

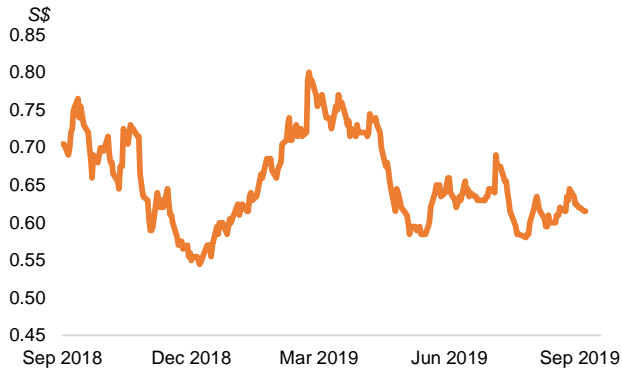
UMS Holdings Limited

Date: 25 September 2019

Non-Rated

UMS Holdings (558.SI)

Price: S\$0.615 (as at 24 September 2019)



Share price	1M	3M	6M	1Y
UMS Holdings Limited	0.0%	-2.4%	-20.1%	-10.9%
Catalist Index	-4.2%	-8.0%	-10.2%	-28.3%

Market capitalisation	S\$329.9 million
Current price	S\$0.615
Shares outstanding	536.4 million
Free Float	79.23%
Substantial shareholders	Andy Luong 20.67%
Recommendation of other brokers	1 Hold 1 Fully Valued

Source: Annual Report, SGX StockFacts, Bloomberg, SAC Advisors

Analyst

Chow Zheng Jie +65 6232 3239
chowzj@saccapital.com.sg

Analyst

Terence Chua +65 6232 3236
tchua@saccapital.com.sg

High precision semiconductor specialist

UMS Holdings Limited (“UMS”, “Company”, or the “Group”) is an **equipment manufacturer and engineering services provider for Original Equipment Manufacturers (“OEMs”) of semiconductors and related products**. The company specialises in manufacturing high precision front-end semiconductor components and performing complex electromechanical assembly and final testing services. The Group is headquartered in Singapore, with production facilities in Singapore, Malaysia and the United States.

Industry turnaround on the horizon. According to estimates from SEMI, the global industry association representing the electronics manufacturing supply chain, global sales of semiconductor manufacturing equipment are expected to pick up in 2020 after a dip in 2019. For the broader industry, growth in semiconductor sales is expected to be accelerated by a shift towards Artificial Intelligence (“AI”), 5G, and the increasing integration of electronics into automotive vehicles.

Stable foothold in the global supply chain. UMS supplies to a large client that is a market leader in the wafer manufacturing equipment market, with a market share of approximately 20%. Additionally, UMS focuses on producing equipment for the wafer manufacturing stage - far upstream in the integrated circuit (“IC”) manufacturing process. Silicon wafers are the basic building blocks of ICs, making the segment resilient in the face of advancement and changes in IC design or manufacturing processes that are further downstream.

Diversification beyond the Semiconductor Industry. 2017 saw the acquisition of a majority stake in Kalf Engineering Pte Ltd (“Kalf”), a water and chemical engineering solutions company. In 2018, UMS acquired stakes in JEP Holdings Ltd (“JEP”), an Aerospace component manufacturer, as well as Starke Singapore Pte Ltd (“Starke”), a specialist metals supplier and fabricator. These diversified business grew revenue contribution from the Group’s “Others” segment to 8.9% of total revenue for 1H2019, from less than 1% in 1H2018.

Key risks: (i) Lower capital expenditure spending due to Macroeconomic uncertainty. (ii) Key customer risk.

Key Historical Financials

Year ended 31 December (S\$'000)	FY2014	FY2015	FY2016	FY2017	FY2018
Revenue (S\$)	109,819	111,090	104,204	162,498	127,939
% Growth	-8.9%	1.2%	-6.2%	55.9%	-21.3%
Profit/(loss) before tax (S\$)	27,704	36,765	24,737	55,238	45,506
Profit/(loss) before tax margin	25.2%	33.1%	23.7%	34.0%	35.6%
Profit/(loss) attributable to owners	24,929	34,299	22,591	52,037	43,071
EPS/(LPS) (Singapore cents)	5.81	7.99	5.26	9.70	8.03
P/E (x)	10.6	7.7	11.7	6.3	7.7
P/B (x)	1.7	1.7	1.7	1.5	1.4
Net Debt/Equity	Net cash	Net cash	Net cash	Net cash	4.0%

Source: Annual Report, SAC Advisors

FY2017 and FY2016 figures may not be comparable with FY2018 due to preparation under SFRS (I)

Investment Highlights

Business Overview:

UMS Holdings' core business is the provision of manufacturing and engineering services to semiconductor equipment manufacturers. The company works closely with its clients to provide fully integrated solutions for factory automation, as well as to develop new processes and technology. In recent years, UMS Holdings has branched out into aerospace component manufacturing, which taps on its precision engineering expertise, and water and chemical engineering solutions.

UMS Holdings Limited is an equipment manufacturer and engineering services provider for Original Equipment Manufacturers of semiconductors and related products. The company specialises in manufacturing high precision front-end semiconductor components and performing complex electromechanical assembly and final testing services. The Group is headquartered in Singapore, with production facilities in Singapore, Malaysia and the United States. Aside from the semiconductor industry, UMS Holdings also supplies base components to oil and gas industry equipment manufacturers, precision engineered components to the Aerospace industry and provides water and chemical engineering solutions.

Industry turnaround on the horizon. According to estimates from SEMI, the global industry association representing the electronics manufacturing supply chain, global sales of semiconductor manufacturing equipment are expected to pick up in 2020 after a dip in 2019.

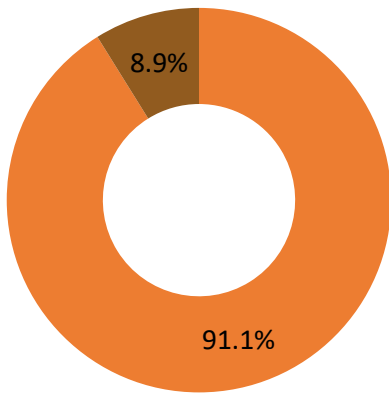
For the broader industry, growth in semiconductor sales is expected to be accelerated by a shift towards Artificial Intelligence, 5G, and the increasing integration of electronics into automotive vehicles. Following a dip in 2020, revenue is projected to grow to US\$543 billion by 2022, with processing electronics (data storage, cloud computing) and communication electronics (wireless communication) estimated to contribute to nearly two thirds of the figure.

Stable foothold in the global supply chain. UMS supplies to a large client that is a market leader in the semiconductor manufacturing equipment market with a market share of approximately 20%. Additionally, UMS focuses on producing equipment for the wafer manufacturing stage - far upstream in the integrated circuit manufacturing process. Silicon wafers are the basic building blocks of ICs, making the segment resilient in the face of advancement and changes in IC design or manufacturing processes that are further downstream.

Having production facilities located in Singapore, Malaysia (the Group's Penang facility was expanded in 2018) and the United States, which are key geographical markets, can mitigate the effects of trade protectionism, making UMS more competitive as a capital goods supplier.

Investment Highlights

1H2019 Revenue



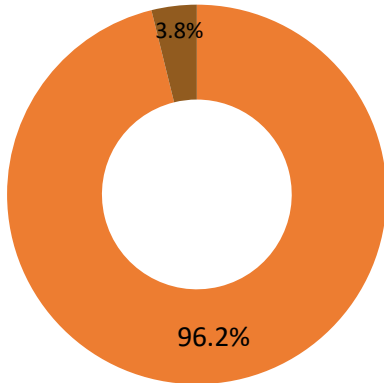
- Semiconductor
- Others

Diversification beyond the Semiconductor Industry. 2017 saw the acquisition of a majority stake in Kalf Engineering Pte Ltd, a water and chemical engineering solutions company. In 2018, UMS acquired stakes in JEP Holdings Ltd, an Aerospace component manufacturer, as well as Starke Singapore Pte Ltd, a specialist metals supplier and fabricator. These diversified business grew revenue contribution from the Group's "Others" segment to 8.9% of total revenue for 1H2019, from less than 1% in 1H2018.

1H2019 revenue of S\$5.19 million from the Others segment was a nearly tenfold increase compared to sales of S\$0.49 million in 1H2018. This was largely due to revenue from Starke (maiden contribution in 3Q2018) and Kalf Engineering.

Company Background

FY2018 Revenue



- Semiconductor
- Others

Source: Company data

UMS Holdings traces its roots to Uraco Manufacturing Pte Ltd, a joint venture between founder Andy Luong and Uraco Holdings Limited in 1996, which was renamed to UMS Semiconductor Pte Ltd in 2000. Its transition to a public company came in 2004, upon the merger of UMS Semiconductor with Mainboard listed company Norelco Centreline Holdings Ltd. With extensive experience in precision engineering and manufacturing, UMS Holdings now provides manufacturing and engineering solutions primarily to the Semiconductor equipment manufacturing industry.

- The Group’s business can be categorised into 2 main business segments, **Semiconductor** and **Others**.

Semiconductor



5-axis CNC Machining, Vertical Turning Lathe



Anodising, Passivation, Brazing & Welding, Plating



Masking, Polishing, Bead-blasting, Chemical Stripping, Inspection & QC



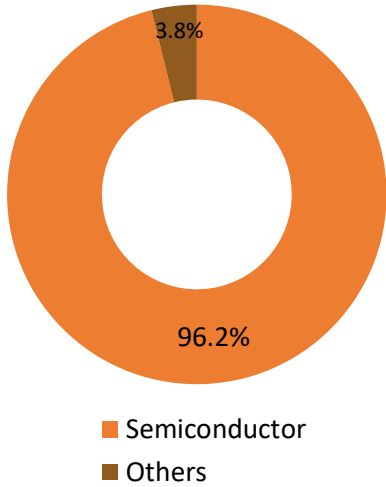
Full system integration and validation testing



Direct engagement with customers’ product development teams to achieve quality outcomes efficiently.

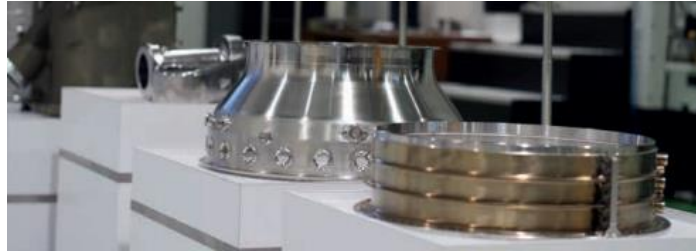
Company Background

FY2018 Revenue



Source: Company data

Others



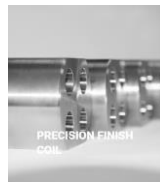
Manufacturing and engineering services for highly specialised and customised products including engine casings for passenger airliners.



Chemical engineering solutions, including the manufacture of on-site chlorine and sodium hypochlorite generation systems. These help clients reduce dependency on suppliers and lower safety risks from transport and transfer of these chemicals.



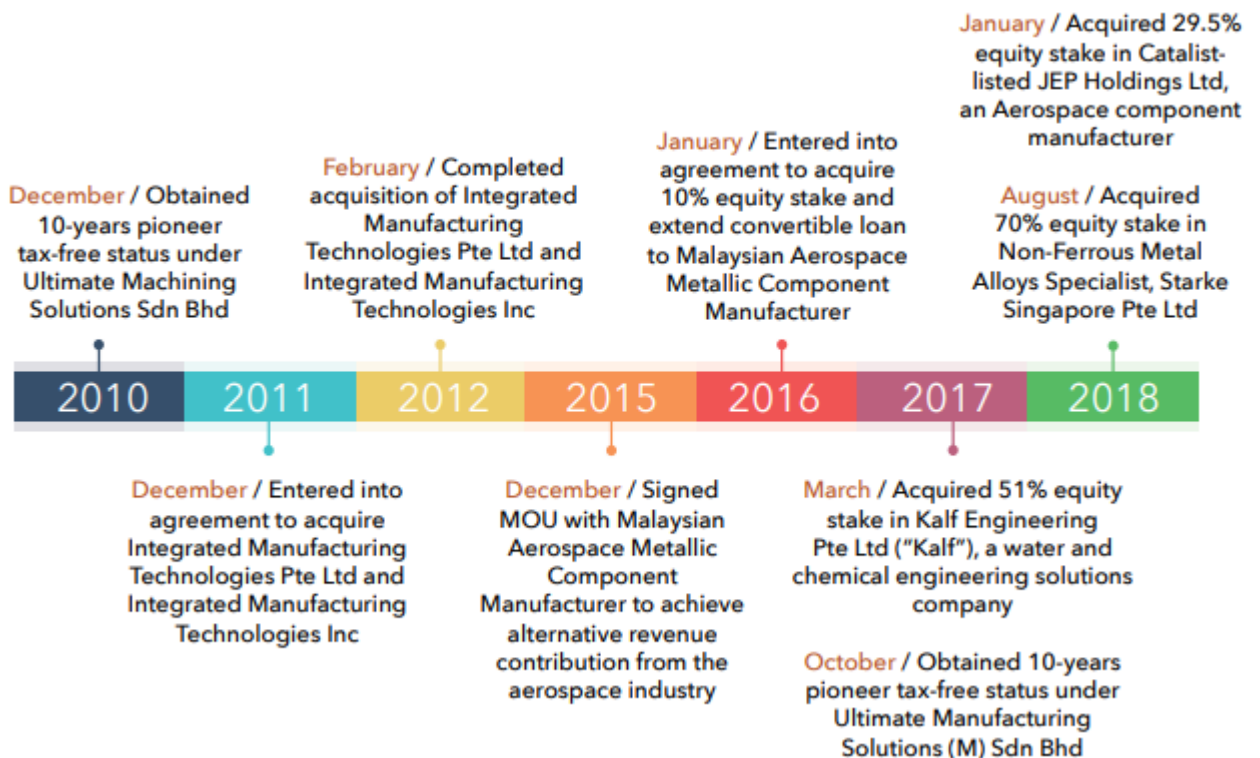
Reverse Osmosis water treatment systems



Metal products supply and fabrication

History

UMS Holdings traces its origins to Long's Manufacturing, a Silicon Valley based precision machining business founded by Andy Luong in 1984. In 1996, Uraco Manufacturing Pte Ltd, a joint venture between Andy Luong and URACO Holdings Limited, was incorporated in Singapore. In 2000, Uraco Manufacturing was renamed UMS Semiconductor Pte Ltd. 2001 saw the IPO of Norelco Centerline Holdings Limited on SGX's SESDAQ board, which was upgraded to a mainboard listing in 2003. UMS Semiconductor Pte Ltd merged with Norelco Centerline in 2004, with the entity renamed to Norelco UMS Holdings Ltd. The company changed its name to UMS Holdings Ltd in 2007. UMS Holdings' Changi North Rise and Penang facilities were opened in February 2008 and February 2009 respectively.



Source: Company data

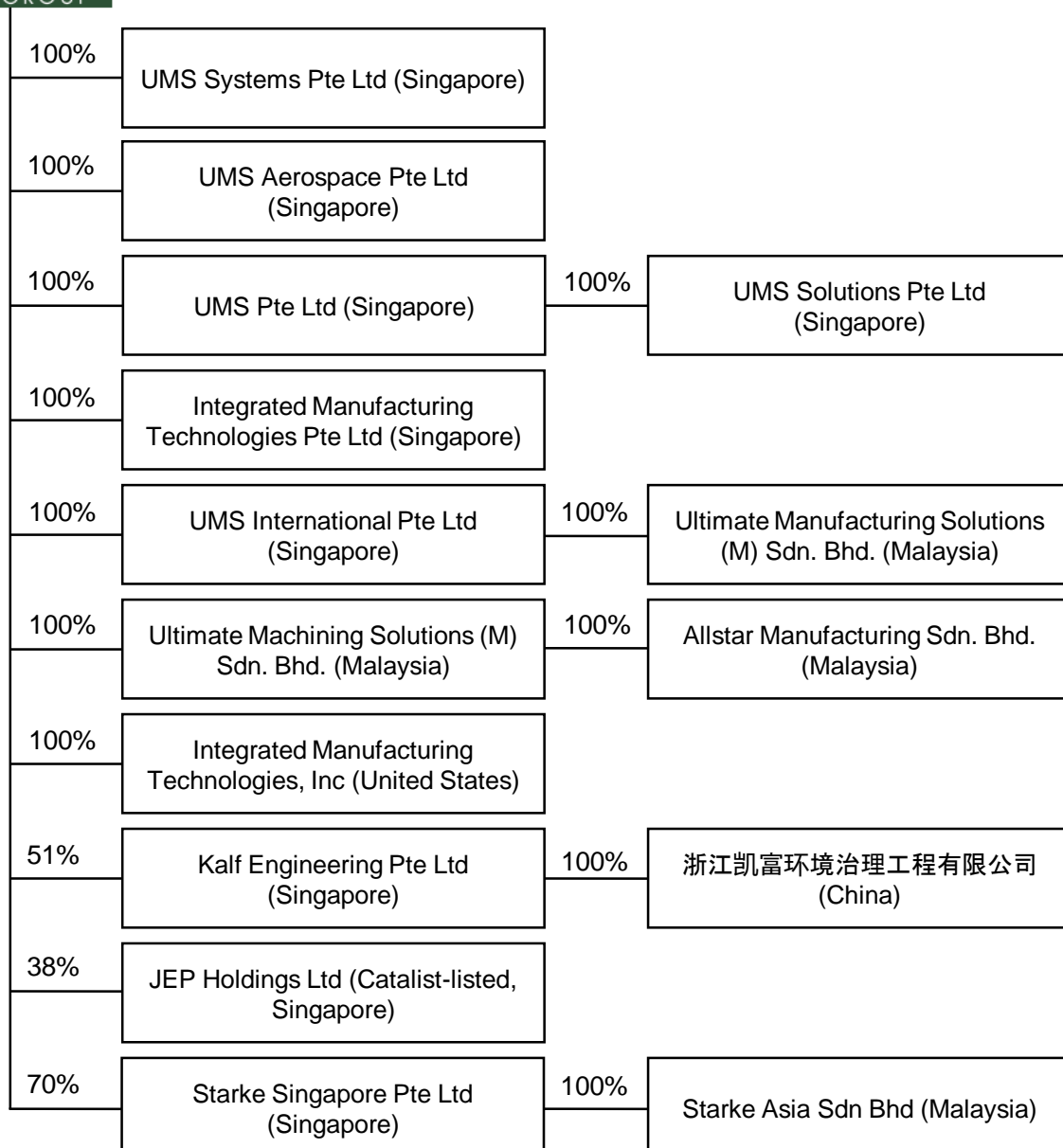
Corporate Structure

The Group's semiconductor business is primarily carried out through

- UMS Systems Pte Ltd
- UMS Pte Ltd
- Ultimate Machining Solutions (M) Sdn, Bhd.
- Ultimate Manufacturing Solutions (M) Sdn. Bhd.

Integrated Manufacturing Technologies Pte Ltd (Singapore) and Integrated Manufacturing Technologies Inc (United States) serve a variety of industries such as the pharmaceutical, marine and aerospace industry in addition to the Semiconductor industry.

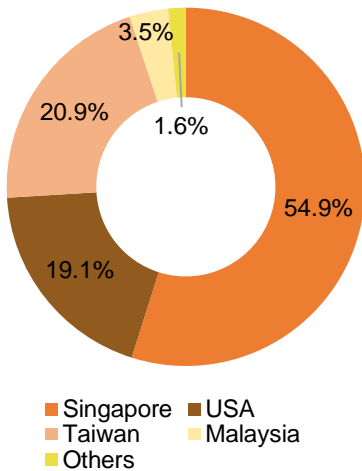
Kalf Engineering, JEP Holdings and Starke Singapore contribute to the Group's Others business.



Industry Overview

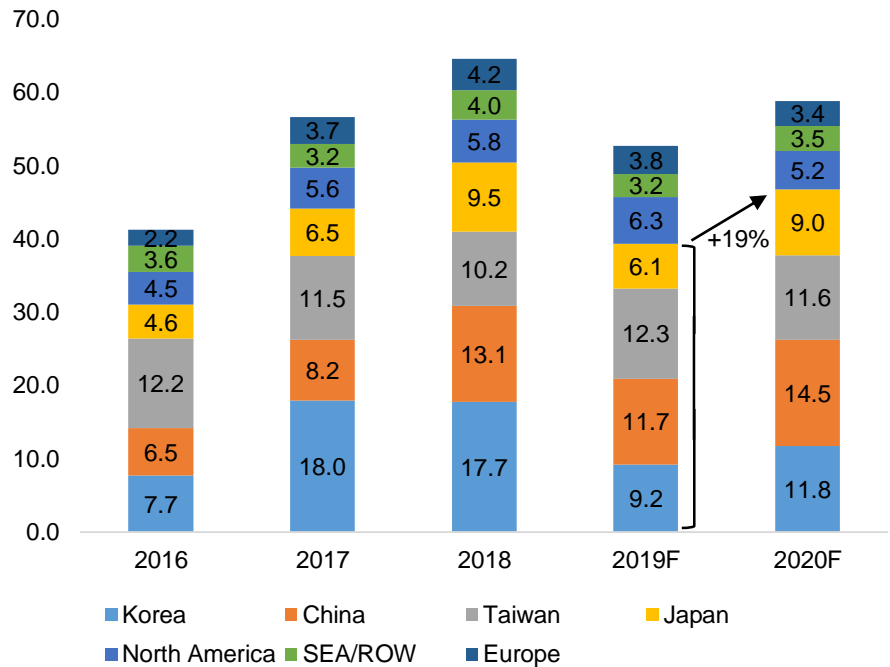
Industry turnaround on the horizon

UMS Holdings
FY2018 Revenue



Note that the final sales destination of equipment sold by UMS Holdings' clients could be different from UMS holdings' geographical revenue breakdown.

Global sales of semiconductor manufacturing equipment by region, [USD b]



Source: SEMI 2019 Mid-Year Total Equipment Forecast

According to estimates from SEMI, the global industry association representing the electronics manufacturing supply chain, global sales of semiconductor manufacturing equipment are expected to pick up in 2020 after a dip in 2019.

A report by SEMI published in July 2019 projected a drop in global sales of semiconductor manufacturing equipment by 18.4% to US\$52.7 billion for 2019, from a historic high of US\$64.5 billion in 2018. The forecast, which took into account lower capital expenditure spending by OEMs in light of geopolitical uncertainty, expects a turnaround for 2020, with an expected 11.6% jump in global sales to US\$58.8 billion.

Asia is poised to be the largest growth region, with total sales in Korea, China, Taiwan and Japan expected to rebound in 2020. The four regions combined could see a 19% increase in sales compared to 2019.

Key customer poised to capture growth in Asia

A key client of UMS Holdings segments more than 80% of its revenue to Korea, China, Taiwan and Japan, and UMS is well positioned to ride on this potential wave of growth.

This could be partially offset by an expected fall in sales in North America, where the market could shrink by 18%.

Industry Overview

Electronics and the Automotive Industry

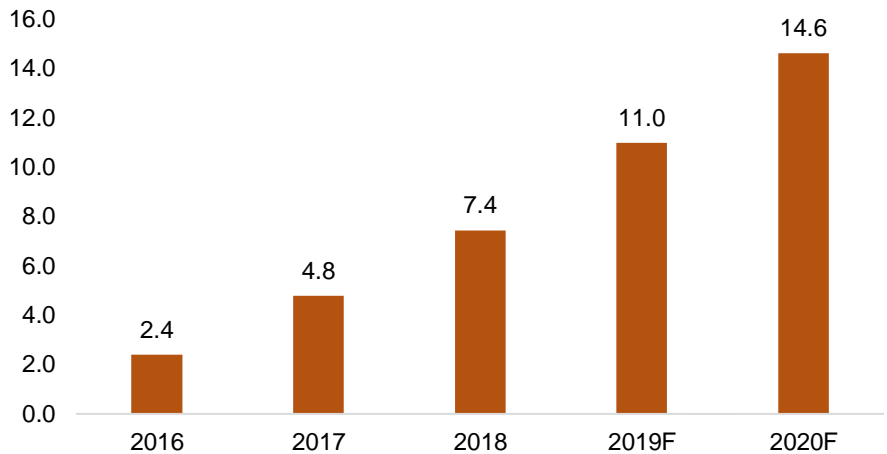
The cost contribution of electronics and semiconductor components per car is expected to grow in terms of both absolute value and as a percentage of cost. By 2030, the figure is estimated to reach US\$600 per car, from approximately US\$400 today. In percentage terms, electronics and semiconductor components will constitute 45% of total car cost by 2030. Trends in (i) electrification (relating to hybrid and electric vehicles), (ii) automation, (iii) digital connectivity (with other electronic devices) and (iv) system security will drive these increases.

- (i) Governments and global automobile manufacturers have set targets for electric vehicles to account for a larger proportion of total sales (10-20%). Electric powertrains require microcontrollers, sensors and power semiconductors to run and function efficiently.
- (ii) Driver assist and fully autonomous driving systems require a myriad of complex electronic components, including sensors, high-speed data processors and communication links, and are characterised by interconnectivity between vehicle systems (e.g. obstacle sensors and the braking system)
- (iii) Digital Connectivity refers to connectivity both inside and outside of a vehicle. In-vehicle connectivity relates to the integration of personal mobile devices with vehicle entertainment systems. Further down the road, vehicle-to-vehicle communication would be an important feature for autonomous vehicles, essential for reducing the likelihood of collisions and other accidents.
- (iv) New software and hardware for vehicles will be developed around preventing back door access, viruses, hacking and other forms of vulnerability. These components will also have wireless communication capabilities for software and firmware updates.

Industry Overview

Artificial Intelligence

AI chips global market size, [USD bn]



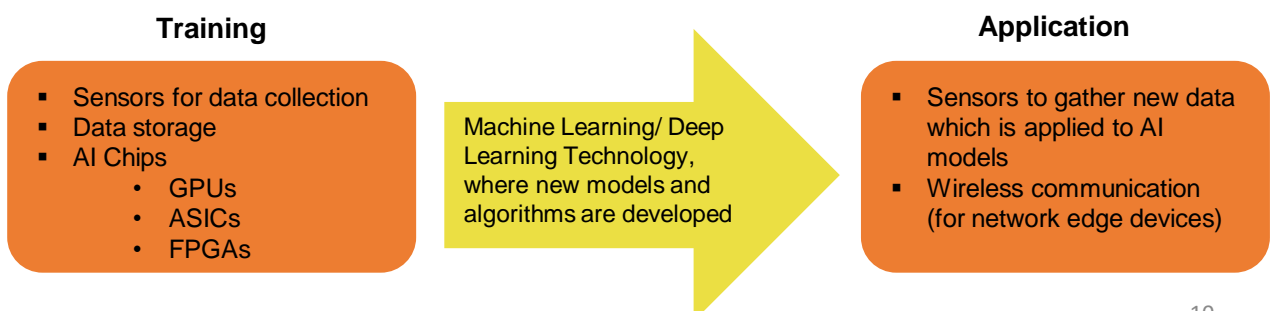
Source: CDIC, Deloitte

Artificial Intelligence infrastructure and applications could present a sizeable growth opportunity for the semiconductor industry. The market size for AI chips in 2020 is expected to be nearly twice of 2018 levels. The Artificial Intelligence framework can be broadly categorised into two phases, (i) Training, and (ii) Application.

- (i) **Training** AI models on large training datasets: AI chips are used to run AI algorithms on large datasets, to “train” or develop AI models. The three main varieties of AI chips in use today are graphics processing units (“**GPUs**”), field-programmable gate arrays (“**FPGAs**”) and application specific integrated circuits (“**ASICs**”). As large processing power is required, “training” of the AI models is typically carried out via the cloud, in data centres.

- (ii) **Application** of trained model capabilities to new data: Capabilities of the trained AI models are applied to new data. This phase can be carried out on network edge devices, such as self-driving vehicles which have optical and radar sensors that enable lane recognition and object avoidance.

Semiconductor components required for each phase



Management

Andy Luong is the Founder, Chairman of the Board of Directors and CEO of the company. He was appointed as CEO in January 2005 and previously served as COO since April 2004. Mr Luong has more than 20 years of industry experience in manufacturing front-end semiconductor components. He first acquired his machining skills through working in his family's machining business in Vietnam. After migrating from Vietnam to the United States in 1979 and shortly after starting college, Mr Luong started Long's Manufacturing Inc, a precision manufacturing business based in Silicon Valley. His joint venture company, Uraco Manufacturing Pte Ltd, which the Group can trace its origins to, was incorporated in 1996. Currently, Mr Luong is also a board member of JEP Holdings Ltd, and was instrumental in guiding JEP to higher profits for FY2018.

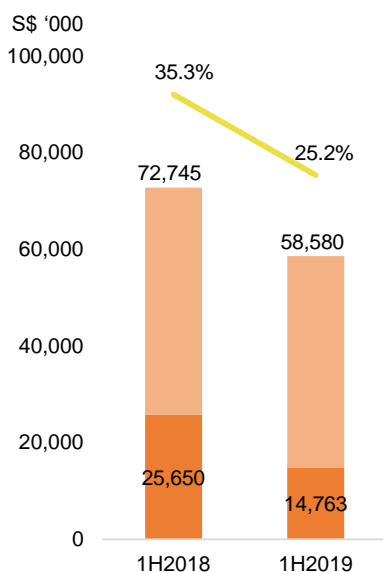
Loh Meng Chong, Stanley is Group Financial Controller and Senior Vice President, Operations, of UMS Holdings. He is also an Executive Director of the Group. Mr Loh is responsible for the overall financial, accounting, tax, treasury, corporate finance, compliance and operations of the Group. Mr Loh, a member of the Institute of Singapore Chartered Accountants, joined the company in September 2008 and has more than 20 years of experience in finance, accounting, treasury and auditing. He holds a Bachelor of Accountancy (Hons) from the National University of Singapore, and a Master of Business Administration from Southern Illinois University.

Kay Tan Kian Hong is UMS Holdings' Global Account Director, a position he was appointed to in 2007. He is responsible for managing the relationships between the company and its key customers. Mr Tan is also responsible for the Company's USA subsidiary. Prior to joining UMS Holdings, Mr Tan spent more than 20 years in the high-tech equipment manufacturing industry and held roles across Project Management, Account Management and Sales and Marketing.

Financial Summary

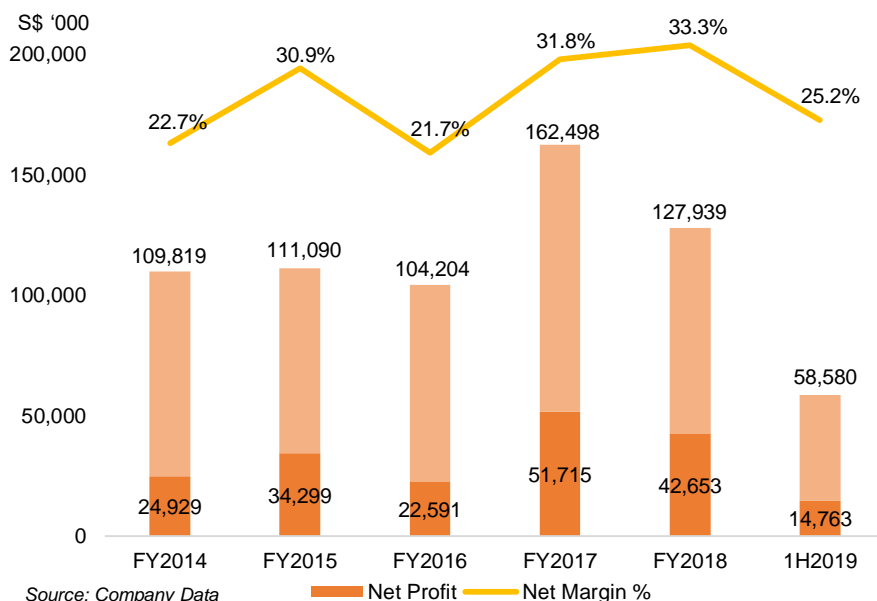
Stable margins, recent performance affected by trade tensions

Revenue, Net Profit and Net Profit Margin



Source: Company Data

Revenue, Net Profit and Net Profit Margin



Source: Company Data

1H2019 update

Performance was dampened for 1H2019, with revenue falling 19% year on year from S\$72.7 million (1H2018) to S\$58.6 million. Revenue from the Group's Semiconductor segment was lower due to US-China trade tensions, lower memory prices and lower spending on capital goods by chip manufacturers. This was partially offset by an increase in revenue from the Group's Others segment, which increased nearly tenfold to S\$5.2 million from S\$0.5 million in 1H2018.

Gross material margin saw a year on year dip from 61% to 53%, as Starke's distribution business, which has a lower margin than the Group's Semiconductor business, increased its revenue contribution.

The Group remained profitable for 1H2019, with net profits correspondingly lower with the fall in revenue, and dragged down further by higher depreciation costs from the addition of fixed assets in 2H2018.

Key Risks

Lower capital expenditure in the semiconductor industry

Global trade tensions and macroeconomic uncertainty have resulted in slower performance for 1H2019, due to lower capital expenditure spending by semiconductor manufacturers. A continuation of the status quo could continue to put a drag on revenue and earnings.

Key customer risk

The Group's key customer accounted for more than 50% of total revenue in FY2017 and FY2018. UMS Holdings' performance is thus partially tied to that of its key customer, which is in turn dependent on business trends in the global market for electronics and semiconductors. Management noted in its 1H2019 results release that the Group was continuing to receive stable order volumes from the customer. We do not expect exposure to this key client to be a major risk factor, beyond the exogenous risks associated with exposure to the global semiconductor industry.

Income Statement (\$\$)

\$'000	Fiscal Year Ended 31 December				
	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Revenue	109,819	111,090	104,204	162,498	127,939
Changes in inventories	(3,866)	4,034	(5,636)	17,909	20,805
Raw material purchases and subcontractor charges	(46,389)	(48,216)	(42,179)	(91,476)	(71,725)
Employee benefits expense	(12,222)	(13,517)	(11,549)	(16,593)	(16,616)
Depreciation expense	(7,741)	(7,425)	(5,434)	(4,321)	(5,671)
Other expenses	(12,260)	(11,838)	(10,053)	(12,322)	(11,707)
Other income/ (charges)	307	2,509	(4,713)	(414)	2,357
Finance income	74	128	148	389	210
Finance expense	(18)	-	(3)	(390)	(611)
Impairment loss on investment in associate	-	-	(48)	(42)	-
Share of profit of associate	-	-	-	-	525
Profit/(Loss) before tax	27,704	36,765	24,737	55,238	45,506
Income tax (expense) / benefit	(2,775)	(2,466)	(2,146)	(3,523)	(2,853)
Profit/(Loss) for the year	24,929	34,299	22,591	51,715	42,653
Profit/(Loss) attributable to owners of company	24,929	34,299	22,591	52,037	43,071
Minority Interests	-	-	-	(322)	(418)
EPS:					
-Basic (SG cents)	5.81	7.99	5.26	9.70	8.03
-Diluted (SG cents)	5.81	7.99	5.26	9.70	8.03

Balance Sheet (\$\$)

(\$'000)	Fiscal Year Ended 31 December				
	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Cash and bank balances	33,792	38,933	42,620	59,571	18,926
Trade receivables and other current assets	12,850	12,420	20,944	23,431	15,149
Inventories	33,327	37,361	31,725	49,633	70,438
Total current assets	79,969	88,714	95,289	132,635	104,513
PPE	41,725	34,807	31,704	38,782	53,368
Investment property	2,629	2,411	2,284	2,240	2,100
Investment in associates					29,501
Loan to associate			828	3,296	3,345
Goodwill	81,683	81,683	80,083	82,201	82,201
Total non-current assets	126,037	118,901	114,899	126,519	170,515
Total assets	206,006	207,615	210,188	259,154	275,028
Bank Borrowings			249	19,001	20,295
Trade and other payables	11,061	9,760	16,563	18,077	14,123
Loan from related parties					1,403
Income tax payable	2,357	1,975	2,210	3,285	2,316
Total current liabilities	13,418	11,735	19,022	40,363	38,137
Loan from related parties				3,158	3,419
Deferred tax liabilities	1,337	972	1,243	1,427	2,606
Long-term provision	453	443	433	405	405
Total non-current liabilities	1,790	1,415	1,676	4,990	6,430
Share Capital	136,623	136,623	136,623	136,623	136,623
Reserves	(4,263)	(9,146)	(10,963)	(10,560)	(10,683)
Retained earnings	58,438	66,988	63,830	89,045	102,612
Non-controlling interest				(1,307)	1,909
Total Equity	190,798	194,465	189,490	213,801	230,461

Cash Flow Statement (\$\$)

(\$'000)	Fiscal Year Ended 31 December				
	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Profit/(Loss) before tax	27,704	36,765	24,737	55,238	45,506
Depreciation	7,741	7,425	5,434	4,321	5,671
Changes in working capital	4,004	(4,927)	534	(17,589)	(7,451)
Others	122	(725)	5,841	63	(1,490)
Income tax	(3,962)	(2,766)	(2,677)	(2,060)	(3,566)
Net generated from operating activities	35,609	35,772	33,869	39,973	38,670
Purchase of PPE	(6,689)	(4,478)	(2,625)	(10,564)	(15,685)
Others	103	138	-796	-1217	-33143
Net Cash used in investing activities	(6,586)	(4,340)	(3,421)	(11,781)	(48,828)
Proceeds from bank borrowings	6,268		1,249	25,766	48,320
Repayment of bank borrowings	(6,268)		(1,000)	(7,014)	(47,254)
Dividends paid	(24,906)	(25,749)	(25,749)	(26,822)	(29,504)
Others	(26)	247	(3)	(390)	(2,014)
Net Cash used in financing activities	(24,932)	(25,502)	(25,503)	(8,460)	(30,452)

Ratios

(\$'000)	Fiscal Year Ended 31 December				
	FY2014	FY2015	FY2016	FY2017	FY2018
Profitability (%)					
Gross profit/(loss) margin	N/A	N/A	N/A	N/A	N/A
Profit/(loss) before tax margin	25.2%	33.1%	23.7%	34.0%	35.6%
Liquidity (x)					
Current ratio	6.0	7.6	5.0	3.3	2.7
Quick ratio	3.5	4.4	3.3	2.1	0.9
Interest coverage ratio	1,540.1	n.m.	8,246.7	142.6	75.5
Net Debt to Equity	Net cash	Net cash	Net cash	Net cash	4.0%
Valuation (x)					
P/S	3.0	3.0	3.2	2.0	2.6
P/E	10.6	7.7	11.7	6.3	7.7
Core P/E at target price	n.m.	n.m.	n.m.	n.m.	n.m.
P/B	1.7	1.7	1.7	1.5	1.4
P/NTA	3.0	2.9	3.0	2.5	2.2
Cash Conversion Cycle					
Trade receivable days	N/A	N/A	N/A	N/A	N/A
Inventory days	N/A	N/A	N/A	N/A	N/A
Trade payable days	N/A	N/A	N/A	N/A	N/A
CCC days	N/A	N/A	N/A	N/A	N/A

n.m. denotes not meaningful

DISCLAIMERS AND DISCLOSURES

This report has been prepared and distributed by SAC Advisors Private Limited (“**SAC Advisors**”) which is a holder of a capital markets services licence and an exempt financial adviser in Singapore. SAC Advisors is a wholly-owned subsidiary of SAC Capital Private Limited (“**SAC Capital**”) which is also a capital markets services licensee.

This report has been prepared for the purpose of general circulation. In the preparation of this report, we have not had regard to the specific investment objectives, financial situation, tax position or unique needs and constraints of any individual person or any specific group of persons. Any prospective purchaser should make his own investigation of the securities and all information provided. Advice should be sought from a financial adviser regarding suitability, taking into account the specific investment objectives, financial situation or particular needs of the person in receipt of the recommendation, before a commitment to purchase is entered into.

This report does not constitute or form part of any offer or solicitation of any offer to buy or sell any securities.

This report is confidential and is meant only for the consumption of targeted persons. The information in this report shall not be copied or reproduced in part or in whole, and save for the recipient of this report, shall not be disclosed to any other person without the prior written consent of SAC Advisors. The distribution of this report outside the jurisdiction of Singapore is also strictly prohibited.

While SAC Advisors has exercised reasonable care to ensure that the facts stated herein are accurate, SAC Advisors makes no representation as to the accuracy or completeness of such information and SAC Advisors accepts no liability whatsoever for any loss or damage arising from the use of or reliance of the information herein.

SAC Advisors, SAC Capital and their associates, directors, and/or employees may have positions in the securities covered in the report and may also perform or seek to perform other corporate finance related services for the company whose securities are covered in the report. SAC Advisors and its related companies may from time to time perform advisory services, or solicit such advisory service from the entity mentioned in this report (“**Other Services**”). However, the research professionals involved in the preparation of this report have not and will not participate in the solicitation of such business. This report is therefore classified as a non-independent report.

As of the date of this report, SAC Advisors and its associates, including SAC Capital, do not have proprietary positions in UMS Holdings Limited, except for:

Party	Quantum of position
Nil	Nil

As of the date of this report, SAC Advisors and its associates, including SAC Capital, do not have any business relations with UMS Holdings Limited within the past 12 months, except for:

Company	Nature of business relation	Date of business relation
Nil	Nil	Nil

As of the date of this report, none of the analysts who covered the securities in this report have any proprietary position or material interest in the subject companies covered here in, except for:

Analyst name	Quantum of position
N/A	N/A

ANALYST CERTIFICATION/REGULATION AC

As noted above, research analyst(s) of SAC Advisors who produced this report hereby certify that

- (i) The views expressed in this report accurately reflect his/her personal views about the subject corporation(s);
- (ii) The report was produced independently by him/her;
- (iii) He/she does not on behalf of SAC Advisors or SAC Capital or any other person carry out Other Services involving any of the subject corporation(s) or securities referred to in this report; and
- (iv) He/she has not received and will not receive any compensation directly or indirectly related to the recommendations or views expressed in this report or to any sales, trading, dealing or corporate finance advisory services or transaction in respect of the securities in this report. He/she has not and will not receive any compensation directly or indirectly linked to the performance of the securities of the subject corporation(s) from the time of the publication of this report either.