

NEWS

Electronic Manufacturing Services (EMS)

Q4 2016

Introduction

Executive summary of the EMS industry

European EMS revenues in 2016 reached €27.4bn and are expected to grow to €30bn by 2020.

The surrounding uncertainty following the election result in the US could have a stagnating effect on the European EMS industry in the first half of 2017, followed by a rebound in the second half of the year.

The Internet of Things remains a major growth factor for the electronics and EMS sector with forecasted strong growth of connected devices.

The industry is expected to further consolidate due to increasing price pressure, modest economic growth and the development towards full-service providers.

M&A activity in the EMS industry

The number of corporate transactions in Q3 and Q4 2016 slowed down compared to the first half of 2016, with the highest deal activity in Europe. During this period Clearwater International advised Induc and co-investors on the sale of a minority stake in Grundig Business Systems GmbH to VR Equitypartner (see right).

Valuation level of EMS players worldwide

At the end of Q4 2016 and beginning of 2017 trading multiples increased and reached levels of mid 2013.

Small EMS companies continue to show higher valuation levels compared to medium sized and large EMS providers.

Transaction highlights


INDUC GMBH
Independent investment company
Clearwater International advised Induc and co-investors on the partial sale of Grundig Business Systems to VR Equitypartner

Clearwater International acted as sole financial adviser to Induc GmbH and co-investors on the sale of a minority stake in Grundig Business Systems GmbH to VR Equitypartner

GBS was founded in 2001 as a spin-off from Grundig AG. In 2003, it was acquired by financial investor Induc GmbH and certain co-investors, including management. For over 60 years the company has been widely recognised as one of the market leaders for professional audio processing solutions (e.g. dictation, audio recording, etc.), and has successfully transformed its business model from analogue to digital solutions. GBS supplies its innovative audio processing solutions primarily to legal, healthcare and public administration customers. In addition, based on its strong in-house Electronics Manufacturing Services (EMS) and mechatronic capabilities, GBS has consistently increased its contract manufacturing EMS business with highly renowned customers from various sectors, such as automotive, industrials, entertainment, energy and healthcare. GBS currently employs more than 160 employees at two locations in Germany, with two-thirds of GBS' production volume from the EMS segment. GBS is consistently ranked among Germany's TOP 100 most innovative mid-sized companies.

Induc is an independent investment company focusing on majority investments in special situations including turnaround and carve-out situations in companies within German speaking Europe.


SEIDEL HOLDING
Manufacturer of electronic and mechatronic solutions
Clearwater International advised SEIDEL Holding on the sale of SEIDEL Electronics Group to SVI Public Company Limited

PRETTL
PRETTL GROUP
Manufacturer of automotive parts
Clearwater International advised the Prettl Group on a potential acquisition of a minority stake of a subsidiary in the field of Electronic Manufacturing Services

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1. Current trends in the EMS industry

Size and recent development of the EMS industry

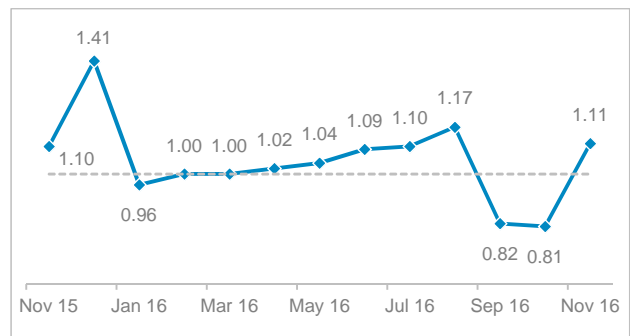
- § After a decline in 2014, European EMS revenues show a second year of consecutive growth in 2016. By the end of 2016 the European EMS industry reached €27.4bn.
- § The uncertainties surrounding the impact of Brexit and the election result in the US is expected to dampen the growth in the first half of 2017, but regain momentum in the second half of the year and then accelerate over the forecast period assuming that the impact on the economy is limited.

Growth prospects and relocation

- § Until 2020, moderate growth of the market is forecasted achieving sales volume of approximately €30bn. In Western Europe the revenues are forecasted to reach €11.7bn in this period.
- § The major driver that will impact the electronic component supply and the electronics industry is the accelerated growth of the Internet of Things. The worldwide Internet of Things market is forecasted to reach \$7,065bn in 2020 with approx. 21 billion connected devices. This implies a CAGR of 17% market growth and 34% CAGR of connected devices.
- § In western Europe the market's focus remains on low volume / high mix products in industrial sectors, including aerospace, defence, automotive, medical, control & instrumentation and telecom.
- § By 2020, the CEE (Central Eastern Europe) and MENA (Middle East and North Africa) region will continue to focus on higher volume products in the 3C segments (consumer, computing and communications).
- § The continuously increasing price pressure in western Europe is expected to shift the production to manufacturing facilities in CEE and MENA regions in order to reduce costs.
- § The growth in western Europe by 2020 might stagnate due to the increasing demand by OEMs for EMS to offer local manufacturing in key global markets.

Quantitative outlook

- § The "book-to-bill" ratio, a ratio of orders received to the amount billed for a specific period, is an indicator of mid-term development. In the DACH printed circuit board segment, the ratio increased from 0.81 at the end of October 2016 to 1.11 by the end of November 2016.



Transformation of the EMS industry

- § The EMS industry is undergoing a shift in its service offering. EMS companies are increasingly expanding their service portfolios along the value chain transforming into full-service providers. On the one end they are increasingly engaging in design and development services for sub-assemblies and finished products. On the other end they offer more testing and aftercare services.
- § This observed shift provides opportunity and value-add for both OEMs and EMS companies resulting in:
 - EMS companies expanding services, in particular in higher margin businesses
 - OEMs reducing their overall costs and shifting from fixed to variable costs by outsourcing more activities to EMS companies.

Source: Zentralverband Elektrotechnik- und Elektronikindustrie, Reed Electronic Research, Clearwater Research

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2. M&A activity in the EMS industry

- § In terms of market consolidation, the European EMS market remains highly fragmented. 77% of total sales volume in 2016 were generated by top 50 companies or 5% of total number. Experts expect consolidation activities due to price pressure, moderate economic growth and the development towards a full-service provider.
- § During the second half of 2016 M&A activity in the EMS industry stagnated compared to the first half of the year. In Q3 and Q4 Europe had the highest deal activity.

Selected EMS transactions worldwide

Date	Target	Bidder	Description
01/2017	PKC Electronics  Enics AG		Enics acquired PKC Electronics with factories in Raahe, Finland and Suzhou, China, for an estimated consideration of EUR 10m
12/2016	Steca Eletronik GmbH  AL-KO Kober SE		Steca Eletronik, a Germany-based EMS provider and manufacturer of Steca brand product lines in solar electronics and battery charging systems, was acquired by AL-KO Kober
09/2016	Exception EMS Limited  Fabrinet		Exception EMS, a UK-based company that provides contract electronics manufacturing solutions to global electronics industry, was acquired by Fabrinet for € 12m
08/2016	ggp Electronics GmbH  American Industrial Acquisition Corporation		ggp Electronics, a Germany-based manufacturer of printed circuit boards, was acquired by American Industrial Acquisition Corporation
07/2016	Linear Technology Corporation  Analog Devices Inc		Linear Technology Corporation, a US-based company that designs, manufactures and markets analogue integrated circuits, was acquired by Analog Devices for € 11.8bn
07/2016	Near-Field Communication (NFC) and RFID reader business of ams AG  STMicroelectronics NV		The Near-Field Communication (NFC) and RFID reader business of ams AG, an Austria-based designer and manufacturer of high performance analogue and mixed signal solutions, was acquired by STMicroelectronics for € 70m
06/2016	Graphic Plc  Quadrivio sgr		Graphic plc, a British manufacturer of high technology printed circuit boards, was acquired by the Italian mid-market private equity firm Quadrivio sgr for € 45m

Source: MergerMarket, ZVEI, Clearwater Research

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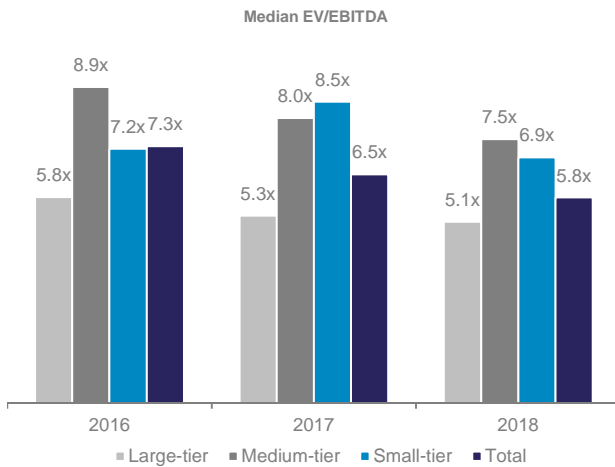
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3. Valuation of EMS companies worldwide

Comparable company valuation – EMS industry (categorised by market cap)

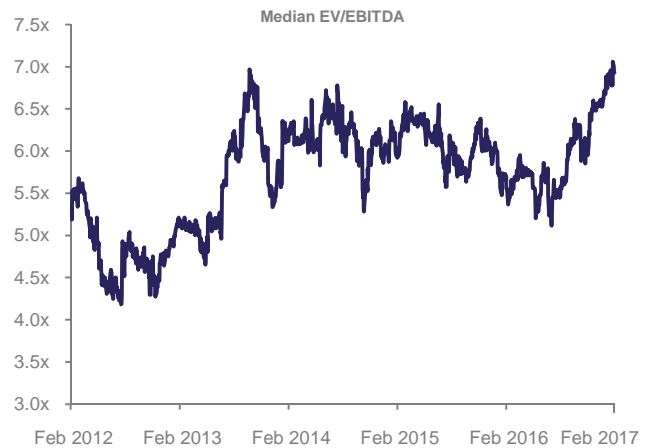
Company	Market cap	Net Debt	EV	Share Price	Revenue-CAGR			EBITDA Margin			EBIT Margin			EV / Revenue			EV / EBITDA			EV / EBIT		
					2013-15	2015-17	2016	2017	2018	2016	2017	2018	2016	2017	2018	2016	2017	2018	2016	2017	2018	2016
Large Tier EMS Provider																						
Hon Hai	43,625.4	(11,943.4)	31,682.0	2.5	(2.7%)	0.9%	5.1%	5.3%	5.3%	3.5%	3.7%	3.7%	0.2x	0.2x	0.2x	4.8x	4.4x	4.2x	6.9x	6.2x	6.0x	
Electronics	7,721.0	1,020.8	8,741.8	14.4	(3.9%)	(1.1%)	5.3%	5.5%	5.4%	3.1%	3.5%	3.7%	0.4x	0.4x	0.4x	7.4x	7.0x	6.8x	12.5x	11.1x	10.1x	
Quanta	7,235.2	(1,391.5)	5,843.7	1.9	(12.1%)	(3.9%)	3.0%	3.2%	3.5%	2.2%	2.6%	2.6%	0.2x	0.2x	0.2x	7.3x	6.5x	5.8x	10.1x	9.0x	7.6x	
Pegatron	5,895.0	(1,210.2)	4,684.8	2.3	(2.5%)	0.9%	4.1%	4.2%	4.1%	3.0%	3.0%	2.9%	0.1x	0.1x	0.1x	3.2x	3.0x	2.9x	4.4x	4.2x	4.0x	
Jabil	4,123.3	1,264.9	5,388.2	22.6	2.4%	2.3%	7.0%	7.4%	7.3%	3.1%	3.5%	3.7%	0.3x	0.3x	0.3x	4.5x	4.1x	4.1x	10.2x	8.8x	8.2x	
Compal	2,442.8	654.7	3,097.5	0.6	(9.5%)	(3.5%)	2.3%	2.3%	2.3%	1.6%	1.6%	1.6%	0.1x	0.1x	0.1x	5.7x	5.6x	5.5x	8.3x	8.0x	7.9x	
Sannina	2,786.9	29.2	2,816.1	37.5	2.5%	4.3%	n/a	n/a	n/a	3.5%	4.2%	n/a	0.5x	0.4x	n/a	n/a	n/a	n/a	13.1x	10.5x	n/a	
Wistron	2,016.0	358.7	2,374.6	0.8	5.0%	7.5%	2.1%	2.2%	2.3%	0.9%	1.0%	1.1%	0.1x	0.1x	0.1x	5.8x	5.0x	4.6x	14.0x	10.5x	10.0x	
Celestica	1,786.5	(289.9)	1,496.6	12.7	6.7%	5.2%	4.2%	4.9%	4.9%	2.9%	3.7%	3.8%	0.3x	0.3x	0.3x	6.4x	5.3x	5.1x	9.1x	7.0x	6.6x	
Plexus	1,686.6	(216.6)	1,470.0	50.3	(2.2%)	1.9%	6.4%	6.8%	6.6%	4.6%	5.1%	5.0%	0.6x	0.6x	0.5x	9.6x	8.5x	8.1x	13.4x	11.4x	10.7x	
Median					(2.4%)	1.4%	4.2%	4.9%	4.9%	3.0%	3.5%	3.7%	0.3x	0.2x	0.2x	5.8x	5.3x	5.1x	10.1x	8.9x	7.9x	
Mean					(1.6%)	1.4%	4.4%	4.6%	4.6%	2.8%	3.2%	3.1%	0.3x	0.3x	0.2x	6.1x	5.5x	5.2x	10.2x	8.7x	7.9x	
Medium Tier EMS Provider																						
Fabrinet	1,448.7	(168.5)	1,280.2	39.3	33.0%	28.0%	10.2%	11.0%	10.7%	8.6%	9.6%	9.7%	1.2x	1.0x	0.9x	11.6x	8.8x	8.0x	13.8x	10.0x	8.8x	
Benchmark	1,401.2	(379.6)	1,021.6	28.7	(9.4%)	(3.6%)	n/a	n/a	n/a	4.2%	4.7%	4.8%	0.5x	0.5x	0.5x	n/a	n/a	n/a	11.5x	10.0x	9.6x	
Hana	895.3	(257.4)	637.8	1.1	(3.5%)	2.1%	14.4%	15.2%	14.6%	7.6%	9.0%	8.8%	1.2x	1.1x	1.0x	8.4x	7.3x	6.9x	15.8x	12.3x	11.5x	
CTS Corp.	651.9	(16.8)	635.1	19.9	3.9%	4.3%	18.2%	18.8%	19.1%	13.9%	14.5%	14.9%	1.7x	1.6x	1.6x	9.5x	8.8x	8.3x	12.4x	11.4x	10.6x	
VS Industry	371.3	31.2	402.5	0.3	19.7%	22.5%	10.5%	10.4%	10.1%	7.8%	8.3%	8.1%	0.8x	0.6x	0.5x	7.5x	6.0x	5.3x	10.1x	7.5x	6.7x	
Median					3.9%	4.3%	12.4%	13.1%	12.7%	7.8%	9.0%	8.8%	1.2x	1.0x	0.9x	8.9x	8.0x	7.5x	12.4x	10.0x	9.6x	
Mean					8.7%	10.6%	13.3%	13.9%	13.6%	8.4%	9.2%	9.3%	1.1x	1.0x	0.9x	9.2x	7.7x	7.1x	12.7x	10.2x	9.6x	
Small Tier EMS Provider																						
SVI	339.0	(80.4)	258.7	0.1	34.6%	26.1%	8.1%	8.6%	8.2%	3.7%	5.2%	5.4%	0.9x	0.7x	0.7x	10.8x	8.7x	8.0x	24.1x	14.3x	12.3x	
Ducumun	311.2	155.1	466.3	27.8	(17.7%)	(8.2%)	9.9%	10.7%	10.9%	5.2%	6.4%	6.5%	0.9x	0.9x	0.9x	9.2x	8.4x	8.0x	17.7x	14.0x	13.4x	
TT Electronics	276.3	81.9	358.2	1.8	10.7%	7.5%	9.3%	9.5%	9.7%	5.2%	5.5%	5.7%	0.5x	0.5x	0.5x	5.9x	5.5x	5.2x	10.5x	9.6x	8.8x	
Sparton	199.9	88.8	288.6	20.4	5.4%	3.5%	7.0%	7.7%	n/a	3.5%	4.8%	n/a	0.7x	0.7x	n/a	10.6x	9.5x	n/a	21.3x	15.4x	n/a	
Neways	116.0	36.7	152.8	10.1	5.0%	5.0%	5.4%	6.1%	6.2%	3.4%	4.1%	4.2%	0.4x	0.4x	0.4x	7.2x	6.1x	5.9x	11.3x	9.0x	8.6x	
Key Tronic	75.9	41.9	117.8	7.1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
Stadium	37.2	232.0	269.1	1.0	5.3%	(8.2%)	5.6%	1.1%	n/a	1.8%	(0.0%)	1.6%	0.2x	0.2x	0.2x	2.7x	17.3x	n/a	8.2x	n/m	11.6x	
IEC Electronics	35.9	17.6	53.6	3.5	1.0%	n/a	7.6%	n/a	n/a	5.4%	n/a	n/a	0.5x	n/a	n/a	5.7x	n/a	n/a	8.3x	n/a	n/a	
Median					5.3%	4.3%	7.8%	8.2%	9.0%	3.7%	5.0%	5.4%	0.5x	0.6x	0.5x	7.2x	8.5x	6.9x	11.3x	14.0x	11.6x	
Mean					6.3%	4.3%	7.6%	7.3%	8.8%	4.0%	4.3%	4.7%	0.6x	0.6x	0.5x	7.5x	9.2x	6.8x	14.5x	12.4x	10.9x	
Total EMS Providers																						
75- Percentile					5.4%	5.2%	9.5%	10.0%	10.1%	5.2%	5.5%	6.1%	0.8x	0.7x	0.6x	9.3x	8.6x	8.0x	13.7x	11.4x	10.6x	
Median					2.4%	2.3%	6.7%	6.8%	6.6%	3.5%	4.2%	4.2%	0.5x	0.4x	0.4x	7.3x	6.5x	5.8x	11.4x	10.0x	8.8x	
Mean					3.3%	4.4%	7.3%	7.4%	7.7%	4.5%	4.9%	5.1%	0.6x	0.5x	0.5x	7.2x	7.1x	6.0x	12.1x	10.0x	9.1x	
25- Percentile					(3.3%)	(1.1%)	4.9%	4.5%	4.9%	3.0%	3.5%	3.3%	0.2x	0.2x	0.2x	5.7x	5.4x	5.1x	9.4x	8.6x	7.8x	

EV/EBITDA by Size



Size by market cap: Large-tier > €1.5bn
 Medium-tier €300m - €1.5bn
 Small-tier < €300m

EV/EBITDA Development



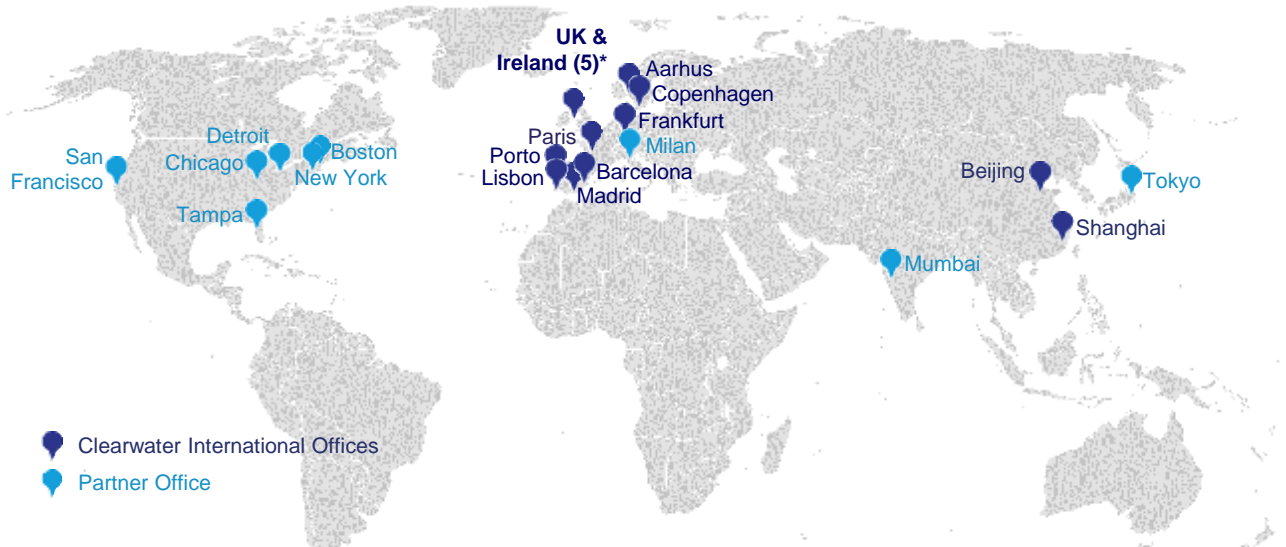
Source: S&P Capital IQ 03 February 2017, Clearwater International Research

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- Clearwater International Offices
- Partner Office

SUEZ (S.I. FINANCE)

Private equity firm

Clearwater International advised S.I. Finance (a subsidiary of SUEZ) on the sale of its 49.6% limited partnership interest in BuS Elektronik to the management

PIEPS

World leading manufacturer of avalanche transceivers

Clearwater International advised SEIDEL Privatstiftung on the sale of PIEPS to Black Diamond

SEIDEL HOLDING

Manufacturer of electronic and mechatronic solutions

Clearwater International advised SEIDEL Holding on the sale of SEIDEL Electronics Group to SVI Public Company Limited

INDUC GMBH

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Coordinating as a single team, our 200 experienced professionals have been responsible for the successful completion of over 1300 deals worth in excess of €50bn; in the last ten years over half of these have had transaction values between €10m and €200m. Working alongside directors, shareholders and investors we advise on all aspects of corporate finance from mergers and acquisitions (M&A) and company sales through to management buy-outs (MBOs) and fundraising transactions.

With 15 offices around the world and deals completed in 31 countries, our team makes us a natural choice for transactions requiring knowledge of, and access to, global markets. We have longstanding relationships with M&A firms around the globe; including the US, Japan, and India; helping us to provide clients with a unique insight into international opportunities.

Our 10 industry teams, focusing on automotive, consumer, energy and utilities, food and beverage, financial services, healthcare, industrials and chemicals, real estate, support services and TMT, add to our compelling proposition. Each sector is supported by an international research and origination team who provide our clients with insights into strategic opportunities.

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