	998.14	1,315	1,758	2,347
Shareholder equity	706.76	998.31	1,315	1,758	2,347
Minority interests	0.00	0.00	0.00	0.00	0.00
Total equity	706.76	998.31	1,315	1,758	2,347

Valuation

YE 31 Dec (x)	2019	2020	2021E	2022E	2023E
PE	43.82	22.58	20.64	14.75	11.10
PB	9.24	6.54	4.97	3.72	2.78
EV EBITDA	33.52	17.41	15.48	11.33	8.39
Dividend yield (%)	(0.04)	0.00	0.00	0.00	0.00
FCF yield (%)	1.87	(0.41)	1.99	2.55	4.52

Cash flow statement

YE 31 Dec (RMBmn)	2019	2020	2021E	2022E	2023E
EBITDA	233.64	425.82	471.68	631.08	819.65
Finance costs	6.38	12.46	17.89	18.16	23.03
Changes in working cap	53.71	(268.96)	(119.98)	(187.53)	(185.06)
Tax	(25.09)	(52.05)	(56.95)	(79.69)	(105.90)
Others	(62.71)	38.38	553.16	366.40	421.66
Operating cash flow	205.93	155.65	865.80	748.43	973.37
Capital expenditure	(139.22)	(129.75)	(162.19)	(194.63)	(229.66)
Other investment activities	(72.59)	(6.02)	(16.58)	0.00	0.00
Investing cash flow	(211.81)	(135.77)	(178.78)	(194.63)	(229.66)
Increase in debt	(50.52)	(24.65)	134.14	162.77	189.55
Increase in equity	0.09	0.00	(0.17)	0.00	0.00
Dividends paid	(2.40)	0.00	0.00	0.00	0.00
Other financing activities	(17.08)	(5.96)	(17.89)	(18.16)	(23.03)
Financing cash flow	(69.91)	(30.61)	116.08	144.61	166.52
Changes in cash	(75.78)	(10.72)	803.10	698.40	910.23
Cash at start of year	522.03	451.40	424.43	1,228	1,926
Effect of forex rate chg, net	5.15	(16.25)	0.00	0.00	0.00
Year-end cash	451.40	424.43	1,228	1,926	2,836

Performance

YE 31 Dec (x)	2019	2020	2021E	2022E	2023E
Growth (%)					
Revenue	14.53	5.39	30.44	28.29	25.66
Gross profit	17.77	40.01	20.92	31.33	28.18
Operating profit	(6.04)	105.25	10.62	38.18	32.69
Net profit	28.29	94.08	9.42	39.94	32.90
EPS	28.29	94.08	9.42	39.94	32.90
Profitability ratios (%)					
Gross profit	21.33	28.34	26.27	26.89	27.43
EBITDA	8.27	14.30	12.14	12.66	13.09
Net profit	5.28	9.72	8.15	8.89	9.40
ROE	16.79	33.94	27.38	28.84	28.69
ROA	4.30	9.17	8.58	8.89	9.21
Solvency					
Net gearing ratio (%)	2.99	2.18	(49.23)	(67.29)	(81.12)
Current ratio	0.92	1.02	1.08	1.15	1.22
Quick ratio	0.47	0.62	0.72	0.82	0.91
Operating capability (days)					
Total assets turnover ratio (x)	0.81	0.94	1.05	1.00	0.98
Receivable	112.73	94.28	82.60	78.98	79.70
Payable	135.31	130.52	111.18	116.56	117.58
Inventory	158.29	163.31	119.56	118.39	110.58
Cash conversion cycle	135.71	127.07	90.99	80.80	72.70
Index per share (RMB)					
EPS	0.14	0.28	0.31	0.43	0.57
Book value per share	0.68	0.96	1.27	1.69	2.26

Source: Company announcements, Huatai Research estimates

Disclaimers

Analyst Certification

I/We, , hereby certify that the views expressed in this report accurately reflect the personal views of the analyst(s) about the subject securities or issuers; and no part of the compensation of the analyst(s) was, is, or will be, directly or indirectly, related to the inclusion of specific recommendations or views in this report.

General Disclaimers and Disclosures

This research report has been prepared by Huatai Financial Holdings (Hong Kong) Limited (hereinafter referred to as "HFHL"). The information herein is strictly confidential to the recipient. This report is intended for HFHL, its clients and associated companies. Any other person shall not be deemed a client of the Company merely from his or her receipt of this report.

This report is based on information deemed reliable and publicly available by HFHL, but HFHL and its associated company(ies) (collectively, hereinafter "Huatai") makes no guarantee as to the accuracy or completeness of such information.

The opinions, assessments and projections contained herein only reflect the views and judgments at the issuance date. Huatai may issue research reports that contain inconsistent views, assessments and projections with those set out herein at different times. The prices, values and investment returns of the securities or investment instruments referred to herein may fluctuate. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur. Huatai makes no warrants that the information in this report be kept up to date. The information contained in this report may be modified without notice by Huatai, and investors shall pay attention to such updates or modifications when necessary.

HFHL is not a U.S. Financial Industry Regulatory Authority ("FINRA") member firm, and HFHL research analysts are not registered/qualified as research analysts with FINRA.

While every effort has been made by Huatai to ensure the content contained herein is objective and impartial, the views, conclusions and recommendations in this report are for reference only and are not to be construed as an offer or solicitation for the purchase or sale of any security or financial instrument and in any jurisdiction where such offer or solicitation would be illegal. Such views and recommendations are not intended to provide personal investment advice and does not take into account the specific investment objectives, financial situation and the particular needs of any specific person. Investors should give sufficient consideration to their own particular circumstances, and fully understand and use the contents of this report, which should not be seen as the sole factor to rely on in making investment decisions. Huatai and the report's authors shall under no circumstance be held liable for any direct, indirect or consequential losses or damages arising from or in connection with the use or reliance of this report or its contents. Any form of written or verbal commitment to share the proceeds or losses of any securities investment shall be regarded as null and void.

The subject of this report may include entities subject to a U.S. Presidential Executive Order which restricts the ability of U.S. persons to invest in specified companies now referred to as Chinese Military-Industrial Complex Companies ("CMIC") by the US Treasury Department's Office of Foreign Assets Control ("OFAC"). The analysis, opinions, and recommendations contained in this report are for reference only and does not constitute an offer or solicitation to buy or sell the securities, or an effort to facilitate the purchase or sale of the securities. Any "U.S. Person," defined as a U.S. citizen, permanent resident alien, entity organized under the laws of the U.S. or any jurisdiction within the U.S. (including foreign branches), or any person located in the U.S., should fully consider their own specific circumstances, and not directly or indirectly invest in any form of publicly traded securities of a CMIC, or their derivative securities, and use them as investment opportunities. For any securities-related transaction in the subject company restricted by a U.S. Presidential Executive Order, neither Huatai Securities & Co., Ltd, its subsidiaries, Huatai Securities (USA), Inc. or Huatai Financial Holdings (Hong Kong) Ltd, nor the author of this report shall bear any legal responsibility for any consequences resulting from the use of information contained in this report.

Unless otherwise indicated, the data quoted in this report represents past performance, which should not be used as a guide of future returns. Huatai does not promise or guarantee that any future return will be realized. The forecast made in the report is based on corresponding assumptions, and any change of assumptions may significantly affect the predicted return.

Huatai and the report's authors have no legally prohibited interest in the securities or investment instruments referred to herein, to the best of their knowledge. Huatai may, to the extent permitted by applicable law, hold positions in or trade securities issued by companies mentioned herein, and may also perform investment banking, financial advisory or other financial products related services for or solicit business from such companies.

Based on different assumptions, standards or adopting different analytical methods, Huatai's sales, traders or other professionals may, orally or in writing, express market comments and/or trading opinions inconsistent with the opinions and suggestions of this report. Huatai has no obligation to update this report. Huatai's asset management, proprietary and other investment services departments may independently make investment decisions that are inconsistent with the opinions or recommendations expressed in this report. Investors should take into account that Huatai and/or its related persons may have potential conflicts of interest that may affect the objectivity of the opinions in this report. Investors should not regard this report as the sole basis for their investment or other decisions. Specific disclosures in this regard are contained at the end of this report.

This report is not intended for any institution or individual investor of any region, country or other jurisdiction in which Huatai would violate local law or regulation; or subject Huatai to relevant law or regulation, due to the sending, publishing, or use of this report.

Hong Kong, China

In Hong Kong, this research report is prepared and distributed by HFHL, which is regulated by the Hong Kong Securities and Futures Commission and is the wholly owned subsidiary of Huatai International Financial Holdings Company Limited (华泰国际金融控股有限公司) which is a wholly-owned subsidiary of Huatai Securities Co., Ltd., a joint stock company incorporated in the People's Republic of China with limited liability under the Chinese corporate name "华泰证券股份有限公司". This research report is intended for use only by institutional and professional investors as defined in the Hong Kong Securities and Futures Ordinance and its subsidiary legislation. Recipients of this research in Hong Kong may contact HFHL in respect of any matter arising from or in connection with this research.

Important HK Regulatory Disclosures

- HFHL does not have an individual employed by or associated with it serves as an officer of any companies or issuers under its research coverage.
- Please refer to the important disclosures on HFHL's website https://www.htsc.com.hk/stock_disclosure

Please see additional important disclosures under the section of **"Important US Regulatory Disclosures"**.

United States

In the United States, this research report is distributed solely to institutional investors that meet US regulatory requirements by Huatai Securities（USA）Inc., which is a registered broker-dealer and member of FINRA. Huatai Securities (USA) Inc., accepts responsibility for the content of this research report in accordance with the provisions of Rule 15a-6 under the US Securities Exchange Act of 1934. Huatai Securities (USA) Inc.'s affiliate analysts are not registered/qualified as research analysts with FINRA, may not be associated persons of Huatai Securities (USA) Inc., and therefore may not be subject to FINRA rule restrictions on communications with a subject company, public appearances, and trading securities held by the analysts. Huatai Securities (USA) Inc. is a wholly-owned subsidiary of Huatai International Financial Holdings Company Limited (华泰国际金融控股有限公司) which is a wholly-owned subsidiary of Huatai Securities Co., Ltd. Any persons receiving this report directly from Huatai Securities (USA) Inc. and wishing to effect a transaction in any security described herein should do so with Huatai Securities (USA) Inc.

Important US Regulatory Disclosures

- and their associates do not serve as an officer, director or advisor of the subject securities or issuers mentioned in this Research Report. The Analysts and their associates do not have any financial interests in relation to the subject securities or issuers mentioned in this Research Report. For the purposes of these disclosures, the term "associate" includes members of the analyst's household as defined by FINRA. Analysts receive compensation based upon the overall revenue and profitability of Huatai securities Co., Ltd, including revenues derived from its investment banking business.
- Huatai Securities Co., Ltd., its subsidiaries and/or its affiliates, from time to time sell to and buy from customers the securities/instruments of companies, both equities and debt (including derivatives) of companies covered in Huatai Securities Research on a principal or agency basis.
- Huatai Securities Co., Ltd., its subsidiaries and/or its affiliate(s), and/or their officers, directors and employees may, to the extent permitted by applicable law, have positions in any securities mentioned in this report (or in any related investment) and may from time to time add to or dispose of any such securities (or investment). Therefore, investors should be aware that a conflict of interest may exist.

Guide to Investment Rating

The investment rating system is based on total return potential including all paid or anticipated dividends relative to that of the benchmark over the next 6-12 months after the release of the report.
The benchmark: CSI-300 Index for A share market. Hang Seng index for Hong Kong market. S&P 500 index for US market.

Industry Rating Definitions

OVERWEIGHT: The industry index is expected to outperform the benchmark
NEUTRAL: Performance of the industry index is expected to be in line with the benchmark
UNDERWEIGHT: The industry index is expected to significantly underperform the benchmark

Stock Rating Definitions

BUY: The stock price is expected to outperform the benchmark by more than 15%
OVERWEIGHT: The stock price is expected to outperform the benchmark by 5%~15%
HOLD: The performance of the stock relative to that of the benchmark is expected to be within -15%~5%
SELL: The stock price is expected to underperform the benchmark by more than 15%
Rating suspended: The rating, target price and estimates have been suspended temporarily to comply with applicable regulations and/or firm policies
Not rated: Stocks are not in regular research coverage. Investors should not expect continuing or additional information from Huatai relating to such securities and/or companies

Legal Entity Disclosures

China: Huatai Securities Co., Ltd is approved by the China Securities Regulatory Commission under a qualification to carry out "securities investment consulting" business. Business license no: 91320000704041011J
Hong Kong: Huatai Financial Holdings (Hong Kong) Limited holds a license issued by the Securities and Futures Commission in Hong Kong to carry out "advising on securities" business. License no: AOK809.
USA: Huatai Securities (USA) Inc. is a registered broker-dealer and member of FINRA. License no.: CRD#: 298809/SEC#: 8-70231.

Huatai Securities Co., Ltd

Nanjing
Building 1, Huatai Securities Plaza, No. 228 Jiangdong M Rd,
Jianye District, Nanjing, 210019
Tel: 86 25 83389999/Fax: 86 25 83387521
Email: ht-rd@htsc.com

Beijing
18F, Building A, No. 28 Fengsheng Hutong, Taipingqiao St,
Xicheng District, Beijing, 100032
Tel: 86 10 63211166/Fax: 86 10 63211275
Email: ht-rd@htsc.com

Shenzhen
10F, South Bosera Fund Building, No. 5999 Yitian Rd,
Futian District, Shenzhen, 518017
Tel: 86 755 82493932/Fax: 86 755 82492062
Email: ht-rd@htsc.com

Shanghai
23F, Building E, Poly Plaza, No. 18 Dongfang Rd,
Pudong District, Shanghai, 200120
Tel: 86 21 28972098/Fax: 86 21 28972068
Email: ht-rd@htsc.com

Huatai Financial Holdings (Hong Kong) Limited
Unit 5808-12, 58/F, The Center, 99 Queens Road Central, Central, HONG KONG
Tel: +852 3658 6000/Fax: +852 2169 0770
Email: research@htsc.com
http://www.htsc.com.hk/

Huatai Securities (USA) Inc.
41st Floor, 10 Hudson Yards, New York, NY 10001, UNITED STATES
Tel: 212-763-8160/Fax: 917-725-9702
Email: Huatai@htsc-us.com
http://www.htsc-us.com