

## LAM Research

Ticker Site BiG	LRCX
Ticker BiGlobal Trade	LRCX
Ticker BT24	LRCX
Ticker BiG Power Trade	LRCX
P/E Ratio 2019E	14.51
P/BV Ratio	5.87
EV/EBITDA	8.14

Source: BiG Research;

## Price and Performance (Values in USD)

Price	207.21
52 week high	209.50
52 week low	122.64
YTD	52.2%
Average daily volume (un)	2,195,772
Market Capitalization (mn)	31,066
Beta	1.35
Dividend	2.55
EPS	14.73

Source: BiG Research;

## Analysts Consensus (last 3 months)

Buy	13
Hold	10
Sell	0

Source: BiG Research;

## Financial Data

Sales (USD mn)	11,077
EBITDA (USD mn)	3,540
Number of Employees	10,900
ROA	20.1%
ROE	44.2%
D/E	0.38
Dividend Yield	2.12%

Source: BiG Research;

## Notes:

All quotes were updated in Bloomberg at 09h46 of July 23<sup>rd</sup>, 2019.

## Relevant Information:

Use the following link to view our most recent publications:

<https://www.big.pt/InformacaoMercados/TradingIdeas/Index/-1>

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<https://www.big.pt/pdf/Newsletters/nld.pdf>

## LAM Research (Ticker: LRCX US)

### Description

LAM Research is a supplier of equipment and services to the semiconductor industry, especially to chip manufacturing. 87% of sales are in Asia and are divided between memory, foundry and logic/ICs clients.

LAM Research trades in the NYSE with a market capitalization of USD 31 bn.

### Investment Case

Chips industry (datacenters, cloud, IoT etc) is growing at a high rate, however, the different changes in trends and technologies may pose a risk for companies like LAM Research which need to be constantly updated. The impact of the fall of spending in memory is also impacting revenues of the company and current trade war situation may impact margins. Trading at a P/E of 13x we do not feel that now is the right moment to increase exposure to LAM Research.

### Environmental, Social and Governance (ESG)

**Environment:** In 2018, the company used 200 mn KWh of electricity, of which around 35% from renewable sources, 723 mn liters of water and approximately 127,128 metric tons of CO2. In 2018 generated around 8,750 metric tonnes of waste of which 45% was recycled.

**Social:** It supports multiple non-profit foundations and organizations with contributions of USD 3.7 mn in 2018.

**Governance:** The company only has 17% of women in its employees. Training hours per employee reached 44h per year.

### Relative Valuation

Name	Country	Market Cap (mn)	Currency	P/E 2019E	YTD	Div. Yield	NetDebt/ EBITDA	Margin EBITDA
CABOT MICROELECTRONICS CORP	UNITED STATES	3,346	USD	17.1	20.8%	1.4%	3.7	27.5%
TERADYNE INC	UNITED STATES	8,028	USD	19.9	49.3%	0.8%	-0.9	28.8%
AMKOR TECHNOLOGY INC	UNITED STATES	1,857	USD	96.9	18.1%	0.0%	1.1	19.1%
INFICON HOLDING AG-REG	SWITZERLAND	1,371	CHF	23.6	14.5%	3.9%	-0.7	22.3%
ENTEGRIS INC	UNITED STATES	5,247	USD	20.1	38.8%	0.7%	1.6	25.2%
ASML HOLDING NV	NETHERLANDS	88,048	EUR	33.8	50.8%	1.0%	0.3	27.0%
MKS INSTRUMENTS INC	UNITED STATES	4,515	USD	16.6	28.6%	1.0%	1.2	24.8%
KLA CORP	UNITED STATES	22,166	USD	16.4	53.3%	2.2%	0.9	38.0%
APPLIED MATERIALS INC	UNITED STATES	47,489	USD	17.1	54.9%	1.6%	0.4	27.7%
LAM RESEARCH CORP	UNITED STATES	31,066	USD	14.5	52.2%	2.1%	-0.4	30.1%
Average exc. LAM Research				29.0		1.40%	0.8	26.7%

Source: BiG Research

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**Analyst:**  
João Calado, CFA

**Research:**  
research@big.pt

Income Statement (USD mn)	2018	2017
Revenues	11,077	8,014
Cost of goods sold	5,912	4,410
Research & Development	1,190	1,034
General and administrative	762	667
Operating Expenses	7,864	6,111
EBIT	3,213	1,902
Interest expenses	62	90
EBT	3,152	1,812
Taxes	771	114
Net Income	2,381	1,698
Earnings Per Share	14.73	10.47

Source: Company's data

Free Cash Flow (USD mn)	2018	2017
Operational Cash Flow	2,656	2,029
Business Net Income	2,381	1,698
Depreciation and Amortization	326	307
Changes in Working Capital	-317	-311
Others	266	335
Investment Cash Flow	2,748	-2,059
Capex	-389	-156
Financial investments & others	3,138	-1,902
Financial Cash Flow	-3,272	-2,632
Debt change	-396	-1,688
Share buyback	-2,568	-739
Dividends	-308	-243
Others	0	39
Change in free cash flow	2,132	-2,662
FX	3	0
Cash at the end of period	4,512	2,378

Source: Company's data

Balance Sheet (USD mn)	2018	2017
<b>Assets</b>	<b>12,479</b>	<b>12,123</b>
Cash & Equivalents	4,512	2,378
Short term investments	437	3,664
Receivables	2,177	1,673
Inventories	1,876	1,233
Property and equipment	903	686
Intangible Assets & Goodwill	1,803	1,797
Other Assets	771	693
<b>Liabilities</b>	<b>5,899</b>	<b>5,135</b>
Short term Debt	610	908
Long term Debt	1,807	1,785
Payables	511	465
Other liabilities	2,972	1,977
<b>Total Shareowner's Equity</b>	<b>6,580</b>	<b>6,987</b>
<b>Total Equity and Liabilities</b>	<b>12,479</b>	<b>12,123</b>

Source: Company's data



Source: Company's data

## Income Statement

Sales in 2018 fiscal year (ended in June 2018) increased 38% and EBIT margin improved from 23.7% to 29%. Net income was impacted by an one-off charge related to US Tax reform. Taiwan weight of total sales decreased to 13% from 26% while the percentage of sales in other Asia countries increased.

## Free Cash Flow

In the quarter ended in March 2019, the company returned around USD 171 mn to shareholders through dividends, and USD 862 mn in share buybacks, which leaves still around USD 4bn available for new buybacks.

## Balance Sheet

The company has around USD 2.5bn in net cash, so it has flexibility to increase debt if needed.

## Third fiscal quarter earnings and guidance

In the quarter which ended on 31<sup>st</sup> March 2019, LAM's saw its memory systems decrease to 61% of total system revenues vs 79% in the prior quarter. Of those, 40% allocated to non-volatile memory (NAND or flash) and 21% to DRAM. Foundry increased to 21% of total system revenues specially focused on 7nm and 5nm. Logic represented the remaining 12%.

**Semiconductor industry overview by LAM Research:** Still expect WFE spending for the calendar of 2019 to be below USD 40bn. Expect memory supply growth to be below long term demand trend line for both NAND and DRAM, with the latter extending the correction through the rest of the year. NAND supply and demand are expected to correct during the year driving a higher pricing trend. On the foundry and Logic side, spending is expected to be higher due to increased semiconductor content in smartphones related to 5G.

## Management Team

**Timothy Archer (President and CEO):** Tim was elected CEO after his predecessor, Martin Anstice, resigned due to accusations of misconduct (non-financial) in December 2018. Tim was formerly the COO since 2012. Before he worked in Novellus Systems as vice president of sales & marketing, having joined that company in 1994. He holds a Bachelor of Science degree in Applied Physics from the California Institute of Technology and completed a Management Development Program at Harvard Business School.

In 2018, former CEO Martin Anstice, received from LAM Research around USD 13mn, including salary (USD 1 mn), stocks and options (USD 8.5mn), bonus (USD 3.2mn) and other benefits.

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## Products and segments

**Deposition:** This is the process that creates layers of insulating (dielectric) and conducting (metal) materials used to build a semiconductor device (chips).

**Etch:** This process helps to create chip features by removing both insulating and conducting materials that have been added during deposition. Reactive ion etch, bombards the wafer surface with ions to remove material, while for the smallest features, atomic-layer etching is used to remove a few atomic layers of material at a time.

**Clean:** Clean techniques are used between manufacturing steps in order to remove residuals or particles that may affect the functions of the part.

**Mass Metrology:** The tools offered in this segment measure the change in mass following the different steps of deposition, etch and clean in order to monitor and control these processes.

### Products

Market	Process/Application	Technology	Products
Deposition	Metal Films	Electrochemical Deposition ("ECD") (Copper & Other)	SABRE® family
		Chemical Vapor Deposition ("CVD") Atomic Layer Deposition ("ALD") (Tungsten)	ALTUS® family
	Dielectric Films	Plasma-enhanced CVD ("PECVD") ALD Gapfill High-Density Plasma CVD ("HDP-CVD")	VECTOR® family Striker® family SPEED® family
	Film Treatment	Ultraviolet Thermal Processing ("ULTP")	SOLA® family
Etch	Conductor Etch	Reactive Ion Etch	Kiyo® family, Versys® Metal family
	Dielectric Etch	Reactive Ion Etch	Flex™ family
	Through-silicon Via ("TSV") Etch	Deep Reactive Ion Etch	Syndion® family
Clean	Wafer Cleaning	Wet Clean	EOS®, DV-Prime®, Da Vinci®, SP Series
	Bevel Cleaning	Dry Plasma Clean	Coronus® family
Mass Metrology	Deposition, Etch, Clean	Sub-milligram Mass Measurement	Metryx® Family

Source: Company's data

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## ▲ Risks

**Changes in industry difficult to predict:** The semiconductors industry is changing constantly due to the development of new technologies and shift in consumer trends. Consequently it is difficult to accurately predict these patterns and may lead to a decrease in sales if the company products fail to address the industry needs.

**Trade Wars:** Around 16% of its sales are in China, so an escalation of trade wars and tariffs may impact directly sales and margins of the company.

Rating		
Agency	Rating	Outlook
S&P	BBB+	STABLE
Moody's	A3	STABLE

Source: BiG Research

## ▲ Graph



Source: BiGlobal Trade (partner Saxo Bank); BiG Research

## ▲ Calendar

**July 25<sup>th</sup>, 2019:** 3Q19 earnings

**September 10<sup>th</sup>, 2019:** Ex-date quarterly dividend

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  - Accumulate, expected absolute return between +5% and +15%;
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