


Company Report: AAC Tech (02018 HK)

公司报告: 瑞声科技 (02018 HK)

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Stuck into Automotive Acoustics Track, Acquisition of Core Assets to Open Up New Growth Driver, Initiate With "Buy"

- **We initiate coverage on AAC Tech ("the Company") with a TP of HK\$25.74 and an investment rating of "Buy".** We forecast EPS to be RMB0.453/ RMB1.104/ RMB1.571 in FY23-FY25, respectively. Considering the valuation level of peer companies, we give 2025 PER of 15.0x.
- **Through the acquisition of Premium Sound Solutions (PSS), the leading international enterprise in the automotive acoustics industry, a new growth driver is highlighted.** Affected by automotive grade standard, the automotive acoustics field has long certification cycles and deep barriers. There have been more new players in the domestic and international automotive electronics markets in recent years, leading to intense competition in the industry. The increasing demand for diversified automotive functions has led to the development of high-end automotive acoustic products, and automotive acoustic products have seen an increase in both volume and price, bringing huge market growth. By acquiring the leading global automotive speaker supplier, the Company has successfully implemented a diversified strategic layout, achieved the industry-leading position, and embarked on a new growth curve.
- **We believe that this acquisition can effectively address the Company's limitations as a consumer electronics company stuck in the automotive acoustics sector; as the Company combines its global leadership in acoustics with PSS's prominent position in the high-end automotive acoustics market, we anticipate that customer expansion and order scale growth will exceed expectations.** The current advantages of domestic suppliers primarily lie in their local support capabilities and well-established supply chains, but they still lag behind global brands in terms of technical expertise and brand influence. With the acquisition of PSS, the Company will leverage its accumulation of over 50 years of technical development and global service architecture, combined with AAC Tech's local influence, cost advantages from self-made raw materials and flexible automated production lines, as well as R&D advantages from industry-university-research collaboration, thus creating greater synergy. Therefore, we believe that after the acquisition of PSS, the depth and breadth of market expansion will exceed expectations.
- **Catalysts:** Advancement of the acquisition progress; penetration into supply chain of more automotive OEMs of automotive acoustics business.
- **Risks:** The acquisition of PSS may not go smoothly; demand in the consumer electronics market may be less than expected; auto industry demand may fall short of expectations.

Rating:
Buy

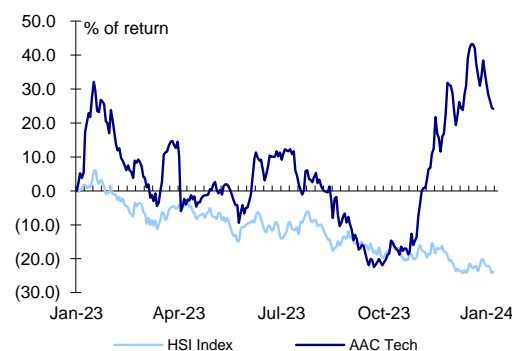
Initial

评级:

买入 (首次覆盖)

6-18m TP 目标价:
HK\$25.74
Share price 股价:
HK\$20.650
Stock performance

股价表现



Change in Share Price	1 M	3 M	1 Y
股价变动	1 个月	3 个月	1 年
Abs. % 绝对变动 %	0.0	53.1	23.5
Rel. % to HS Index 相对恒指变动 %	0.2	60.1	47.3
Avg. Share price(HK\$) 平均股价 (港元)	22.2	18.8	17.5

Source: Bloomberg, Guotai Junan International.

Year End	Turnover	Net Profit	EPS	EPS	PER	BPS	PBR	DPS	Yield	ROE
年结	收入	股东净利	每股净利	每股净利变动	市盈率	每股净资产	市净率	每股股息	股息率	净资产收益率
12/31	(RMB m)	(RMB m)	(RMB)	(Δ %)	(x)	(RMB)	(x)	(RMB)	(%)	(%)
2021A	17,667	1,316	1.091	(12.5)	16.9	18.652	1.0	0.167	0.9	6.1
2022A	20,625	821	0.685	(37.2)	27.9	18.524	1.0	0.000	0.0	3.8
2023F	20,653	541	0.453	(33.9)	41.8	18.968	1.0	0.045	0.2	2.5
2024F	24,523	1,321	1.104	143.7	17.1	19.986	0.9	0.110	0.6	5.8
2025F	28,775	1,879	1.571	42.3	12.0	21.435	0.9	0.157	0.8	7.8
Shares in issue (m)	总股数 (m)		1,198.5		Major shareholder 大股东	Mr. PAN Benjamin Zhengmin 41.5%				
Market cap. (HK\$ m)	市值 (HK\$ m)		24,988.7		Free float (%) 自由流通比率 (%)	58.5				
3 month average vol.	3 个月平均成交股数 ('000)		8,348.5		FY24 Net gearing (%) FY24 净负债/股东资金 (%)	17.6				
52 Weeks high/low (HK\$)	52 周高/低 (HK\$)		24.350 / 12.860		FY24 Est. NAV (HK\$) FY24 每股估值 (港元)	28.5				

Source: the Company, Guotai Junan International.

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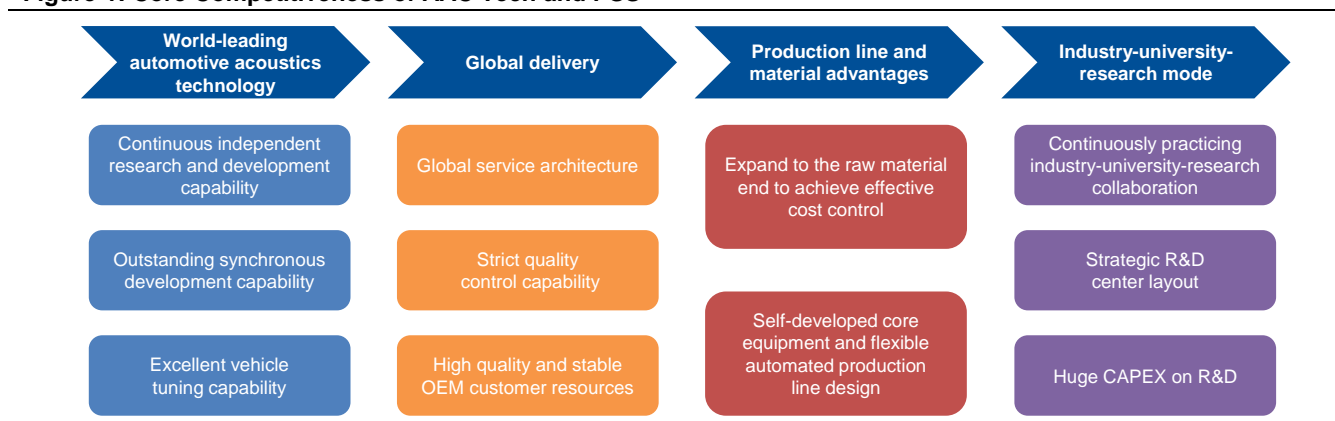
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Core Investment Points

Investment Thesis: Affected by automotive grade standard, the automotive acoustics field has long certification cycles and deep barriers; Also, there have been more new players in the domestic and international automotive electronics markets in recent years, leading to intense competition in the industry. The increasing demand for diversified automotive functions has led to the development of high-end automotive acoustic products, and automotive acoustic products have seen an increase in both volume and price, bringing huge market growth. The acquisition of Premium Sound Solutions (PSS) will not only help the Company leverage PSS's relevant resources in the automotive acoustics market, but will also combine the Company's own strengths in acoustic components and services to vertically integrate with PSS, thereby enhancing the value per vehicle and unlocking significant synergies.

We believe that this acquisition can effectively address the Company's limitations as a consumer electronics company stuck in the automotive acoustics sector; as the Company combine's its global leadership in acoustics with PSS's prominent position in the high-end automotive acoustics market, we anticipate that customer expansion and order scale growth will exceed expectations. While the automotive acoustics industry is perceived to have a lengthy development cycle, the market generally believes that latecomers from the consumer electronics manufacturing sector, such as AAC Tech, will struggle to impact the market share of existing major domestic suppliers. Our point of view is that the current advantages of domestic suppliers primarily lie in their local support capabilities and well-established supply chains, but they still lag behind global brands in terms of technical expertise and brand influence. With the Company's acquisition of PSS, leveraging its over 50 years of technological expertise and international brand recognition, combined with the Company's local influence and supply chain advantages, we expect that the Company will gain larger market share, and the depth and breadth of market expansion will exceed expectations.

Figure-1: Core Competitiveness of AAC Tech and PSS



Source: Guotai Junan International.

Catalysts: Advancement of the acquisition progress and delivery of the PSS assets; penetration into supply chain of more automotive OEMs of automotive acoustics business.

Risks: The acquisition of PSS may not go smoothly; demand in consumer electronics market may be less than expected; auto industry demand may fall short of expectations.

Earnings Forecast and Valuation Analysis

Earnings Forecast

Considering the situation of the industry and the Company, we make assumptions on AAC Tech's earnings as below:

Assumption 1: In terms of acoustics business, due to the weak demand from Android devices in 2023, we expect 2023 revenue yoy decline to be 14.4%; revenue from PSS is expected to be reflected in AAC Tech's financial report from the middle of 2024, while we expect market expansion in automotive acoustics will market expectation, thus we expect revenue yoy growth in 2024/2025 to be 30.7%/ 32.7%.

Assumption 2: In terms of electromagnetic drives and precision mechanics business, as the penetration rate of haptics in Android devices continues to increase, and H customers bring large orders to the Company's structural parts business, we expect 2023-2025 revenue growth will be 13.6%/ 12.7%/ 5.3% yoy; while gross margin will be 19.9%/ 20.9%/ 21.8%.

Assumption 3: In terms of optics business, as the Company continues to strengthen inventory management and increase the proportion of high-end product shipments, while we expect products shipments to recover, we expect the optics business to recover and product mix to improve, thus we expect gross margin to be -10.0%/ 2.5%/ 6.0% in 2023-2025.

Assumption 4: In terms of sensor and semiconductor business, we expect more self-developed chips will be used in the Company's MEMS products, thus we expect gross margin in 2024 and 2025 to improve yoy by 2.5 ppts and 1.0 ppt, respectively.

Table-1: Key AAC Tech Forecasts

	2021A	2022A	2023F	2024F	2025F
Revenue by Business (RMB million)					
Acoustics	8,582	8,848	7,572	9,900	13,137
yoy	13.5%	3.1%	-14.4%	30.7%	32.7%
Electromagnetic drives and precision mechanics	5,639	7,276	8,266	9,317	9,812
yoy	-17.7%	29.0%	13.6%	12.7%	5.3%
Optics	2,389	3,217	3,521	3,883	4,193
yoy	46.2%	34.7%	9.4%	10.3%	8.0%
Sensor and semiconductor	1,013	1,256	1,263	1,389	1,597
yoy	-6.4%	24.0%	0.5%	10.0%	15.0%
Total Revenue	17,667	20,625	20,653	24,800	29,441
Gross profit margin by business					
Acoustics	29.7%	28.1%	26.5%	26.9%	27.2%
Electromagnetic drives and precision mechanics	21.6%	21.3%	19.9%	20.9%	21.8%
Optics	17.2%	-13.0%	-10.0%	5.0%	10.0%
Sensor and semiconductor	15.1%	11.6%	11.5%	14.0%	15.0%
Profitability					
Shareholders' net profit (RMB million)	1,316	821	541	1,321	1,879
EPS (RMB)	1.091	0.681	0.453	1.104	1.571

Source: the Company, Guotai Junan International.

Valuation Analysis

We initiate our coverage on AAC Tech with a target price of HK\$25.74 and an investment rating of "Buy". For our valuation, we consider the PE and EV/EBITDA valuation levels of peer companies, referencing 2025 since the profit from the acquisition of PSS will be fully reflected in ACC Tech's 2025 financial results. For PE consideration, we give a 15.0x 2025 PE ratio, which corresponds to a TP of HK\$25.74; PE ratios in 2023 and 2024 are 52.1x and 21.3x, respectively. We give 8.0x 2023 EV/EBITDA, corresponding to TP of HK\$29.07; EV/EBITDA in 2024 and 2025 is 6.2x and 5.3x, respectively. Considering the two valuation methods and taking a conservative stance, we give a target price of HK\$25.74 and an investment rating of "Buy".

Table-2: Peers Comparison

Company	Ticker	Currency	Price	Market Cap		PER			PBR			ROE (%)	D/Y (%)	EV/EBITDA
				(HKD Mil)	23F	24F	25F	23F	24F	25F	23F	23F	23F	
Aac Technologies Holdings In	02018 HK	HKD	20.65	24,749	33.4	19.1	14.8	1.0	1.0	0.9	4.7	1.0	6.1	
Sunny Optical Tech	02382 HK	HKD	60.95	66,848	42.8	23.8	18.0	2.7	2.4	2.2	10.5	0.8	11.5	
Byd Electronic Intl Co Ltd	00285 HK	HKD	34.50	77,736	18.2	13.9	10.8	2.5	2.2	1.8	16.2	1.2	7.8	
Goertek Inc -A	002241 CH	CNY	18.69	69,706	37.7	21.8	18.1	2.0	1.9	1.7	8.8	1.1	8.7	
Luxshare Precision Industr-A	002475 CH	CNY	31.22	243,764	20.2	15.8	12.9	3.8	3.1	2.6	20.6	0.7	8.7	
Suzhou Sonavox Electronics-A	688533 CH	CNY	34.97	6,101	34.1	22.3	16.0	4.5	3.8	3.1	17.6	1.2	n.a.	
Merry Electronics Co Ltd	2439 TT	TWD	106.00	5,842	17.0	16.1	16.6	1.8	1.7	n.a.	10.3	4.0	9.3	
Largan Precision Co Ltd	3008 TT	TWD	2,525.00	84,677	18.2	17.4	16.0	2.1	1.9	1.8	11.5	2.7	8.0	
Catcher Technology Co Ltd	2474 TT	TWD	197.00	33,677	11.8	16.8	17.5	0.8	0.8	0.8	4.6	5.5	4.8	
Knowles Corp	KN US	USD	16.86	11,899	18.9	14.2	12.2	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Nidec Corp	6594 JP	JPY	5,823.00	187,331	74.5	18.6	17.2	2.5	2.2	2.0	12.6	1.2	11.0	
Global Average					29.7	18.2	15.5	2.4	2.1	1.9	11.7	1.9	8.4	
Global Weighted Average					35.8	17.8	15.1	2.7	2.3	2.0	14.0	1.3	8.9	
Median					20.2	17.4	16.0	2.3	2.0	1.8	11.0	1.2	8.7	

Source: Bloomberg.

Through the Acquisition of Core Automotive Acoustics Asset, A New Growth Curve Emerges

Acquisition of A Leading Enterprise to Complete the Automotive Acoustic Business Layout

We expect that the Company's acquisition of PSS will surpass market expectations in terms of its benefits. PSS is a global-leading manufacturer of automotive speakers, with revenue of EUR450-500 million in FY22 and an average annual production of over 110 million speakers. The acquisition of the target business will bring continued profit growth to the Company in 2024 and 2025. With the automotive industry characterized by deep barriers and lengthy certification cycles, this acquisition will not only enable the Company to access global mainstream automobile manufacturers but also leverage its domestic customer resources to facilitate PSS's expansion in the Chinese market; furthermore, there is strong product complementarity between the two companies. We believe that the Company will leverage its own strengths in conjunction with PSS's advantages to jointly expand the market, while the breadth and depth of expansion will exceed market expectations. Calculated based on the purchase price of the first tranche, the acquisition price is equivalent to 13.8x FY22 PER and 39.5x FY21 PER of PSS.

The transaction structure of the proposed acquisition can effectively incentivize PSS's existing management team while reducing risks during the integration process. Over the years, the Company has consistently enhanced competitiveness in the global high-end market through overseas acquisitions and equity participation in cutting-edge R&D teams. The primary objective of acquiring PSS is to strengthen the Company's position in the automotive industry. To achieve this, the Company has chosen to maintain PSS's existing management and operational autonomy, and to take measures such as expanding the range of end-to-end audio system products it offers to consolidate its leading position in the high-end market. The acquisition will be carried out in two tranches: 80% will be acquired in the first tranche, and the actual price of the second tranche will be linked to PSS's EBITDA, and it is expected to be completed in 2025. We expect this transaction structure can effectively mitigate due diligence risks and align the personal interests of the PSS management team with their performance, stimulate their enthusiasm, and ensure retention of the existing core management team.

Four Layers of Core Competitiveness to Form a Solid Moat

1) Deeply cultivate the acoustic industry and master a number of core technologies.

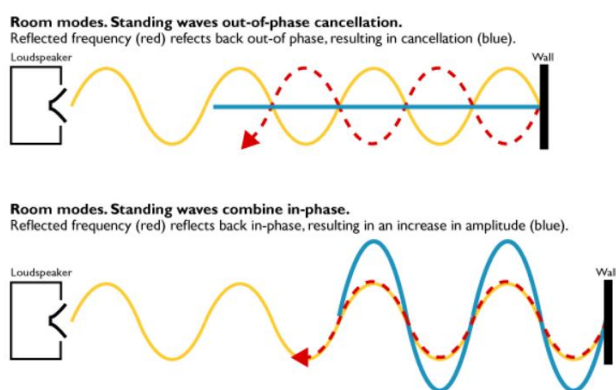
Continuous independent R&D capabilities. PSS, with over 50 years of experience in the acoustic industry, has invested in R&D facilities across multiple locations, including Belgium, the US, China, and Malaysia. They have obtained numerous patents

in areas such as acoustic product simulation and design, vehicle sound design, and AVAS (Acoustic Vehicle Alerting System). This demonstrates their commitment to developing core technologies independently.

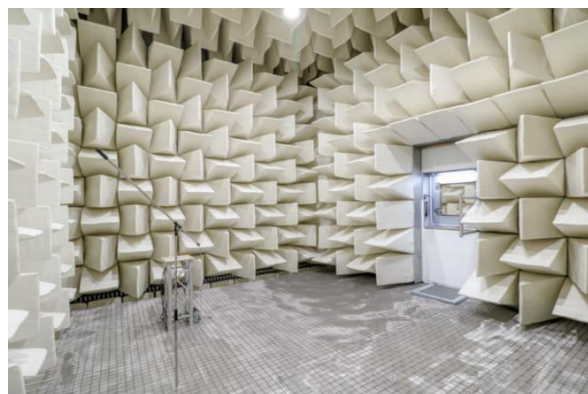
Outstanding synchronous development capabilities. The synchronous development model requires suppliers to integrate into the vehicle supplying system and respond quickly to its development needs. PSS has established a "software + hardware" two-wheel drive synchronous development model. It has internationally leading synchronous development capabilities and can quickly respond to development needs. In the future, with the complexity and diversification of vehicle functions, the vehicle OTA system will also face safety and reliability challenges while ensuring the maximum driving experience, which means that the matching of hardware and software will become the difference between participants in the automotive electronics market. The commanding heights of global competition place extremely high demands on suppliers' synchronous development capabilities.

Excellent vehicle tuning capabilities. Due to the limited space inside the car, the small space is prone to adverse factors such as standing wave time lag and resonance; tuning technology needs to be used to eliminate standing waves, improve phase delay and sound field balance, and ultimately obtain better sound effects. PSS's original box-type acoustic system has designed a 3D solution for the subwoofer, inner door panels and headrests. Through a relatively small box-type system, some speakers with relatively large hosts are reasonably placed in the space, and the coordination of the entire vehicle audio system is achieved by combining software and hardware. In addition, AAC has an industry-certified five-star "Golden Ear" tuning engineer team that can accurately evaluate the sound field and overcome auditory adaptation during the tuning process to present high-quality sound effects.

Figure-2: Standing Waves are Easily Generated in Small Spaces **Figure-3: PSS's Laboratory**



Source: Planet Of Tunes, Guotai Junan International.



Source: PSS, Guotai Junan International.

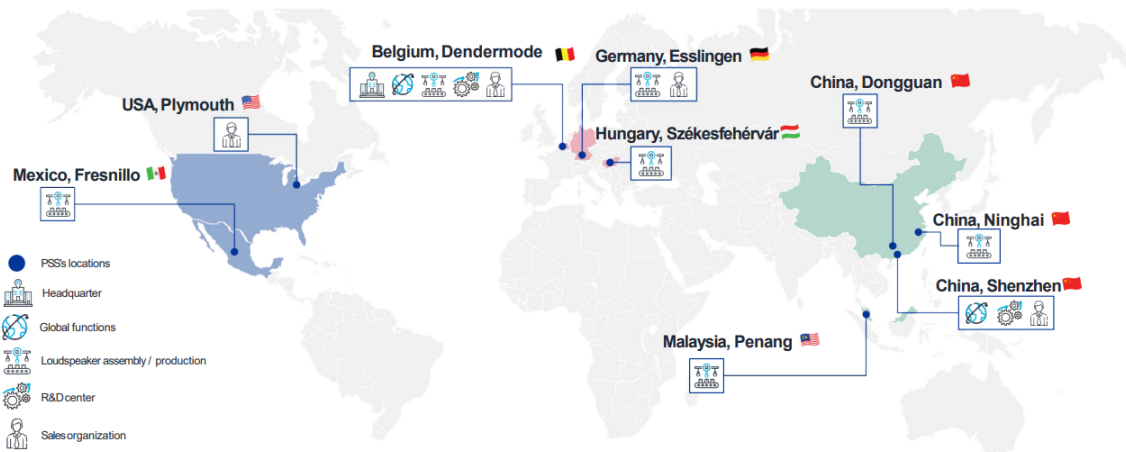
2) Obvious global delivery advantages: domestic and overseas layout facilitates continuous enhancement of competitiveness.

Global service architecture. PSS has strategically established production bases in 6 countries including China, Malaysia, Germany, Belgium, Hungary, and Mexico, and has sales teams in China, the US, Germany, and Belgium. This comprehensive global layout enables it to well meet the simultaneous product development and local supply demand of OEMs, providing significant competitive advantages.

Strict quality control capabilities. With a production volume exceeding 110 million speakers in 2022, PSS places great emphasis on quality control. It possess advanced automated testing platforms such as anechoic chambers, listening rooms and routine laboratories; and conducts meticulous precision testing and performance testing in the product development to production process. AAC has obtained CNAS certification in 2020 and has a good brand reputation in terms of quality control.

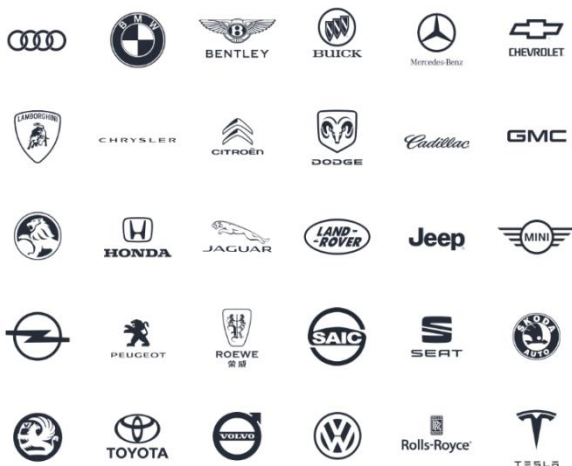
High-quality and stable OEM customer resources. PSS has had decades of cooperative relationships with traditional European and American car companies, occupies a leading share among mainstream European and American automotive manufacturers, and has established close cooperative relationships with major North American EV customers.

Figure-4: Global Operational Footprint of PSS



Source: PSS, Guotai Junan International.

Figure-5: Customers of PSS



Source: PSS, Guotai Junan International.

Figure-6: PSS's Reliability Test



Source: PSS, Guotai Junan International.

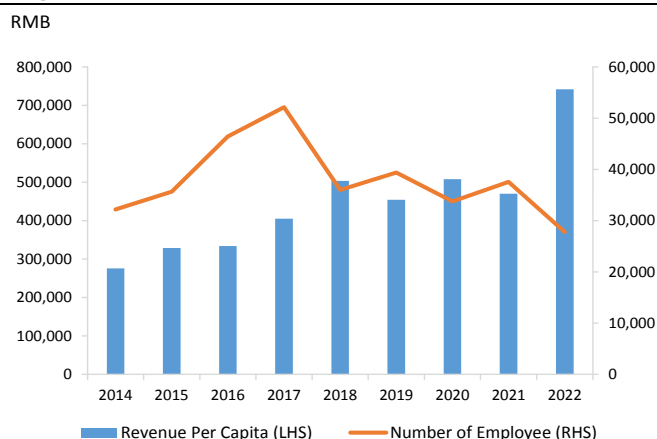
3) Material technology and automated flexible production lines strengthen cost advantages.

Expand to the raw material side to achieve effective cost control. One notable example is the magnetic materials project in Ma'anshan, which utilizes the pressless molding (NPLP) technology exclusively authorized by Dr. Masato Sagawa, who has been nominated for the Nobel Prize many times. This industrialization of the pressless molding technology has achieved a magnetic material production system with the strongest magnetic performance, highest output value and widest application range in the world, and can further enhance the Company's ability to vertically integrate the industry chain. In the future, AAC can achieve stable material supply and significant cost reduction while improving product quality.

Self-developed core equipment and designed flexible automated production lines. As early as 2017, AAC has gradually realized self-research and mass production of some core equipment, and is committed to the independent control over the core manufacturing processes. The Company has also independently developed an information simulation system that can virtually integrate people, machines, methods, materials and other elements on the production line in a digital space to design the best production line combination; the system can utilize big data and cloud computing technology for self-learning and continuous updates, and connect with ERP systems, front-end control systems, etc. to continuously optimize production efficiency. In addition, the Company introduced the Cisco Digital Network Architecture (DNA) solution to enhance its enterprise network architecture, significantly improving information processing speed. Through self-research and combination of core equipment and simulation systems, the Company has designed an efficient and precise flexible manufacturing system. In addition, AAC also reached a cooperation with Le-AutomatiX in 2H23, leveraging their over ten years of underlying technology research and development as well as global application experience in high-speed magnetic levitation conveying systems to make the automated production line more flexible and efficient. Through the application of automated production lines, AAC achieved a per capita output value of

RMB741,963 in 2022 (+57.9% yoy), and RMB355,000 in 1H23 (+31.0% yoy). We predict that as the Company continues to upgrade its automation level, the per capita output value will exceed RMB1 million in the future.

Figure-7: AAC's Revenue Per Capita



Source: the Company, Guotai Junan International.

Figure-8: AAC's Production Line



Source: Shenzhen Economic Daily, Guotai Junan International.

4) Deeply implement the industry-university-research (IUR) collaboration model and drive market demand with technological advantages.

Continue to practice IUR collaboration and commit to transforming university research results. Faced with the problems as limited core technologies, high dependence on foreign countries, and small market size for domestic acoustic industry, AAC has launched IUR collaboration with top domestic universities such as Nanjing University since 1997, and has established R&D centers at Nanjing University and Huazhong University of Science and Technology. Furthermore, AAC actively expands its technological boundaries through international cooperation, partnering with universities in the US, Singapore, etc. to research MEMS wafer technology, and cooperating with the Netherlands, Finland, etc. to research simulation technology, smart touch technology, etc.

Strategic R&D center layout and in-depth implementation of the IUR model. The acoustic industry has high barriers to entry, and most of the core technologies in the upstream of the industrial chain are in the hands of foreign R&D institutions and companies. In response, AAC has established three levels of R&D centers around the world. Among them, the United States focuses on market dynamics and company development strategies, Nanjing University emphasizes advanced theoretical research and technology transformation, and Shenzhen focuses on optimizing production processes and efficiency. This comprehensive layout enables AAC to establish a closed loop from strategy formulation and technology research and development to product manufacturing.

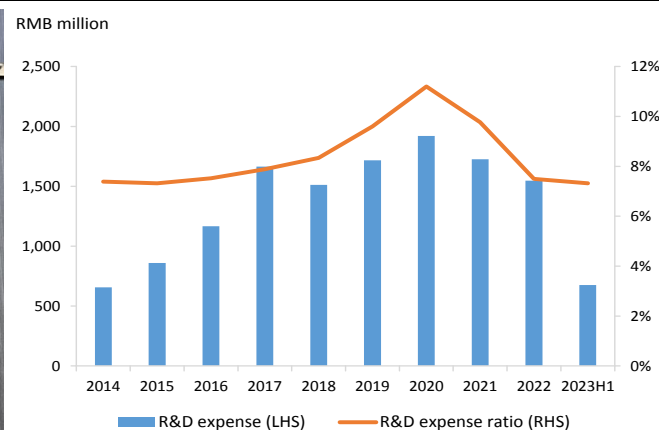
Continuous R&D investment. AAC has invested a total of more than US\$200 million in acquiring global innovative technology companies and establishing new technology R&D bases, and invested more than RMB1.5 billion on R&D in 2022 (accounting for 7.5% of revenue), with R&D personnel accounting for 24.2% of the total employees, and the Company operates 18 R&D centers. As of 1H23, AAC's global patent applications have exceeded 14,000, ranking first in China in terms of patent quality in the electronics industry according to LexisNexis. PSS has more than 300 engineers, accounting for 8.6% of total employees, and has 4 R&D centers, which further strengthens the Company's R&D advantages.

Figure-9: Joint R&D Center of Nanjing University and AAC Tech



Source: Guotai Junan International.

Figure-10: AAC's R&D Expenses



Source: the Company, Guotai Junan International.

Upgrading of Automotive Acoustics; Huge Growth Potential in Value Per Vehicle

Value per vehicle has increased from RMB100-200 to more than RMB1,500, indicating substantial potential for further growth. With the acoustic upgrade of vehicles, the automotive acoustic system has been increased from 4-8 speakers to 12-24 speakers, while subwoofers, independent power amplifiers and AVAS are also used. The value per vehicle is expected to increase from RMB100-200 to RMB 1,400- 1,700.

Table-3: Automotive acoustics value per vehicle forecasts

Product	ASP	Quantity	Value per vehicle
Speaker	25	12	300
subwoofers	200	1	200
Power amplifier	800	1	800
AVAS	50	2	100
12-24 speakers+ subwoofer+ PM+ AVAS			1400-1700
4-8 speakers			100-200

Source: Autohome, Guotai Junan International.

The development of automotive intelligence is driving the simultaneous increase in quantity and price of automotive speakers. In-car speakers are electro-acoustic transducers that convert electrical energy into sound energy. In recent years, consumers' attention to the experience of automotive entertainment functions has led new energy vehicle companies to increase the number and type of speaker configurations for individual vehicles. In 2022, the average number of speakers per vehicle in China was 4.54, but some flagship models from emerging automotive companies have already reached 15 or more speakers, for example, Li Auto L9 is equipped with 21 speakers. In addition, the category of speakers is constantly expanding, including not only speakers of different frequencies but also subwoofers, door-mounted speaker modules, push-push speakers, etc. Furthermore, the introduction of simulation analysis technology and digital signal processing technology has placed higher demands on the accuracy, efficiency, stability, and automation of hardware, leading to an increase in the price of automotive audio speakers.

Table-4: The function of automotive speaker technology

Technology	Function
Simulation analysis technology	Through the rational layout of the automotive speaker and with digital means, create a better sound environment in the limited space of the car.
Digital signal processing technology	By simulating the working process of the loudspeaker, the main performance indicators of the loudspeaker are predicted and the design of the loudspeaker is improved

Source: Suzhou SONAVOX Electronics, Guotai Junan International.

Table-5: The number of speakers of each generation of Mercedes-Benz C-class models

year	2013-2014	2015-2018	2019-2020	2021-2023
Number of speakers	6-8	8-9	7-11	13-17

Source: Autohome, Guotai Junan International.

Increasing number of automotive speakers and the upgrading of technology have gradually improved the penetration rate of power amplifiers. Power amplifiers are audio power amplifiers in automotive sound systems. From the product perspective, hardware systems with less than four speakers did not need to be configured with separate amplifiers. However, with the increasing number of automotive speakers, the demand for separate amplifiers has grown. Moreover, the mainstream trend of equipping central control screens has also made it an important trend to separate the power amplification function of automotive audio systems from the host. This means that the past practice of integrating simple audio processing functions into the host is no longer applicable, leading to an expanding demand for power amplifiers in the automotive acoustics market. In terms of technical performance, digital amplifiers have higher overall efficiency compared to traditional analog amplifiers. They can also incorporate DSP to convert stereo signals into multi-channel surround sound signals, thus improving the output quality of music. Additionally, digital amplifiers can adjust the overall sound field, phase, balance, and sound image of the entire vehicle in conjunction with a diverse software platform, providing them with a broader market space due to their diverse application scenarios.

Table-6: Comparison of analog power amplifier and digital power amplifier

	Analog power amplifier	Digital power amplifier
Overload capacity	Harmonic distortion is easy to occur after overload, the degree of distortion increases exponentially, and the sound quality deteriorates rapidly	The degree of distortion will only increase rapidly when the amplifier tube is damaged
Crossover distortion	Analog Class B power amplifier at zero - crossing distortion.	No cross - over distortion.
Matching of the power amplifier and speakers	The working state will be affected by the size of the speaker load.	No matching problem with the speaker.
Transient inter modulation distortion	All use negative feedback circuit, in order to suppress parasitic oscillation, use phase compensation circuit, will produce transient inter modulation distortion.	No analog amplification feedback circuit is used, and no transient inter modulation distortion is generated.
Phase difference	Generally exist	Completely absent

Source: Autohome, Guotai Junan International.

Table-7: Comparison of independent power amplifier and integrated power amplifier

	Independent power amplifier	Integrated power amplifier
Advantages	Large output power, good sound effect, can meet individual needs	Small volume, simple peripheral circuit, complete protection function, good low frequency performance
Disadvantages	Large volume	Limited output power due to limited size and process

Source: Autohome, Guotai Junan International.

With the advancement of mandatory regulations in new energy vehicles, the AVAS has further opened up market space.

The AVAS (Acoustic Vehicle Alert System) is a product that has emerged under the trend of vehicle electrification. Due to the low external noise of new energy vehicles during low-speed driving in pure electric mode, pedestrians may have difficulty perceiving the approaching vehicles, which can lead to the occurrence of traffic accidents. In response to this, many countries have issued relevant policies that require new energy vehicles with pure electric driving modes to be equipped with devices capable of emitting warning sounds at low speeds. Structurally, AVAS mainly consists of speakers and control modules, and it can be divided into two types: separate and integrated. Compared to the separate type, the integrated type has higher technological content and product added value. It can emit analog warning sounds through built-in algorithms to achieve different sound effects, thereby avoiding the phenomenon of sound homogeneity during dynamic driving of new energy vehicles and better ensuring pedestrian safety. In addition, the unit price of integrated AVAS is 66.67%-400% higher than that of separated AVAS.

Table-8: AVAS related policies in some countries and regions

Time	Country or region	Policy content
2018.01	China	Pure electric vehicles and plug-in hybrid electric vehicles should be able to give appropriate warning sounds to people outside the vehicle when the vehicle starts and the speed is less than 20km/h.
2018.03	Japan	Hybrid vehicles and electric vehicles produced after March 2018 must be equipped with vehicle approach notification devices to ensure pedestrian safety.
2019.07	European Union	All new low-emission and electric vehicles will have to be fitted with AVAS by 2021, which emit noise to provide early warning when speeds fall below 19km/h, and electric vehicles already on the road will need to be modified.
2019.09	United States	All electric vehicles on the market are required to automatically emit noise to alert pedestrians when they go below 18.6 miles per hour.

Source: Government official website, Guotai Junan International.

Table-9: Comparison of integrated and separated AVAS

	Integrated AVAS	Separated AVAS
Advantages	Small footprint, flexible structure, easy to install	Low unit price, easy maintenance
Disadvantages	High unit price	No separate control module, single function

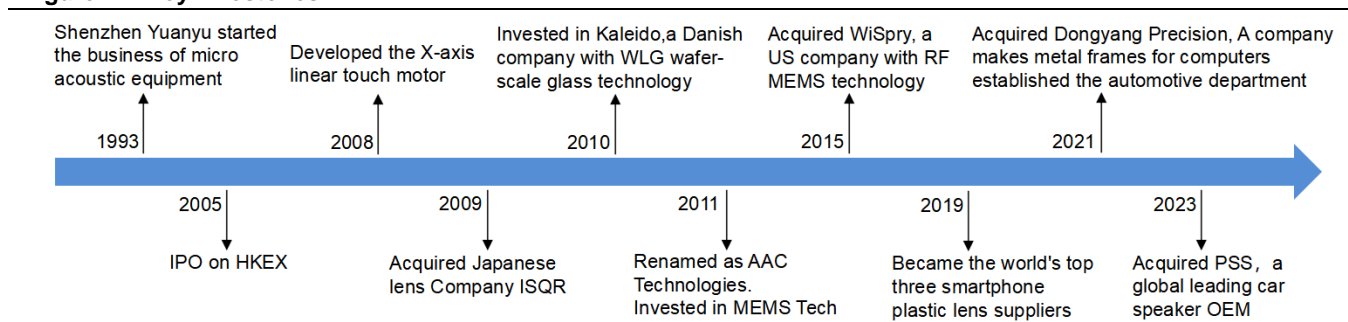
Source: Mando Hella Electronics, Guotai Junan International.

AAC Tech: Leading Provider of Sensory Experience Solutions

With the Goal of Building the Future of Interactive Sensory Technologies, Continues to Expand Business Boundaries

AAC Tech is a global leading supplier of micro acoustic devices, with additional business in comprehensive solutions including haptics motors, precision mechanics, optical devices. The Company was founded in 1993, initially specialized in acoustic business, and listed on HKEX in 2005. Through the establishment of self-built production lines, investment and acquisitions, the Company’s business gradually expanded into areas such as haptics motors, optics, automotive acoustics, as well as precision structural components, etc.; downstream applications involve consumer electronics, automotive, AR/VR, etc.




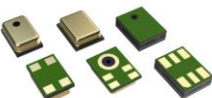

Figure-11: Key Milestones



Source: the Company, Guotai Junan International.

The Company has a comprehensive product line in consumer electronics components field and has maintained a leading position in the industry. In the speaker field, the Company is among the top tier along with GoerTek and Luxshare, providing acoustic solutions for over 90% of global flagship smartphones. In the optical field, the Company is one of the top three lens suppliers globally. In the haptic motor field, the Company holds the top market share among major North American customers and has an occupancy rate of nearly 80% in the linear motor market. In the metal frame field, the Company has achieved a leading market share in Huawei's flagship and high-end devices.

Table-10: AAC Tech’s product line in consumer electronics components field




Product	Diagram	Advantages	Application scenarios
SLS speaker		<ul style="list-style-type: none"> • Vibration, magnetic circuit system split structure to improve performance • New magnetic circuit structure, ultra-narrow folding sound film and other technologies improve performance • All-metal 3D Bass package adds equivalent rear cavity space 	Smartphones, laptops, tablets, AR/VR, smart glasses, automobile, etc.
Haptic Motor		<ul style="list-style-type: none"> • The RichTap® solution can achieve ultra-fast response times of as low as 1-5ms for startup and shutdown. • Wider vibration frequency range and larger design space can restore a variety of effects 	Smartphones, tablets, laptops, IOT equipment, automobile, etc.
WLG glass plastic hybrid lens		<ul style="list-style-type: none"> • A larger aperture increases light intake by 15%-20% • Glass-to-plastic hybrid lens has higher analytical power compared with plastic lens • The 1G6P glass-to-plastic hybrid lens is 5mm thinner than the traditional 7P plastic lens 	Smartphones, tablets, automobile, AR/VR, etc.
MEMS microphone		<ul style="list-style-type: none"> • Small size, low THD, flat frequency response, low cutoff frequency and high sensitivity and phase consistency between monomers • SNR coverage from 63 dB to 70 dB, Operating temperature range -40° C ~ 105° C, meeting various application scenarios 	Smartphones, tablets, laptops, industrial, automobile, etc
Metal middle frame		<ul style="list-style-type: none"> • Smart phone structural parts battery compartment plane control <0.18mm, aluminum-plastic binding force >1500N • The intelligent wearable structure has strong metal plastic bonding force • The structural component of the tablet has a single-process yield of 100%. 	Smartphones, smart wearable devices, tablets, laptops

Source: the Company, Guotai Junan International.

The Company established its automotive division in 2021 and announced to acquire PSS in August 2023. PSS is a large-scale leading OEM automotive speaker manufacturer, occupying the first place in the global market share of automotive speaker industry. Its customers include Tesla, as well as high-end European automotive brands such as Audi, BMW, Bentley, and Mercedes-Benz. In addition, its factories are located across Asia, Europe, and North America, with a comprehensive global production layout, making it a leading hardware supplier for global audio brands.

Table-11: Part of product lines of PSS

product	Diagram	Features
Tweeters		<ul style="list-style-type: none"> • Can produce strong and clear sounds in higher frequency ranges. • Primarily used to reproduce high-frequency sounds.
Full range speakers		<ul style="list-style-type: none"> • Can cover a wide bandwidth and extending into high frequencies. • Convenient and can respond to the full frequency range.
Micro speakers		<ul style="list-style-type: none"> • Can reproduce clean mid-range and high frequencies as well as impressive bass tones. • Typically used in low-power application scenarios, low power but high efficiency.
E-call speakers		<ul style="list-style-type: none"> • Can automatically dial the emergency services in case of a serious road accident. • Typically installed inside a vehicle, low-volume but high-sensitivity and

Racetrack Speakers		<ul style="list-style-type: none"> • Can provide a larger diaphragm area in the lateral dimension than traditional circular speakers • Commonly applied in Soundbars and bases.
Woofers		<ul style="list-style-type: none"> • Can effectively extend low-frequency response and provide a richer and fuller bass effect. • Specifically designed and optimized for the reproduction of the low frequencies.
Subwoofers		<ul style="list-style-type: none"> • Can bring a deeper, immersive, and realistic bass effect to audio systems. • Primarily used to reproduce extremely low-frequency sounds.

Source: the Company, Guotai Junan International.

Craftsman Spirit, People-Oriented with Equity Incentives

People-oriented equity incentive plans to enhance employee motivation. As a technology manufacturing company, AAC has established a competitive strategy of leading technology since its establishment. Along the path of innovation, they uphold the spirit of craftsmanship and give employees the motivation to actively participate in work. The Company has conducted two equity incentives in the past three years, namely 4.19 million shares and 6.04 million shares, totalling HK\$330.57 million, mainly covering core employees and business backbones. The Company also released a new equity incentive plan this year, with the number of planned shares not exceeding 45 million shares (accounting for 3.75% of total outstanding shares). In addition, the management has full confidence in the Company and spares no effort to reward shareholders. In the past two years, the Company has repurchased a total of 10 million shares, totalling HK\$153.31 million.

The Company benchmarks against leading international companies and has transformed into the global leading player in the field of micro-acoustics in ten years. As early as the early 1990s, the Company discovered its shortcomings as a traditional private enterprise in its cooperation with overseas enterprises, and worked hard to break through its limitations and build a world-class manufacturing enterprise. The Company first introduced managers with rich international experience to join the board of directors, and then introduced venture capital such as Chengwei Ventures and GGV Capital to completely transform the Company's management structure. Meanwhile, the Company directly enhances its competitiveness in the international high-end market through overseas acquisitions and equity participation in high-tech R&D teams. During this period, the Company took a stake in Stanford's acoustic research, acquired optical R&D teams in Denmark and Japan, as well as South Korea's electronic ceramics, etc. In addition, since its listing, the Company has introduced a large number of scientific research and development as well as business management talents from overseas over the years, and has now become a mature multinational company, and their own world-class innovative talents and ability to communicate with the international scientific and technological community without language and cultural barriers have become valuable intangible assets for the Company's development.

Table-12: Peers Comparison

Company	Ticker	Currency	Price	Market Cap		PER			PBR			ROE (%)	D/Y (%)	EV/EBITDA
				(HKD Mil)	23F	24F	25F	23F	24F	25F	23F	23F	23F	
HK Listed Companies														
Aac Technologies Holdings In	02018 HK	HKD	20.650	24,749	33.4	19.1	14.8	1.0	1.0	0.9	4.7	1.0	6.1	
Sunny Optical Tech	02382 HK	HKD	60.950	66,848	42.8	23.8	18.0	2.7	2.4	2.2	10.5	0.8	11.5	
Byd Electronic Intl Co Ltd	00285 HK	HKD	34.500	77,736	18.2	13.9	10.8	2.5	2.2	1.8	16.2	1.2	7.8	
Cowell E Holdings Inc	01415 HK	HKD	20.650	17,615	33.4	20.0	12.2	5.2	4.2	3.6	22.9	0.9	12.6	
Truly International Holdings	00732 HK	HKD	0.710	2,244	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Fit Hon Teng Ltd	06088 HK	HKD	1.030	7,509	6.6	7.3	5.3	0.4	0.4	n.a.	6.5	0.0	n.a.	
Q Technology Group Co Ltd	01478 HK	HKD	3.700	4,383	27.2	10.7	7.5	0.8	0.8	0.7	7.1	0.5	4.3	
Simple Average					26.9	15.8	11.4	2.1	1.8	1.9	11.3	0.7	8.5	
Weighted Average					29.5	18.1	13.5	2.5	2.2	2.0	12.9	1.0	9.2	
Mainland China Listed Companies														
Goertek Inc -A	002241 CH	CNY	18.690	69,706	37.7	21.8	18.1	2.0	1.9	1.7	8.8	1.1	8.7	
Luxshare Precision Industr-A	002475 CH	CNY	31.220	243,764	20.2	15.8	12.9	3.8	3.1	2.6	20.6	0.7	8.7	
Suzhou Sonavox Electronics-A	688533 CH	CNY	34.970	6,101	34.1	22.3	16.0	4.5	3.8	3.1	17.6	1.2	n.a.	
Shenzhen Sunway Communicat-A	300136 CH	CNY	20.440	21,565	25.1	19.3	15.1	2.7	2.4	2.1	12.2	0.4	15.0	
Shenzhen Everwin Precision-A	300115 CH	CNY	11.080	14,539	51.1	18.6	13.8	2.3	2.1	1.8	9.6	0.8	n.a.	
Lens Technology Co Ltd-A	300433 CH	CNY	11.940	64,878	19.3	14.7	12.5	1.3	1.2	1.1	8.4	2.1	7.3	
Ofilm Group Co Ltd-A	002456 CH	CNY	7.540	26,784	n.a.	37.1	25.0	8.5	7.9	7.4	9.7	0.0	19.2	
Jinlong Machinery & Electr-A	300032 CH	CNY	5.480	4,799	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Simple Average					31.2	21.4	16.2	3.6	3.2	2.8	12.4	0.9	11.8	
Weighted Average					24.5	18.2	14.5	3.4	2.9	2.5	15.5	0.9	9.5	
Taiwan Listed Companies														
Primax Electronics Ltd	4915 TT	TWD	65.600	7,631	11.5	10.5	9.3	1.7	1.6	1.5	15.7	6.1	3.6	
Merry Electronics Co Ltd	2439 TT	TWD	106.000	5,842	17.0	16.1	16.6	1.8	1.7	n.a.	10.3	4.0	9.3	
Largan Precision Co Ltd	3008 TT	TWD	2,525.000	84,677	18.2	17.4	16.0	2.1	1.9	1.8	11.5	2.7	8.0	
Genius Electronic Optical Co	3406 TT	TWD	393.000	11,133	14.9	14.7	13.8	2.1	1.9	1.7	13.6	2.5	5.6	
Catcher Technology Co Ltd	2474 TT	TWD	197.000	33,677	11.8	16.8	17.5	0.8	0.8	0.8	4.6	5.5	4.8	
Radiant Opto-Electronics Cor	6176 TT	TWD	137.000	16,008	11.2	11.8	11.3	1.8	1.7	1.8	14.6	3.8	4.9	
Simple Average					14.1	14.6	14.1	1.7	1.6	1.5	11.7	4.1	6.0	
Weighted Average					15.6	16.2	15.4	1.7	1.6	1.6	10.6	3.6	6.6	
US & JP Listed Companies														
Knowles Corp	KN US	USD	16.860	11,899	18.9	14.2	12.2	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Nidec Corp	6594 JP	JPY	5,823.000	187,331	74.5	18.6	17.2	2.5	2.2	2.0	12.6	1.2	11.0	
Foster Electric Co Ltd	6794 JP	JPY	1,072.000	1,446	28.0	11.1	9.4	0.5	0.5	0.4	4.1	2.3	n.a.	
Simple Average					40.5	14.6	12.9	1.5	1.3	1.2	8.4	1.8	11.0	
Weighted Average					70.8	18.2	16.8	2.5	2.2	2.0	12.5	1.2	11.0	
Overall Average					28.2	16.6	13.7	2.2	2.0	1.9	10.9	1.9	9.3	
Overall Weighted Average					35.1	17.7	15.1	2.5	2.2	2.0	12.9	1.7	9.1	

Source: Bloomberg.

Financial Statements and Ratios

Income Statement						Balance Sheet					
Year end 31 Dec (RMB m)	2021A	2022A	2023F	2024F	2025F	Year end 31 Dec (RMB m)	2021A	2022A	2023F	2024F	2025F
Dynamic components revenue	8,582	8,848	7,572	9,900	13,137	PP&E	19,987	19,302	18,431	18,105	16,955
Electromagnetic drives and precision components revenue	5,639	7,276	8,266	9,317	9,812	Right-of-use assets	2,034	1,959	2,037	2,119	2,204
MEMS components revenue	2,389	3,217	3,521	3,883	4,193	Deposits made for acquisition of PPE	317	232	244	256	268
Others products revenue	1,013	1,256	1,263	1,389	1,597	Intangible assets	384	564	678	748	776
Total Revenue	17,667	20,625	20,653	24,523	28,775	Others	1,345	1,171	1,204	3,484	3,521
Cost of goods sold	(13,302)	(16,850)	(17,199)	(19,517)	(22,397)	Total Non-current Assets	24,067	23,227	22,594	24,712	23,724
Gross profit	4,365	3,775	3,453	5,006	6,378	Inventories	5,695	4,401	4,407	5,233	6,141
Other income & gains	345	525	578	613	633	Trade and other receivables	6,013	5,531	5,539	6,576	7,717
Distribution & selling expenses	(333)	(448)	(475)	(539)	(633)	Cash & Cash Equivalents	6,051	6,814	6,276	4,262	5,898
Administrative expenses	(824)	(1,036)	(1,037)	(1,177)	(1,381)	Others	195	370	30	32	33
R&D expenses	(1,726)	(1,546)	(1,548)	(1,839)	(2,157)	Total Current Assets	17,955	17,116	16,252	16,103	19,788
Others	0	(7)	(0)	(0)	(0)	Total Assets	42,022	40,343	38,846	40,815	43,512
Operating Profit	1,828	1,264	971	2,064	2,839	Trade and other payables	6,148	4,959	5,062	5,744	6,591
Finance costs	(415)	(403)	(394)	(387)	(383)	Short term loans	2,902	1,833	1,649	1,484	1,336
Profit Before Tax	1,413	861	578	1,677	2,457	Others	618	2,263	477	686	869
Income Tax	(120)	(231)	(144)	(419)	(614)	Total Current Liabilities	9,668	9,055	7,188	7,914	8,796
Profit After Tax	1,293	629	433	1,258	1,843	Long term loans	330	1,727	1,814	1,904	1,999
Non-controlling Interest	23	192	108	63	37	Unsecured notes	6,573	6,088	5,783	5,494	5,220
Shareholders' Profit / Loss	1,316	821	541	1,321	1,879	Others	2,949	1,278	1,366	1,589	1,850
Basic EPS	1.091	0.685	0.453	1.104	1.571	Total Non-current Liabilities	9,852	9,093	8,963	8,988	9,069
						Total Liabilities	19,520	18,148	16,151	16,902	17,865
						Share capital	98	98	98	98	98
						Reserves	21,713	21,559	22,046	23,234	24,926
						Total Shareholders' Equity	21,811	21,656	22,144	23,332	25,023
						Minority Interest	691	539	552	581	623
						Total Equity	22,502	22,196	22,695	23,913	25,647
Cash Flow Statement						Financial Ratios					
Year end 31 Dec (RMB m)	2021A	2022A	2023F	2024F	2025F		2021A	2022A	2023F	2024F	2025F
Profit before tax	1,413	861	578	1,677	2,457	Gross profit margin (%)	24.7	18.3	16.7	20.4	22.2
Interest income	(49)	(54)	(50)	(34)	(47)	Net profit margin (%)	7.5	4.0	2.6	5.4	6.5
Interest expenses	415	403	394	387	383	ROA (%)	3.3	2.0	1.4	3.3	4.5
D&A	2,702	2,987	3,016	3,046	3,211	ROE (%)	6.1	3.8	2.5	5.8	7.8
Others	54	59	(1,894)	(3,005)	(154)	Receivable days	115.6	102.1	97.8	90.2	90.7
Changes in working capital	(2,144)	420	87	(1,184)	(1,202)	Inventory days	132.9	109.4	93.5	90.1	92.7
Taxes paid	(217)	(304)	(144)	(419)	(614)	Payable days	117.3	98.3	88.5	80.4	78.2
Cash from Operating Activities	2,176	4,372	1,986	468	4,033	Cash conversion cycle	131.3	113.2	102.7	99.9	105.1
CAPEX	(3,342)	(1,758)	(1,851)	(1,758)	(1,670)	Current ratio (x)	1.9	1.9	2.3	2.0	2.2
Others	(903)	(591)	(128)	(131)	(103)	Quick ratio (x)	1.3	1.4	1.6	1.4	1.6
Cash from Investing Activities	(4,245)	(2,349)	(1,979)	(1,889)	(1,774)	Debt to equity ratio (x)	0.5	0.5	0.5	0.4	0.4
Bank loan change	(2,653)	222	(97)	(74)	(53)	Net gearing (%)	20.4	16.7	17.6	24.6	16.0
Dividend paid	(403)	0	(54)	(132)	(188)						
Others	3,689	(1,661)	(394)	(387)	(383)						
Cash from Financing Activities	633	(1,439)	(545)	(593)	(624)						
Net Changes in Cash	(1,437)	584	(537)	(2,014)	1,636						
Cash at Beg of Year	7,540	6,051	6,814	6,276	4,262						
FX change	(52)	178	0	0	0						
Cash at End of Year	6,051	6,814	6,276	4,262	5,898						

Source: the Company, Guotai Junan International.

Company Rating Definition

The Benchmark: Hong Kong Hang Seng Index

Time Horizon: 6 to 18 months

Rating		Definition
Buy	买入	Relative Performance > 15%; or the fundamental outlook of the company or sector is favorable.
Accumulate	收集	Relative Performance is 5% to 15%; or the fundamental outlook of the company or sector is favorable.
Neutral	中性	Relative Performance is -5% to 5%; or the fundamental outlook of the company or sector is neutral.
Reduce	减持	Relative Performance is -5% to -15%; or the fundamental outlook of the company or sector is unfavorable.
Sell	卖出	Relative Performance < -15%; or the fundamental outlook of the company or sector is unfavorable.

Sector Rating Definition

The Benchmark: Hong Kong Hang Seng Index

Time Horizon: 6 to 18 months

Rating		Definition
Outperform	跑赢大市	Relative Performance > 5%; or the fundamental outlook of the sector is favorable.
Neutral	中性	Relative Performance is -5% to 5%; or the fundamental outlook of the sector is neutral.
Underperform	跑输大市	Relative Performance < -5%; Or the fundamental outlook of the sector is unfavorable.

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