



## Full Company Report

Reason: Company newsflow

17 May 2018

### Accumulate

from

**Share price: EUR 23.90**

closing price as of 16/05/2018

**Target price: EUR 27.00**

**Upside/Downside Potential 13.0%**

Reuters/Bloomberg

SISG.DE/SIS GR

**Market capitalisation (EURm) 244**

Current N° of shares (m) 10

**Free float 59%**

Daily avg. no. trad. sh. 12 mth 29

Daily avg. trad. vol. 12 mth (m) 742.95

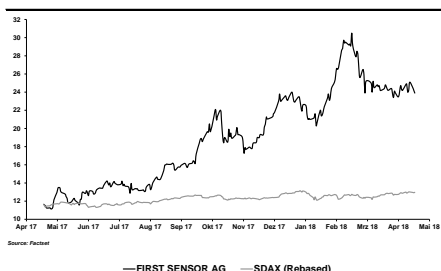
Price high/low 12 months 11.15 / 30.50

Abs Perfs 1/3/12 mths (%) -2.05/6.70/105.15

Key financials (EUR)	12/17	12/18e	12/19e
Sales (m)	148	157	168
EBITDA (m)	20	23	23
EBITDA margin	13.3%	14.4%	13.9%
EBIT (m)	11	12	14
EBIT margin	7.2%	7.9%	8.0%
Net Profit (adj.)(m)	4	7	8
ROCE	6.0%	7.0%	7.6%
Net debt/(cash) (m)	23	20	15
Net Debt/Equity	0.3	0.2	0.2
Net Debt/EBITDA	1.2	0.9	0.6
Int. cover(EBITDA/Fin.int)	10.6	10.5	10.8
EV/Sales	1.7	1.7	1.5
EV/EBITDA	12.6	11.8	11.2
EV/EBITDA (adj.)	12.6	11.8	11.2
EV/EBIT	23.4	21.4	19.2
P/E (adj.)	nm	35.6	31.9
P/BV	2.8	2.8	2.7
OpFCF yield	1.2%	1.9%	2.9%
Dividend yield	0.7%	0.8%	0.8%
EPS (adj.)	0.40	0.67	0.75
BVPS	7.91	8.42	8.99
DPS	0.16	0.18	0.20

### Shareholders

DPE Deutsche Private Equity GmbH 36%; Teslin Capital Management BV 5%;



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## Narrowing the profitability gap to peers

The First Sensor group (FIS) is an established sensor producer with leading market positions in clearly defined strategic target markets. During the next years the group will benefit from various megatrends related to different industries. Based on its outlined strategy the group will reach a sustainable, higher level of profitability in our view. Furthermore the group will remain a strong cash flow generator. The strong share price performance since the beginning of 2016 already partly reflects the positive outlook. We initiate our coverage for the First Sensor shares with an Accumulate rating and a target price of EUR 27.00 per share.

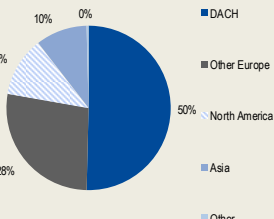
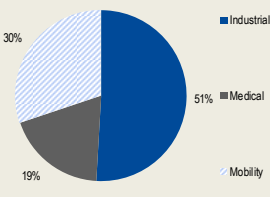
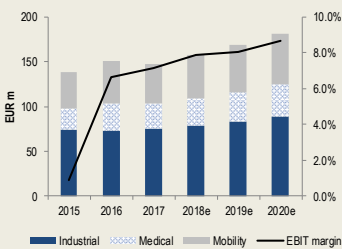


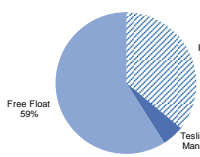
- ✓ **Benefitting from some megatrends:** FIS serves three strategic target markets which are Industrial, Medical and Mobility. Industry 4.0 will change the philosophy of production and sensors and sensor systems definitely will play an important role. In Medical E-health applications are on the rise, while in Mobility autonomous driving, among other factors, is in the centre of First Sensor's interest.
- ✓ **Five pillar strategy:** The profitable growth strategy is based on five pillars: 1) Target Markets Industrial, Medical and Mobility where FIS will benefit from several megatrends. Therefore more customised products and solutions will be developed. 2) Key customers and products: The benefit will come from better economies of scale. 3) Forward Integration: Selling more systems and solutions which offer a higher margin potential. 4) Internationalization: Entrance and penetration of new markets in North America and Asia. 5) Operational excellence: Cross sectional function for better margins.
- ✓ **Profitability uplift:** With regard to EBIT-margins FIS harvested first fruits, as can be seen in the EBIT-margin 2016 of 6.6% (2015: 0.9%) and 2017 of 7.2%. Mid-term we estimate a level of >9% while the company is aiming for ~10% on a sustainable level, what is not out of reach in our view.
- ✓ **FIS a strong cash flow generator:** The operating cash flow margin in the last two years came out higher than 10%, combined with a favourable cash conversion rate >"1" (2013: 3.8x). We expect this level to continue so that financing of the growth, in addition with other financial sources, is secured in our view.
- ✓ **Reopening of dividend payments:** After ten years without paying dividends for 2017 the management made the proposal to the AGM to pay EUR 0.16 per share (payout ratio of 40%). We interpret this as a sign of confidence to capital markets that First Sensor is on the right track.
- ✓ **Key risks** comprise among other factors: 1) FIS might not keep the speed with regard to new, innovative products and as a result could lose market share over time. 2) FIS will not meet timely all defined milestones of their overall strategy plan what can result in a lower than expected profitability. 3) Hiring of new and skilled employees could become more challenging.

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## CONTENTS

<b>First Sensor at a glance</b>	<b>3</b>
<b>Investment case in charts</b>	<b>4</b>
<b>Investment case and SWOT analysis</b>	<b>5</b>
<b>Valuation</b>	<b>7</b>
<b>DCF valuation</b>	<b>7</b>
<b>Peer group analysis</b>	<b>9</b>
<b>Company profile</b>	<b>12</b>
<b>Company overview</b>	<b>12</b>
<b>First Sensor's strategy for growth</b>	<b>12</b>
<b>Segment Industrial</b>	<b>15</b>
<b>Segment Medical</b>	<b>16</b>
<b>Segment Mobility</b>	<b>17</b>
<b>Market environment</b>	<b>19</b>
<b>Financials</b>	<b>23</b>
<b>Earnings analysis</b>	<b>23</b>
<b>Financial analysis</b>	<b>25</b>
<b>List of abbreviations</b>	<b>28</b>

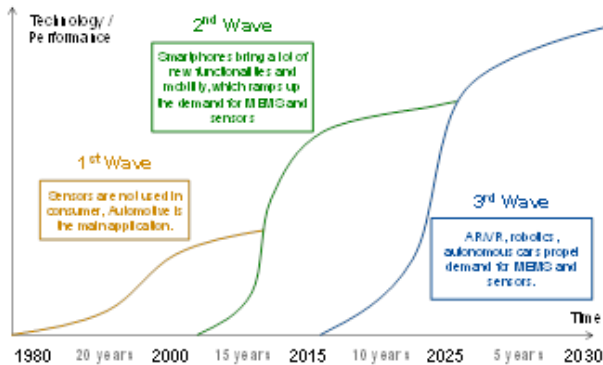
## Exhibit 1: First Sensor at a glance

Business Units	Industrial	Medical	Mobility
Products/ applications	A wide range of standardized and customized sensors in such applications as length measurement, radiation and security, Smart Building, industrial process control and aerospace	First Sensor offers solutions measuring pressure, flow, liquid level, oxygen, light, radiation and acceleration for such areas as breathing and respiration, dialysis, endoscopy, and diagnostics.	In the segment Mobility, First Sensor develops and manufactures sensor devices in such applications as advanced driver assistance systems (ADAS) and OEM pressure sensors and camera solutions
Customers	A broad range of industrial end-markets A broad customer base of c. 2.000 business clients	OEMs for medical devices Roche, Fresenius, Siemens, Draegerwerke	Automotive OEMs and large suppliers, retrofitters Daimler Trucks, VW, FUSO, Volvo, Renault, Paccar, Hella, Delphi, Velodyne, Autoliv, Kenworth, DAF, Navistar, Western Star
Market share/ positioning	No concrete figures disclosed; most likely strong position in industrial pressure sensors and optical sensor solutions	Most likely strong position in pressure and flow	No concrete figures disclosed; most likely above average position pressure sensors; optical sensors (e.g. LiDAR systems) with strong growth in upcoming years
Drivers	A) Development of Industry 4.0, B) Demand for process automation	A) Miniaturization of medical technology, B) increasing demand for intelligent solutions, which analyse and communicate the measured data, C) general e-health trend	A) Autonomous driving, B) Green mobility
Main competitors	Hamamatsu, Amphenol Advanced Sensors, Excelitas, Detection Technology, Smi Pressure Sensors	Honeywell, all sensors, Merit Sensor, OSI Systems, Sensirion	Bosch, Hamamatsu, Excelitas, Sensata Technologies
Entry barriers/ competitive advantage	Positioned in strategic target markets which are of limited interest for large players; FIS covers the entire value chain for sensor solution systems; focus on individual solutions for specific customer needs; higher pricing power for sensor system solutions due to high complexity; lower pricing power in the direction of suppliers;		
Strategy & Guidance	<b>Strategy: Higher profitability</b> (I) Targets and Markets (II) Key Customer & Products (III) Forward integration (IV) Internationalization		
2017	Sales (EURm) 147.5	EBITDA (EURm) 19.6 Margin 13.3%	EBIT adj. (EURm) 10.6 Margin 7.2%
Sales & EBIT Split	<div> <b>Sales split by region</b>   </div> <div> <b>Sales split by division</b>   </div> <div> <b>Group sales development</b>   </div>		
Shareholder structure & management	<div> <b>CEO</b>    <b>Dr. Dirk Rothweiler</b>            CEO (appointed until end of 2019)            • Background in physics            • EVP Optical Systems at Jenoptik            • Vice President Sales &amp; Service at TCZ            • MD Asia-Pacific for Süss Microtec AG         </div> <div> <b>CFO</b>    <b>Dr. Mathias Gollwitzer</b>            CFO (appointed until 2022)            • Head of group controlling, EnBW            • CFO Mercedes-Benz France SAS            • Head of Corporate Controlling, DaimlerChrysler AG         </div> <div> <b>Shareholder structure</b>   </div>		
# of employees FY 2017	798 (FTE)		

Source: First Sensor, equinet Research; Customers: solely equinet Research

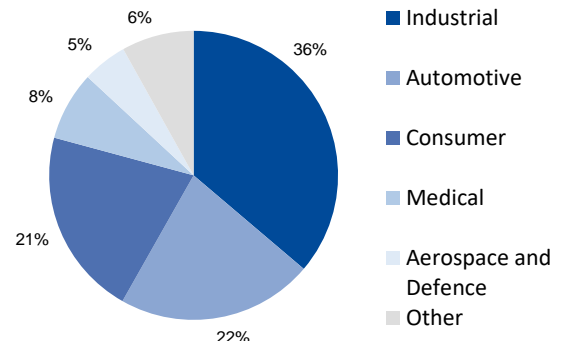
## Investment Case in Charts

Exhibit 2: Long-term perspectives for sensors



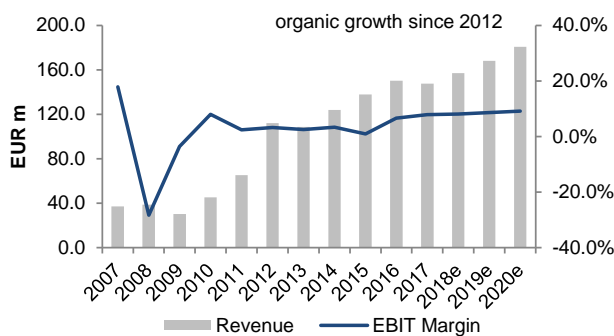
Source: Yole Développement

Exhibit 3: FIS active in 4-5 sensor market segments



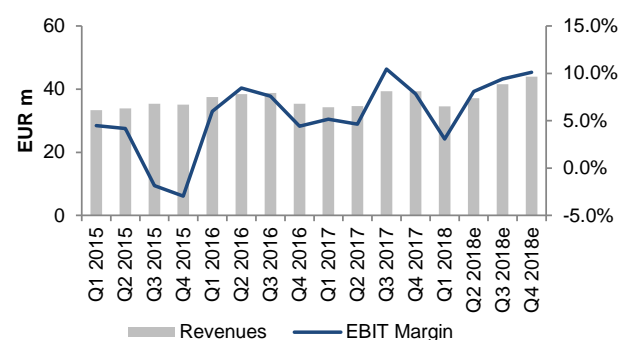
Source: AMR, BCC, R&M, equinet Research

Exhibit 4: EBIT-margin improvement long-term ...



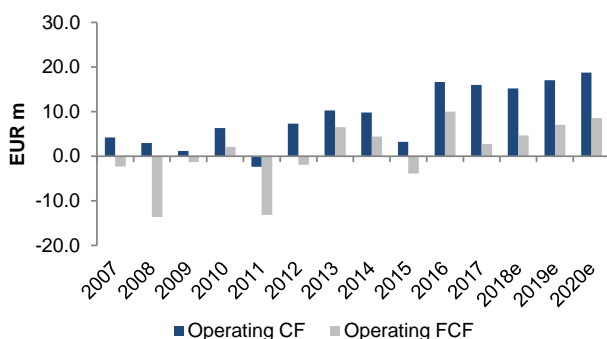
Source: First Sensor, equinet Research

Exhibit 5: ... and short-term



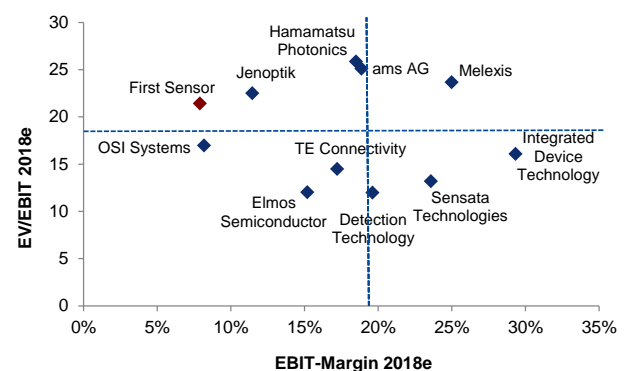
Source: First Sensor, equinet Research

Exhibit 6: FIS a strong cash flow generator



Source: First Sensor, equinet Research

Exhibit 7: EBIT-margin and multiple landscape



Source: FactSet, equinet Research

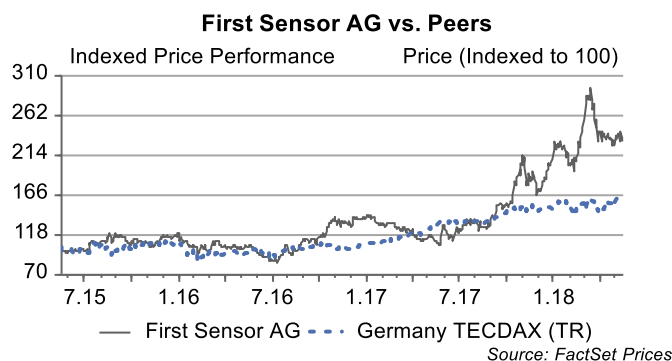
## Investment case and SWOT analysis

The First Sensor group currently holds leading market positions in its defined strategic end-markets. These markets have high entry barriers for other medium-sized companies and volumes most likely are too small for the large players in our view.

The company covers the entire value chain for sensors and related systems. Looking forward, First Sensor is well positioned to benefit from some megatrends like for example autonomous driving or Industry 4.0. By benefitting from these trends the current strategy is directed to a higher margin level and in 2016 and 2017 the group could harvest the first fruits of this program. Nevertheless the margin level is still behind to some of its listed peer group companies.

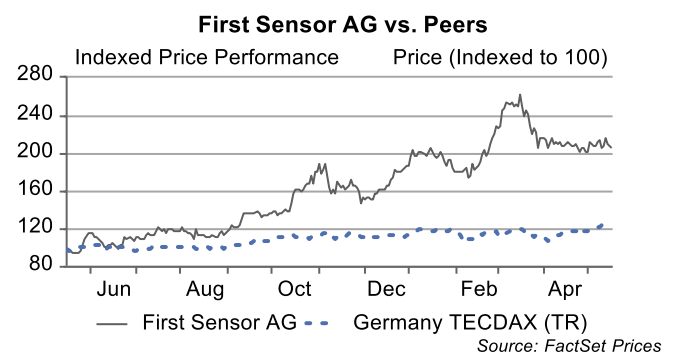
The share price performance since early 2016 reflected already the increase in First Sensor's profitability. Since the beginning of 2016 to date the share price showed an impressive performance of 95% and clearly outperformed the TecDax with an increase of 43%. Year to date the First Sensor shares are up another 11.2%. From this perspective it seems that some of the positive expectations are already included in the current share price level.

**Exhibit 8: First Sensor: Three years performance**



Prices as of 16.05.2018

**Exhibit 9: First Sensor: One year performance**



Prices as of 16.05.2018

Further triggers for the share price in our view are any signs for a further sustainable margin improvement. These signs can be for example the winning of new high volume OEM customers, new product innovations, internal cost savings measures or entering new markets.

The macro picture in Germany and Europe shows first signs that the current boom is normalizing. The April figure for the German Ifo climate index declined to 102.1 index points. It is the fifth month in a row with declining figures. It is our impression that the German economy is slowing down but currently far away from a recession. Pessimists might raise the question later this year, if a soft landing or a sharp move towards a recession is the correct scenario.

**Exhibit 10: First Sensor: SWOT – analysis**

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Solid market positions in its relevant markets</li> <li>• Strong financial profile with high cash flow orientation</li> <li>• FIS covers the entire value chain for sensor technology</li> </ul>	<ul style="list-style-type: none"> <li>• Shareholders have not benefitted from dividend payments since FY2007; 2017e: EUR 0.16</li> <li>• EBIT-margin level currently behind peer-group average</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Five pillar strategy argue for a higher margin level</li> <li>• Offering sensor systems in line with megatrends like e.g. autonomous driving, miniaturization of medical equipment, Industry 4.0</li> <li>• Increase the sales portion of sensor system solutions with higher value added</li> </ul>	<ul style="list-style-type: none"> <li>• Fast technological change could lead to growing investment needs</li> <li>• Hiring of skilled employees could become more challenging</li> </ul>

Source: equinet Research

## Valuation

We value the First Sensor shares and derive the target price from our DCF-model. We have built a base case scenario and in addition a more optimistic view can be seen in a bull case scenario.

### DCF valuation

To calculate the equity value for First Sensor we use our three-stage DCF-model to determine future cash flows. In our first stage, we calculate a detailed P&L, Balance Sheet and Cash Flow statement for the period up to 2022e based on information provided by the company and our own market assessment. In stage two, we switch over to a trend analysis until 2027e for some key drivers like for example sales growth, EBIT-margin and investments. In the third stage, we analyze and calculate the terminal value on the basis of a going-concern assumption. In addition to the listed base input factors, currently we use a terminal growth rate of 2.5% and a sustainable EBIT-margin of 9.5%.

**Exhibit 11: First Sensor: DCF model – Base Case**

	Phase I					Phase II					Phase III	
EUR m	2018e	2019e	2020e	2021e	2022e	2023e	2024e	2025e	2026e	2027e		
Revenues	157.0	168.0	180.8	194.9	210.0	224.4	237.9	250.1	260.7	269.5		
growth rate	6.4%	7.0%	7.6%	7.8%	7.7%	6.9%	6.0%	5.1%	4.2%	3.4%		
EBIT	12.4	13.5	15.6	17.8	19.8	21.2	22.5	23.7	24.7	25.6		
EBIT margin	7.9%	8.0%	8.6%	9.1%	9.4%	9.5%	9.5%	9.5%	9.5%	9.5%		
Tax	-3.7	-4.1	-4.7	-5.3	-5.9	-6.4	-6.8	-7.1	-7.4	-7.7		
Tax rate	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%		
Depr. & Amort.	10.2	9.8	9.9	10.2	10.3	11.2	11.9	12.5	13.1	13.6		
% of sales	6.5%	5.8%	5.5%	5.2%	4.9%	5.0%	5.0%	5.0%	5.0%	5.0%		
Capex	-10.5	-10.0	-10.2	-11.0	-11.1	-11.9	-12.6	-13.2	-13.8	-14.2		
% of sales	6.7%	6.0%	5.6%	5.6%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%		
Change in WC & P	-0.7	-0.5	-0.4	-0.1	0.2	0.2	0.2	0.2	0.2	0.1		
% of sales	0.4%	0.3%	0.2%	0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%		
Free Cash Flow	7.7	8.8	10.2	11.5	13.3	14.4	15.3	16.1	16.8	17.4	400.3	
growth rate	nm	13.7%	16.9%	12.3%	15.9%	7.9%	6.5%	5.3%	4.3%	3.4%	2.5%	
Present Value FCF	7.4	7.9	8.6	9.0	9.8	9.9	9.8	9.7	9.4	9.1	209.7	
PV Phase I	42.6					Risk free rate		3.5%	Targ. equity ratio		60%	
PV Phase II	47.8					Premium Equity		5.0%	Beta		1.1	
PV Phase III	209.7					Premium Debt		2.0%	WACC		7.0%	
Enterprise value	300.1					Sensitivity		Growth in phase III				
- Net Debt (Cash)	22.8							1.5%	2.0%	2.5%	3.0%	3.5%
- Pension Provisions	0.3					6.26%		27.0	29.5	32.7	36.8	42.4
- Minorities & Peripherals	1.2					6.60%		24.9	27.0	29.6	32.9	37.3
+ MV of financial assets						WACC		6.95%	23.1	24.8	27.0	33.2
- Paid-out dividends for last FY	0.0					7.30%		21.4	23.0	24.8	27.0	29.9
+/- Other EV items						7.65%		20.0	21.3	22.9	24.7	27.1
Equity value	275.8											
Number of shares	10.2											
Value per share (€)	27.0											
Current Price (€)	23.9											
Upside	13%											

Source: equinet Research

The major trigger for a further margin improvement is First Sensor's five-pillar strategy in our view. The first fruits were already harvested in FY2017, when the EBIT-margin increased further to 7.2% from 6.6% a year earlier. The last capital markets day in March

2018 provided a lot of details, how the mid-term EBIT-margin level of ~10% can be reached. On this basis, we calculate for the company an enterprise value of EUR 300.1m. Including financial debt, pensions and other items we calculate the equity value at EUR 275.8m or EUR 27.0 per share. This is clearly higher than the current share price level and we initiate our coverage with an Accumulate rating.

In our bull case scenario we have changed a few parameters. The terminal growth rate was increased to 3.5% and the sustainable margin was lifted to 10%, which is the group's mid-term target. Other input factors like the equity ratio, beta factor, risk free rate etc. have been left unchanged.

#### Exhibit 12: First Sensor: DCF model – Bull Case

EUR m	Phase I					Phase II					Phase III	
	2018e	2019e	2020e	2021e	2022e	2023e	2024e	2025e	2026e	2027e		
Revenues	157.0	168.0	181.4	196.0	211.6	227.0	241.7	255.6	268.4	279.8		
growth rate	6.4%	7.0%	8.0%	8.0%	8.0%	7.3%	6.5%	5.8%	5.0%	4.3%		
EBIT	12.4	13.5	15.6	16.7	19.0	20.9	22.7	24.5	26.3	28.0		
EBIT margin	7.9%	8.0%	8.6%	8.5%	9.0%	9.2%	9.4%	9.6%	9.8%	10.0%		
Tax	-3.7	-4.1	-4.7	-5.0	-5.7	-6.3	-6.8	-7.4	-7.9	-8.4		
Tax rate	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%		
Depr. & Amort.	10.2	9.8	9.9	10.2	10.3	11.2	12.0	12.7	13.4	14.0		
% of sales	6.5%	5.8%	5.5%	5.2%	4.9%	4.9%	5.0%	5.0%	5.0%	5.0%		
Capex	-10.5	-10.0	-10.2	-11.0	-11.1	-11.9	-12.7	-13.4	-14.1	-14.7		
% of sales	6.7%	6.0%	5.6%	5.6%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%		
Change in WC & P	-0.7	-0.5	-0.4	-0.1	0.2	0.2	0.2	0.2	0.2	0.2		
% of sales	0.4%	0.3%	0.2%	0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%		
Free Cash Flow	7.7	8.8	10.2	10.7	12.8	14.1	15.5	16.7	17.9	19.1	573.7	
growth rate	nm	13.7%	16.9%	4.8%	19.1%	10.7%	9.3%	8.2%	7.2%	6.4%	3.5%	
Present Value FCF	7.4	7.9	8.6	8.4	9.4	9.7	9.9	10.0	10.0	10.0	300.5	
PV Phase I		41.6				Risk free rate	3.5%		Targ. equity ratio		60%	
PV Phase II		49.6				Premium Equity	5.0%		Beta		1.1	
PV Phase III		300.5				Premium Debt	2.0%		WACC		6.9%	
Enterprise value		391.7				Sensitivity		Growth in phase III				
- Net Debt (Cash)		22.8					2.5%	3.0%	3.5%	4.0%	4.5%	
- Pension Provisions		0.3				6.25%	35.4	39.9	46.2	55.1	69.2	
- Minorities & Peripherals		1.2				6.59%	32.0	35.7	40.5	47.2	57.1	
+ MV of financial assets						WACC	6.94%	29.2	32.1	36.0	41.2	
- Paid-out dividends for last FY		0.0				7.29%	26.7	29.2	32.3	36.4	42.0	
+/- Other EV items						7.63%	24.6	26.7	29.3	32.6	36.9	
Equity value		367.4										
Number of shares		10.2										
Value per share (€)		36.0										
Current Price (€)		23.9										
Upside		50%										

Source: equinet Research

The result is a value per share of EUR 36.0, and this gives currently an upside potential of 47%. When the company will reach or beat their own growth and margin targets the shares will have a further significant upside potential in our view.



## Peer group analysis

The overall sensor market is fragmented and there are both non-listed and listed companies being active players. We have selected listed companies only. Our ten international companies generally are all active in the global sensor market, but in detail business activities, core competences or serving end-markets vary. Not all selected peer group companies are competitors in all of First Sensor's defined three target target markets.

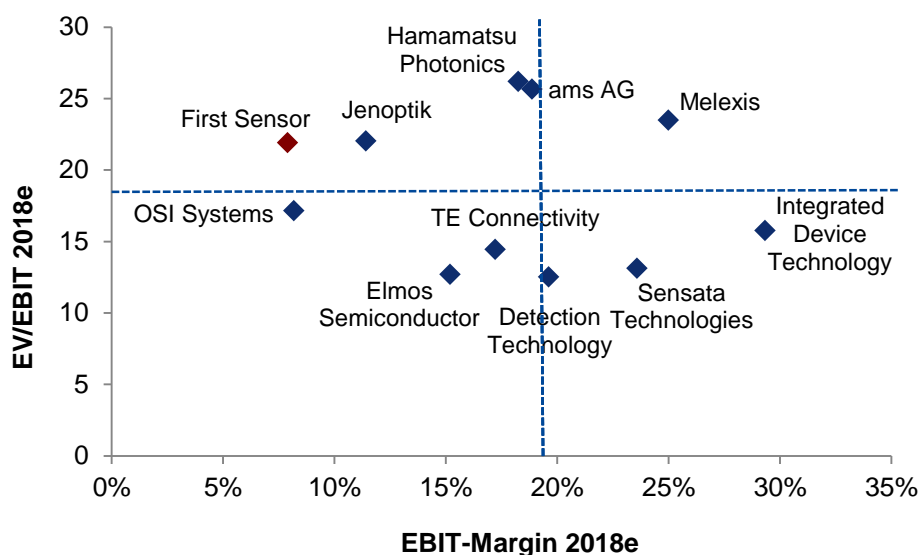
**Exhibit 13: First Sensor: Peer-group comparison**

Company	PE 2018e	PE 2019e	EV/EBIT 2018e	EV/EBIT 2019e	EV/EBITDA 2018e	EV/EBITDA 2019e
ams AG	24.1	13.0	24.5	12.2	16.4	9.0
Detection Technology Oy	17.1	15.0	12.0	10.6	10.6	9.5
ELMOS Semiconductor AG	18.6	16.3	12.0	10.4	7.2	6.4
Hamamatsu Photonics K.K.	36.2	32.9	23.1	20.7	16.0	14.4
Integrated Device Technology, Inc.	17.9	16.0	16.1	14.0	14.9	12.6
JENOPTIK AG	28.3	25.4	22.5	19.9	17.1	15.3
Melexis NV	28.6	25.2	23.4	20.7	19.0	16.9
OSI Systems, Inc.	18.9	17.7	17.0	13.2	8.1	7.5
Sensata Technologies Holding PLC	14.3	13.1	13.2	11.7	11.7	10.5
TE Connectivity Ltd.	17.1	15.8	14.5	13.2	11.4	10.5
<b>Median</b>	<b>18.8</b>	<b>16.1</b>	<b>16.5</b>	<b>13.2</b>	<b>13.3</b>	<b>10.5</b>
<b>First Sensor AG</b>	<b>35.6</b>	<b>31.9</b>	<b>21.4</b>	<b>19.2</b>	<b>11.8</b>	<b>11.2</b>

Source: FactSet, equinet Research

First Sensor's main USPs are, among other factors, the focus on clearly defined strategic target markets with long-term growth perspectives and the fact that FIS covers the entire value chain for sensor technology.

**Exhibit 14: First Sensor: Peer-group comparison**



Source: FactSet, equinet Research

Exhibit 14 shows that currently First Sensor's EBIT-margin level ranks somewhat behind the peer group, but the EV/EBIT multiple is comparably high (more detailed margin analysis in paragraph "Financials"). FIS covers the chip production, packaging technology and

distribution of sensor products which vary in their margin level. That has to be taken into account, when comparing the margins with the other players.

## Profile of peer-group companies

### ams AG

ams AG develops and manufactures analog semiconductors, sensors and related solutions for customers in consumer, industrial, medical, mobile communication and automotive end markets. In FY 2017 the company achieved sales of about EUR 1,064m and an operating income of EUR 169m (margin of 16%) while employing 7,016 people. The company's core business areas are Optical sensing, Imaging and Audio and Environmental Sensing. ams AG is somewhat diversified geographically, with the bulk of revenues coming from Asia (47%), as well as smaller contributions from EMEA (33%) and the Americas (20%). ams AG published its Q1 2018 results on the 24<sup>th</sup> of April with a profit warning for Q2 2018e.

### Detection Technology

Finish Detection Technology was founded in 1991 and engages in the design and manufacture of X-ray imaging components and systems. Products include photodiodes, detectors and many more. In FY 2017 the company achieved net sales of about EUR 89m and an operating income of EUR 19.9m (margin of 22.3%). The company currently employs 405 people. The company's segments are Security and Industrial Business Unit (SBU, sales share of 65%) and Medical Business Unit (MBU, 35%). Detection Technology shows little geographic diversification, with a bulk of revenues coming from Asia (63%), as well as smaller contributions from Europe (12%) and the Americas (25%).

### ELMOS Semiconductor AG

ELMOS Semiconductor is a manufacturer of semiconductor based system solutions headquartered in Dortmund, Germany. In its Semiconductor segment the company offers solutions with applications in household appliances, digital cameras, building technology and machine control systems. The Micromechanics segment provides micro-mechanical technologies in bulk and thin film engineering used in sensors. Most of the products were shipped into automotive end markets. In FY 2017 ELMOS Semiconductor achieved sales of about EUR 250.4m and an EBIT of EUR 38.4m (margin of 15.3%).

### Hamamatsu Photonics K.K.

Japanese Hamamatsu Photonics is a producer of imaging and analyzing systems, photomultiplier tubes, imaging devices and various other products. The company's segments are Electron Tube (sales share of 53%), Opto-semiconductors (28%), Imaging and Measurement Instruments (12%) and others being responsible for the remainder. On April 20 2018, the company pushed up its guidance number for 2018 significantly and has raised its operating profit guidance to Yen 14,900m from Yen 11,600m, reflecting the favorable business performance.

### Integrated Device Technology Inc.

Integrated Device Technology, Inc. was founded 1980 and today develops system-level solutions that optimize its customers' applications. The company products in RF, high performance timing, memory interface, real-time interconnect, optical interconnect, wireless power, and smart sensors. These products are among the company's broad array of complete mixed-signal solutions for communication, computing, consumer, automotive and industrial end-markets. The San Jose based company achieved sales of USD 728.2m and an operating income of USD 110m (15% margin) in 2017. Besides their traditional business

areas, Integrated Device Technology also engages in Cloud concepts and cloudification of infrastructure.

### **Jenoptik AG**

German-based Jenoptik AG is a globally operating technology company. In their Optics & Life Science segment the company is one of the global development and production partners for optical and micro optical systems and components. The Mobility segment engages in the production of measurement technology and laser machines while the Defense & Civil Systems segment develops, manufactures and markets mechatronic and sensor products for civil and military markets. Jenoptik AG published sales of EUR 748m and an EBIT of EUR 78m in 2017. The majority of revenues are generated in Europe (58%), the rest attributable to the Americas (23%) and Asia (15%). The biggest single shareholder is Thüringer Industriebeteiligungs GmbH & Co. KG with a stake of 11%, according to Jenoptik AG.

### **Melexis NV**

The foundation of Melexis dates back to 1988, when the Belgian company was founded by Roland Duchatelet. Its main target market is the automotive industry where it supplies integrated semiconductor devices. Its portfolio comprises sensors, actuators, radiofrequency circuits and micro-optical circuits. Based on reported figures, 2017 the group achieved sales of EUR 511.6m and an EBIT of EUR 132.6m resulting in a margin of 26%. On April 20 Melexis reported Q1 2018 results, indicating a sales growth of 13% yoy. Melexis has announced to invest EUR 75m over a period of 5 years into new production facilities in Bulgaria and expects to grow the workforce from 425 to 575 in 2018.

### **OSI Systems Inc.**

OSI Systems is an integrated designer and manufacturer of specialized electronic systems and components for critical applications. The firm sells its products and services in diversified markets including homeland security, healthcare, defense and aerospace. The company was founded by Deepak Chopra in 1987 and is headquartered in Hawthorne, USA. The security segment generated USD 550m in sales while Healthcare accounted for USD 200m and Optoelectronics for USD 206m. Total income from operations amounted to USD 33.2m in FY 2017. Because of its recent success, OSI Systems announced its intention to buy back 1m shares in March 2018.

### **Sensata Technologies Holding plc**

Sensata Technologies has a long-lasting track record in sensing technology. Today the company engages in designing, customizing and manufacturing of mission-critical sensors and controls. With its products it serves a large variety of end-markets, among them for example Aerospace & Defense, Marine, Agriculture or Material Handling. Being closer to First Sensor Sensata is also active in Automotive, Medical and other than already mentioned Industrial markets. Revenues in the first quarter increased by 9.8% to USD 886.3m, while net profit was up by 26.1% and amounted to USD 90.5m.

### **TE Connectivity Ltd.**

Founded in 2000, Swiss TE Connectivity is a producer of connectivity and sensor solutions. Products range from data and energy cables to high-end sensors and relays. Sales of USD 13,113m distribute to the segments Transportation solutions (53%), Industrial solution (27%) and Communication solutions (20%). Income from continuing operations consequently amounts to USD 1,673m.

## Company Profile

### Company overview

In 1991 the company was established as Silicon Sensor GmbH by former employees from VEB Werk für Fernsehelektronik (in the former German Democratic Republic). As Silicon Sensor International AG the company went public in 1999. Sales at that time amounted to EUR 2.97m. In 2011 the company's name was changed into First Sensor AG and in the same year the Sensortech group was acquired. The strategic rationale behind this important acquisition was a substantial enlargement of the product offering.

Today, First Sensor group comprises the holding company and ten daughter companies with nine production and development locations as well as further six sales companies. The group offers a wide variety of products from sensors to sensor modules and complex sensor systems solutions. With this range of products and solutions the group focusses on the three target markets Industrial, Medical and Mobility. The group serves nearly 3,000 customers with some 5,000 products.

First Sensor, so far, achieved a substantial growth. Sales CAGR 2007 – 2017 including acquisitions reached 14.8%, while the reported EBIT grew by 4.8% with a significant recovery being visible in the last two years. 2017 the group reached an EBIT-margin of 7.2%. CAGR for the operating cash flow amounted to 13.1%. With an equity ratio between 45% and 50% and a net debt/EBITDA ratio of 1.3 (FY 2017) the group has a solid financial profile in our view. Mid-term the group wants to achieve an EBIT-margin of ~10%, which is ambitious but not out of reach. Currently the company has a free float of nearly 61%.

### First Sensor's strategy for further growth

- Target of profitable growth should be reached by a five pillar strategy
- First Sensor business will benefit from some global megatrends
- Achieving a sustainable EBIT-margin of ~10%

The overall target of the group is to achieve a continuing profitable growth, which is a common goal for an economically acting company and hence is not unique to First Sensor. After several years of a lower level of profitability since 2016 a recovery of the EBIT-margin has become visible and according to our assessment there is still room for a further margin increase.

In the technology driven sensor technology market First Sensor group is focussing on standard products and on customer-specific solutions. The solutions business, under normal circumstances, offers a higher margin potential. First Sensor sees its core competences in particular in:

- the designing and manufacturing of silicon-based sensor chips and
- the layout and connection technology (LCT), on the basis of which chips become sensors and sensor systems.

Exhibit 15: First Sensor: Strategic perspective for profitable growth

## STRATEGIC PERSPECTIVE FOR PROFITABLE GROWTH

We generate and utilize economies of scale in 4 dimensions



Source: First Sensor AG

### Target markets

The current management has implemented a strategy based on five key pillars in order to achieve further top line growth and to further lift profitability. The first pillar focusses on clearly identified strategic target markets in order to avoid a stuck-in-the-middle position. These markets are Industrial, Medical and Mobility. First Sensor does not address the consumer segment. In all three markets First Sensor and other players can benefit from some long-lasting megatrends.

In the **Industrial** target market „Industry 4.0“ has started to change industrial production fundamentally. Machines and other equipment will be able to communicate with each other, generate and analyse data on a real-time basis, and by doing this can optimize production processes, save costs and increase flexibility towards „batch size one“. In all of these applications e.g. cameras, sensors and software is necessary. First Sensor mainly serves applications like light, radiation, pressure, flow, level and acceleration. Concrete examples are predictive maintenance for industrial equipment, use of cobots (collaborative robots) autonomous transport solutions, scanner technology and many others. This market segment is a multi-billion Euro market with double-digit growth rates are being possible.

The target market **Medical** is also faced with some fundamental changes towards the so-called „E-health“-applications. Among other megatrends the aging population, miniaturization of medical technology and an intensified self-tracking of patients are important drivers for future growth. In this context sensors are needed for measure, control, analyse and communicate, all directed for the improvement of the patient's health.

Also in the third target market **Mobility** some fundamental changes argue for further growth. E-mobility, autonomous driving and digitalization have already started to penetrate automotive markets. In this context LiDAR-systems (Light detection and ranging) are of particular importance. This specific market is expected to grow by 25% to 35% until 2022 according to our own assessment. First Sensor with its product families targets not only passenger cars but also trucks and commercial and specialized vehicles. All big OEMs are investing in these new technologies and the company already is in a promising position to participate from these trends in our view.

### Key customers and Products

The second pillar is to focus more on key customers and key products. The goal is to improve the economies of scale. Key products are those products which have a sales potential of more than EUR 1m per year, while key customers also those with sales of more than EUR 1m per year. The company does not provide any concrete numbers, but according to our own assessment it is our best estimate that today the group has some 20 to 25 key customers which meant that they generate at least some 20% to 25% of the total sales. The platform based products normally are standard products with limited volumes produced. The tailor made sensor systems solution products normally are produced in larger quantities per product and offer higher margins due to more content of intellectual property. Larger quantities in addition can increase the purchasing power of First Sensor and so far can support a margin improvement.

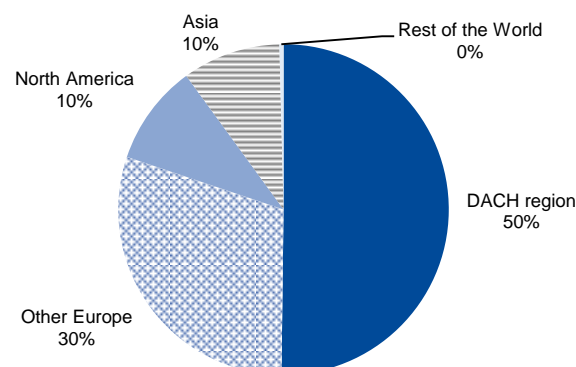
### Forward Integration

The third pillar is forward integration. First Sensor has addressed a clear product roadmap for the areas light, level, pressure, radiation, flow and acceleration. Along the value added chain, from the chip via component and sensor to sensor systems the sales portion of the latter product group should increase. These tailor-made, more complex solutions contain more FIS know-how and with regard to pricing could offer higher margins. Concrete breakdown figures are not made public by the company but in our view and compared to other initiatives offer an above average upside potential to profitability.

### Internationalization

The fourth pillar of internationalization is an important element in our view with regard to future growth markets. Regional sales already became more balanced during the last years

**Exhibit 16: First Sensor: Sales by region average 2016 and 2017**



Source: First Sensor AG

Looking back to 2006, Germany account for 65% of sales, while last fiscal year it was 43%. But as Exhibit 16 shows, Europe with some 80% is still the dominant end-market for First Sensor. Production facilities and the product value added are mainly located in Europe. In order to better meet the needs of international customers both the USA and China are markets with significant future growth. In the USA First Sensor already has improved it's



position. Sales jumped from EUR 4.4m in 2014 to EUR 17.3m in 2017 (CAGR of 58%). Progress is also visible in Asia, but the CAGR 2014 to 2017 of +8.9% was clearly lower. In particular these two region offer significant growth potential and this is reflected in the partly modified sales organization. A new distribution arm for the region „Overseas“ has been implemented, covering the North America, Asia and the Rest of the World.

### Operational Excellence

Finally the management pays attention to the operational excellence as being a cross-sectional function. The company already started some projects in 2016 like for example improving lead times and quality, optimization and consolidation of the product portfolio or the one ERP system. Portfolio consolidation, among others, strives for a more optimized product portfolio with a higher share of „A“-products for „A“-customers.

### Segment Industrial

First Sensor is organized and works as an integrated industrial group. The three target markets Industrial, Medical and Mobility are not the basis for the company's management approach and internal reporting. Results of the parent company and its subsidiaries do not meet the criteria for a segment report. As a result, only sales figures but no earnings breakdown is provided.

The segment Industrial is the biggest segment within the group and generated a stable sales portion of nearly 50% during the last years. With its sensor products and system solutions First Sensor concentrated on the following main areas of:

- Length measurement (e.g. laser scanners, LiDAR systems)
- Radiation and Security (e.g. freight inspection at air and sea ports, scanners)
- Smart Buildings (e.g. climate control, energy distribution, condition monitoring)
- Industrial Process Control (e.g. level sensing, leak detection)
- Aerospace (e.g. control and navigation applications, acceleration).

In this segment several thousands of customers were served according to our assumption and the main competitors are in our view Hamamatsu, Honeywell, Amphenol Advanced Sensors or Detection Technology.

#### Exhibit 17: First Sensor: Segment Industrial

EUR m	2013	2014	2015	2016	2017	2018e	2019e	2020e	2021e	2022e	CAGR 13-17	CAGR 18e-22e
Sales	68.3	68.4	74.1	72.5	75.1	79.0	83.5	89.0	95.0	101.0	2.4%	6.3%
yoy %		0.2%	8.3%	-2.2%	3.6%	5.2%	5.7%	6.6%	6.7%	6.3%		
share of group sales	62.9%	55.2%	53.8%	48.3%	50.9%	50.3%	49.7%	49.2%	48.7%	48.1%		

Source: First Sensor AG, equinet Research

Last fiscal year the segment's sales increased by 3.6% yoy following a decline a year earlier. As published by the company sales with Industry 4.0 applications in 2017 amounted to EUR 32.7m or 43.5% of segment sales. Given this volume, the sub-segment last year was the most important activity in the overall Industrial end-market. Looking forward First Sensor can benefit from some megatrends, in particular from „Industry 4.0“, and in general from ongoing factory- and process automation. This year the segment will benefit in

Germany and Europe from the favourable economy. Based on a solid order backlog we expect for the upcoming year's and accelerated sales growth between 5% and 6.7%.

Profitability is expected to increase in our view due to an improved product mix towards the sale of more system solutions. Furthermore we expect better economies of scale from serving a higher portion of larger customers with higher unit volumes.

## Segment Medical

The Medical segment with a sales share of close to 20% currently is the smallest activity within the group. Due to its highly sophisticated products the segment could achieve an above average margin level in our view. In Medical First Sensor concentrated mainly on the following areas:

- Breathing and Respiration (e.g. thermal mass flow sensors, sensors for anesthetic devices)
- Dialysis (e.g. silicon pressure sensors, multi-sensor modules including valves, pumps etc.)
- Diagnostics (e.g. large-scale X-ray detector arrays for CT, video endoscopy).

One of the main customer groups are producers of medical technology like e.g. Siemens or Drägerwerke. Competitors are, among others, Hamamatsu Photonics from Japan, Excelitas, Sensirion or ams AG. Other non-listed sensor companies serving the Medical end-market are for example Amsys GmbH & Co. KG, Framos GmbH, Hottinger Baldwin Messtechnik GmbH (all Germany) or Sencio B.V. from the Netherlands. Currently not all are direct competitors for FIS.

### Exhibit 18: First Sensor: Segment Medical

EUR m	2013	2014	2015	2016	2017	2018e	2019e	2020e	2021e	2022e	CAGR 13-17	CAGR 18e-22e
Sales	17.7	20.4	23.8	30.7	27.9	30.0	32.5	35.3	38.4	41.7	12.1%	8.6%
yoy %		15.4%	16.7%	29.0%	-9.0%	7.4%	8.3%	8.6%	8.8%	8.6%		
share of group sales	16.3%	16.5%	17.3%	20.5%	18.9%	19.1%	19.3%	19.5%	19.7%	19.9%		

Source: First Sensor AG, equinet Research

As the quarterly reporting shows, there is no particular seasonality during the fiscal year. Following three years of strong sales growth in 2017 the segment reported a decline of 9% yoy to EUR 27.9m. Some important projects were postponed and could not be compensated. Therefore we would expect a promising start into the year and expect that the segment will return to the growth path again with a plus of 7.4% for FY 2018e. Mid- to long-term new „E-health“-applications and a further miniaturization will drive further growth. More sophisticated solutions in medical technology will not only measure, but also analyse results and communicate with other equipment. This trend could also become beneficial for First Sensor in our view. On the other hand, in particular in Germany, a general cost pressure in the health care system is visible and could also affect the profitability of suppliers like First Sensor



## Segment Mobility

The mobility segment in 2017 accounted for 30.1% of group sales. Looking back to FY2013 the sales share with 20.8% was significant lower. Analysing the quarterly sales figures, there is no particular seasonality visible in our view. In Mobility First Sensor concentrated on the following main areas:

- Advanced driver assistance systems (camera solutions, LiDAR-systems for autonomous driving)
- OEM pressure sensors (passenger cars, trucks, busses, industrial and specialized vehicles).

Camera solution can be used for example for turn assist, cross traffic assist, smart rear driving or as a mirror replacement rear solution. Furthermore the OEM pressure sensors can be used for tank pressure, air flow meters, electrical brake systems, in diesel particulate filters or for diesel exhaust fluid measurement.

First Sensor's customers are mainly OEMs, large automotive suppliers and retrofitters. Competitors in this area are for example ams AG, Melexis, Bosch or Sensata Technologies.

### Exhibit 19: First Sensor: Segment Mobility

EUR m	2013	2014	2015	2016	2017	2018e	2019e	2020e	2021e	2022e	CAGR 13-17	CAGR 18e-22e
Sales	22.6	35.2	39.8	46.9	44.5	48.0	52.0	56.5	61.5	67.3	18.5%	8.8%
yoy %		55.9%	13.1%	17.8%	-5.2%	8.0%	8.3%	8.7%	8.8%	9.4%		
share of group sales	20.8%	28.4%	28.9%	31.2%	30.1%	30.6%	31.0%	31.3%	31.6%	32.0%		

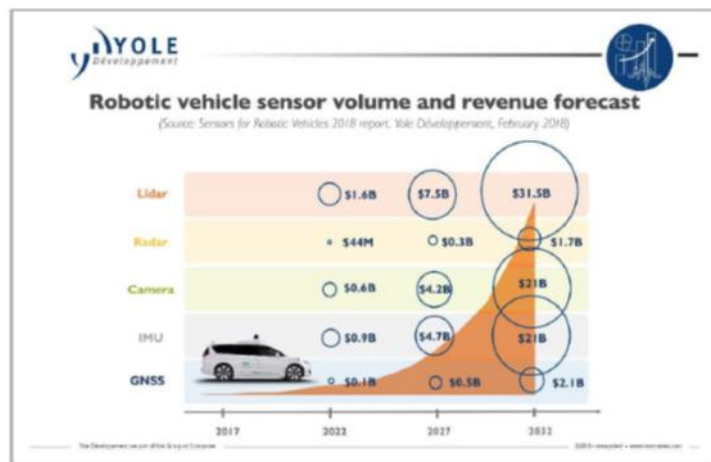
Source: First Sensor AG, equinet Research

Automotive markets worldwide currently are faced with some fundamental changes:

- E-mobility
- Autonomous driving
- Digitalization.

First Sensor in particular with cameras and sensor solutions can benefit from autonomous driving.

Based on a market forecast from Yole Développement from February 2018 the potential from autonomous driving for sensors and sensor systems is really large over the next fifteen years. First Sensor will concentrate itself on the areas LiDAR and cameras, both being attractive sub-segments. With regard to sales currently the LiDAR product range is in an early testing phase and therefore not material. In the Industrial segment it is more material, but currently also on a low level.

**Exhibit 20: First Sensor:**


Source: Yole

Autonomous driving will become accepted over time by reaching various levels. Today certain assistance systems as for example adaptive cruise control (ACC) will help to operate the vehicle. The driver is active and drives the car. A next step can be a highly automated car that controls functions and the driver takes control only if necessary. Finally any human intervention by a driver is not required. With the introduction in 2017 of the „Blue Next“ new camera generation based on a modular platform First Sensor today is well positioned in our view.

Based on purely organic growth for the current year we estimate a sales growth of 8% yoy. Based on our scenario described above we see good chances that First Sensor can keep this pace of sales growth.

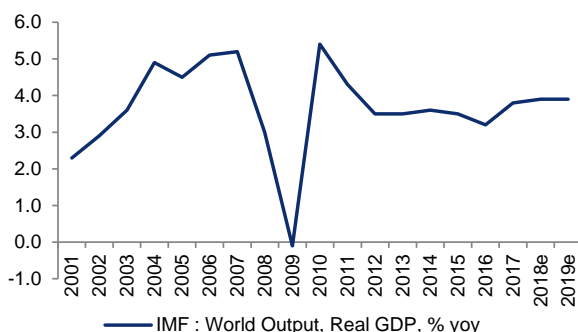
## Market Environment

- World Output 2017 with +3.8% yoy better than expected
- Further growth expected in 2018e and 2019e
- Long-term outlook with increasing risks

Thanks to its dynamic second half 2017 the World Output came out better than expected. The IMF in its latest World Economic outlook revised the figure for 2017 to +3.8% yoy from +3.5% yoy estimated in July 2017. The IMF stated that the global economy gained speed, in particular in some emerging countries.

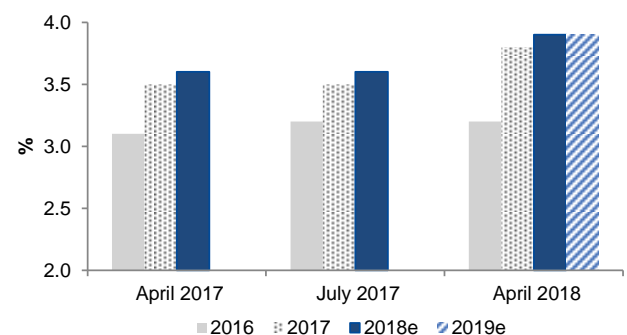
Looking forward to 2018e the IMF became more optimistic and increased the estimate to +3.9% yoy from +3.6% yoy. For Germany the IMF increased the forecast to +2.5% yoy from +1.8% (from October 2017). This is relevant for First Sensor, because some 50% of the group sales are generated in the DACH-region. Including other European countries the sales share is close to 80%. The IMF has also increased significantly the forecast for the USA for 2018e to +2.9% yoy versus +2.3% from October last year. First Sensor already 2017 achieved a substantial sales growth in North America of 45% and so far the framework conditions argue for further growth. China will continue to grow, but on a slightly lower level. The countries output 2018e is expected to reach +6.6% yoy, following a +6.9% yoy for 2017.

**Exhibit 21: Long-term World GDP development**



Source: IMF – World Economic Outlook, April 2018

**Exhibit 22: IMF optimistic for 2018**



Source: IMF – World Economic Outlook, April 2018

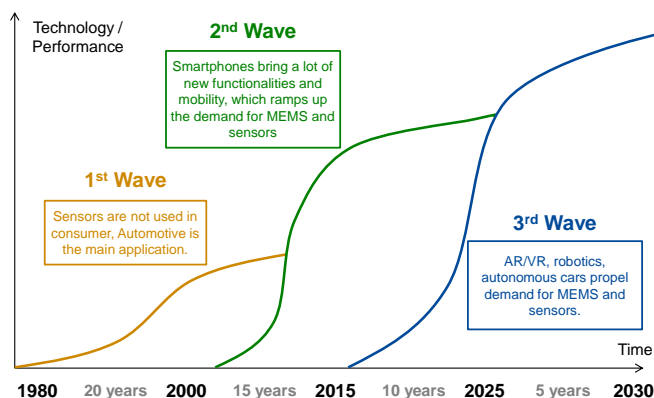
For the first time the IMF presented the forecast figure for 2019e which is +3.9% yoy (see Exhibit 22). Comments from the IMF argue for a peak scenario in our view. Long-term the organisation have identified growing risks which are in particular a „tightening of financial conditions“ (faster than expected interest hikes), a potential trade war and more protectionism around the globe and geopolitical risks.

The April figure for the German Ifo climate index declined to 102.1 index points. It is the fifth month in a row with declining figures. Both components of the index, the current situation and the expectations, are down in April. Expectations are also down the fifth months in a row. It is our impression the German economy is slowing down but currently far away from a recession.

## Sensor market overview

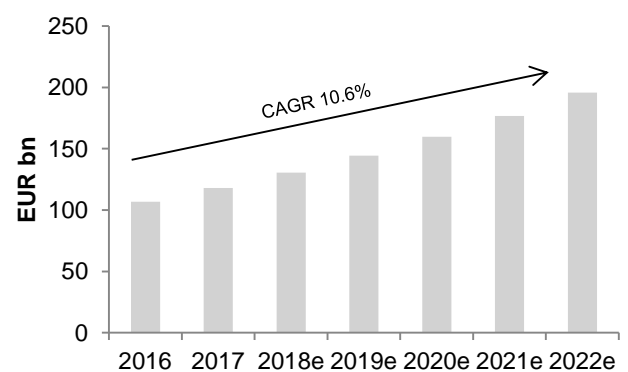
Underpinned by technical improvements of electronic devices, the global sensor market has experienced substantial growth over the last decades. Increased relevance of sensors throughout diverse industries can be tracked by overall advancement in technology (Exhibit 1.). From application of mainly in automotive sector, demand for MEMS and sensors has been uplifted by introduction of smartphones, drones, and other appliances in 2000's. The current developments in Augmented Reality (AR), Virtual Reality (VR), robotics, and other applications have further manifested the relevance of sensors for technological development. As a result the market has achieved global revenues of c. EUR 118bn in 2017 and is expected to grow by a CAGR of 10.6% to EUR 195.6bn in 2022.

**Exhibit 23: Long-term perspectives for sensors**



Source: Yole Développement 2017

**Exhibit 24: Global sensor market development**

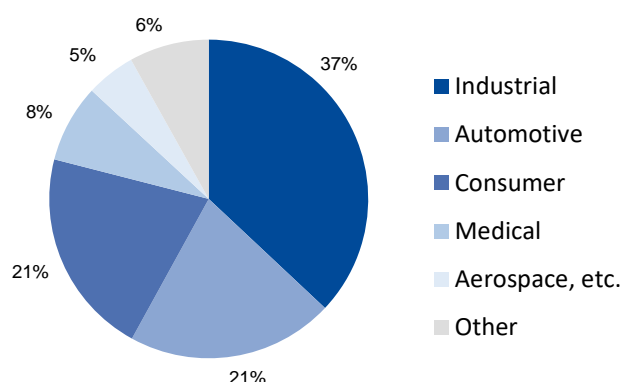


Source: AMR 2017, BCC 2018, R&M 2017, equinet Research

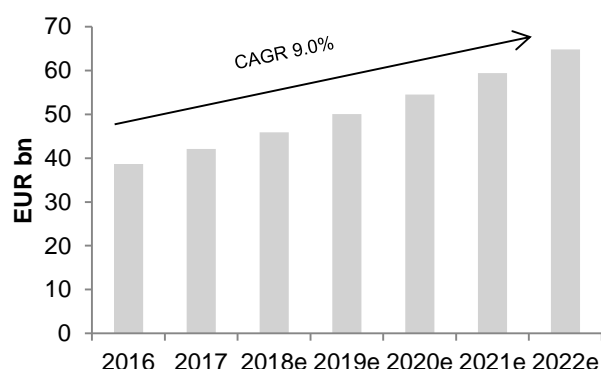
The demand-driven growth of the global sensor market has been augmented by advancements in sensor-technology. Especially miniaturization and improved communication capabilities of sensors enabled its wider adoption in electronics devices. The growing demand for wearables as well as spread of the Internet of Things (IoT), along with an continuing automation of production processes (Industry 4.0), have been the key drivers for the global sensor market. The main restraints for the market relate to the impact of incorporating sensor in a device. These include reduced life-span of the device and higher energy consumption (Allied Market, 2016).

Hence, it is not surprising that sensor manufacturers invest heavily in R&D and have increased their spending by 18% in 2017 (with expected 13% increase in 2018), according to Association for Sensors and Measurement (AMA, 2017). The highly fragmented and rather transparent sensor market results in a strong bargaining power of the buyer-side, which is in a position to put the pricing of sensors under pressure. According to a research house IC Insight (2018), the average price for sensors is expected to decline by c. 2.5% per annum through 2022. The adverse market conditions are expected to reflect negatively on the industry's profits and set the sector under consolidation pressure (EPS, 2016).

Despite the rising demand from consumer electronics, industrial sector is still the largest end-market for sensors (Exhibit 25). The sector includes, among others, sensors for safety and security, smart building, process automation, as well as wearable smart sensors for workers. In 2017 the industrial application sensor market has achieved c. EUR 42.1bn and will, according to our estimates, grow by a CAGR of c.8.5-9.5%. The aerospace sensor market (which is also target market for First Sensor) is driven mainly by wireless sensor segment, which substantially reduce the installation and maintenance costs of an aircraft. The market accounted for c. EUR 1.5bn in 2017 and is projected to grow by a CAGR of 6.0% over the next 5 years (M&M, 2017).

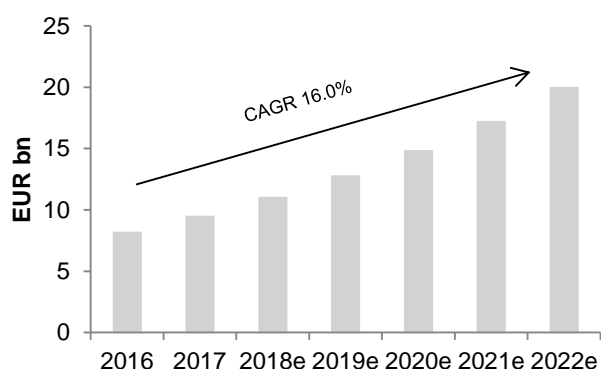
**Exhibit 25: Sensor market by applications in 2016**

Source: Merger Alliance 2015, equinet Research

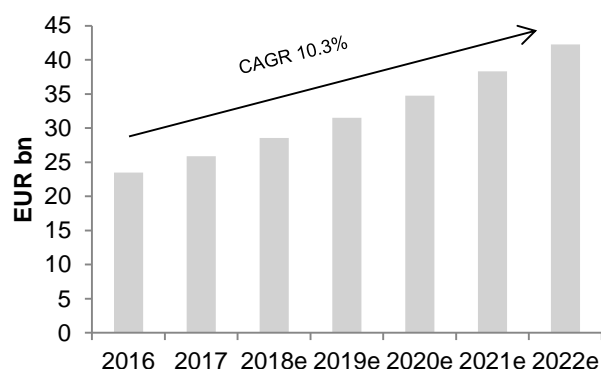
**Exhibit 26: Industrial sensor market development**

Source: equinet Research

A wider adoption of self-handling devices for patient care is seen as a possible countermeasure to the increasing healthcare costs and insufficient resources for stationary care. Such devices as inhalers, insulin pens and smart syringes allow for dosing of medicine, as well as record and control of health status remotely. The current 58m of sensors in medical applications are projected to increase to over 320m by 2022, due to advancement in sensitivity, accuracy and reliability of medical devices, and sensors in particular (Yole Développement 2017). Driven by the increasing demand for medical sensors in the therapeutic and the diagnostic sectors, the market is expected to grow by a CAGR of 16.0% from EUR 9.5bn in 2017 to 20.0bn in 2022. Similarly, the automotive sector has been increasing adoption of sensors to improve vehicle performance, along with significant enhancement of safety, and emission reduction. As of now, a single automobile is equipped with 60-100 sensors (Nester 2018) in powertrain, body, and safety applications. Technologies, such as advanced driver assistance (ADA) and lane departure warning (LDW) systems, are creating new growth opportunities for the automotive sensor market. Similarly, rising vehicle electrification and improving government safety and gas consumption standards are likely to stimulate the market growth globally and increase the number of sensors in a single vehicle to 200. In a longer term, development and introduction of driverless cars will propel the market of automotive sensors, especially with respect to LiDAR technology. In total, the market is estimated to register a CAGR of 10.3% and to grow from EUR 25.9bn in 2017 to EUR 42.3bn in 2022.

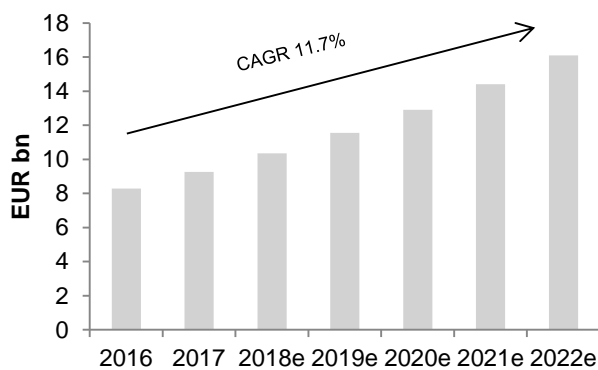
**Exhibit 27: Medical sensor market development**

Source: Yole Développement 2017, equinet Research

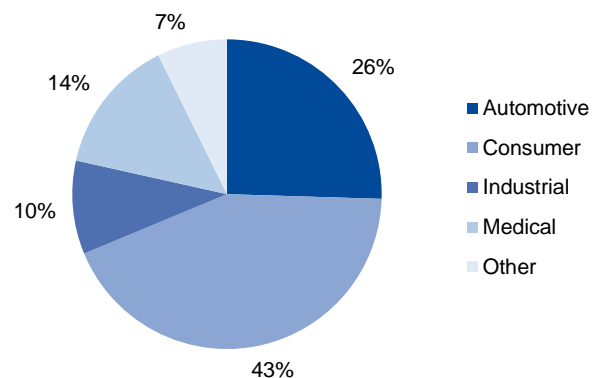
**Exhibit 28: Automotive sensor market development**

Source: Statista 2018, equinet Research

The sensor markets considered above encompass a wide range of technologies which are related, but not directly addressed by First Sensor. In order to approximate for the target markets, we focus on the size of the microelectromechanical systems (MEMS) market. These systems integrate mechanical and electrical components and range in size from 20 micrometres to a millimetre. The small size and weight made these devices attractive for many applications. Especially consumer electronics, which is responsible for over 40% of the total MEMS market (Grand View Research 2016), has embraced this technology in such devices as smartphones and tablets. The total MEMS market is estimated to have reached about EUR 9.3bn in 2017 (Yole, 2017) with a CAGR of 11.7% (Technavio 2017) over the next years, to EUR 16.1bn in 2022 (Exhibit 29). Based on the application revenue split of the MEMS market in 2017 (Exhibit 30), Industrial MEMS market was valued at EUR 900m, Medical at EUR 1.3bn, and Automotive at EUR 2.4bn in 2017. The total target market of First Sensor thus amounts to EUR 4.6bn.

**Exhibit 29: MEMS market development**


Source: IHS 2015, equinet Research

**Exhibit 30: MEMS segmentation 2016**


Source: Grand View Research 2016, equinet Research

## Financials

- Strategy program a good basis for reaching the 10% EBIT-margin target – we would not rule out a higher level in the long run
- 2017 FIS outreached its own financial targets
- 5-6% of sales for R&D
- Q1 2018 report with confirmation of the full-year guidance
- FIS a strong cash flow generator

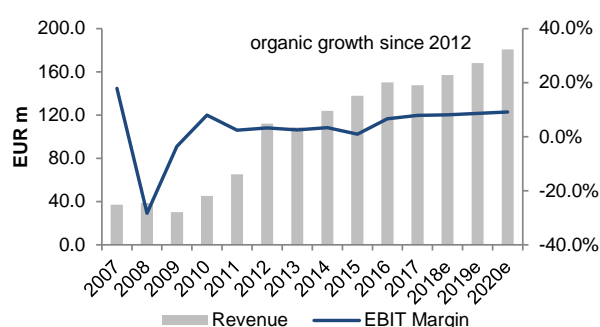
## Earnings analysis

As already explained, First Sensor is organized and works as an integrated industrial group. Results of the parent company and its subsidiaries do not meet the criteria for a segment reporting.

Following the subprime and global financial crisis the profitability of First Sensor (and for so many others) sharply declined and in 2008 and 2009 the group had to report losses. But a strong margin recovery followed immediately in 2010 and the EBIT-margin returned into the positive area at 8.0%. The peak margin so far was achieved in 2007 with 17.9%. Up to now the group has not reached this pre-crisis margin level again. Largely this is explained by a more competitive market framework. It is also reflected by a ten year's (2007–2017) sales CAGR of 14.8% and a CAGR for the reported EBIT of 4.8%.

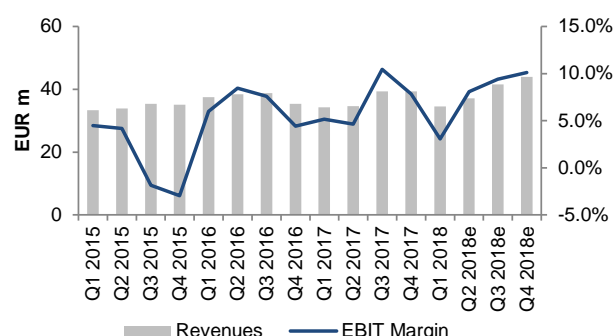
The new management has set in place a modified strategy and the first fruits already became visible in 2016 and 2017. Also helped by the booming economy the EBIT-margin increased to 6.6% (2016) and made a further step forward to 7.2% in 2017. But compared to our defined peer group there is still a gap to close. The average EBIT-margin 2018e of 18.7% compares to our estimate 2018e for First Sensor of 7.9%.

**Exhibit 31: Revenues and EBIT Margin**



Source: First Sensor, equinet Research

**Exhibit 32: Temporary EBIT margin decline in Q1 '18**



Source: First Sensor, equinet Research

For 2017 the group outreached its own financial targets. Group sales of EUR 147.5m beat the guided corridor of EUR 140-145m. The reported EBIT-margin of 7.2% came out significant better than the target of 5-6%. Main reasons in our view are a better product mix, better economies of scale and an optimized value added chain. Concerning the EBIT bridge 2017 the main burden factors were higher wages/salaries (plus EUR 1.5m) and negative volume effects from current products (EUR 1.4m), which could largely be offset by positive



volume and price effects from new projects (EUR 2.1m) and by lower consultancy fees (EUR 1.0m).

### Exhibit 33: First Sensor: Key figures

EUR m	2013	2014	2015	2016	2017	2018e	2019e	2020e	2021e	2022e	CAGR 13-17	CAGR 18e-22e
Order intake	121.4	139.3	142.3	132.9	163.7	174.3	185.1	195.3	203.5	217.0	7.8%	5.6%
Sales	108.5	124.0	137.7	150.1	147.5	157.0	168.0	180.8	194.9	210.0	8.0%	7.5%
EBIT reported	2.7	4.1	1.2	10.0	10.6	12.4	13.5	15.6	17.8	19.8	40.6%	12.5%
Operating Cash Flow	10.2	9.8	3.2	16.6	16.0	15.2	17.0	18.8	20.1	21.9	11.7%	9.6%
<b>Analysis</b>												
Book-to-bill-ratio (x)	1.12	1.12	1.03	0.89	1.11	1.11	1.10	1.08	1.04	1.03		
EBIT-margin, %	2.5%	3.3%	0.9%	6.6%	7.2%	7.9%	8.0%	8.6%	9.1%	9.4%		
Oper. CF-margin, %	9.4%	7.9%	2.3%	11.1%	10.8%	9.7%	10.1%	10.4%	10.3%	10.4%		
Cash conversion (x) *	3.8	2.4	2.7	1.7	1.5	1.2	1.3	1.2	1.1	1.1		

Source: First Sensor AG, equinet Research

Our forecasts for the First Sensor group are based on purely organic growth. We have outlined above our scenarios for the three defined target markets. The CAGR 2018e-2022e for the EBIT with 12.5% will be much stronger than for sales with 5.6%. As a result the corresponding margin is expected to constantly grow to more than 9%. Our underlying macro scenario for Germany and Europe assumes a normalization of the boom of the last quarters, as for example the latest Ifo climate index for April signals. Since November 2017 the index was down for the fifth time in a row (by numbers from 105.2 to 102.1 in April 2018).

During the last years the group spend some 5-6% of sales for R&D projects to secure future growth. 2017 R&D expenses amounted to EUR 8.6m (2016: EUR 8.8m). Overall activities are directed to seeking and testing new measurement methods what is the basis for the development of new sensor chips. Secondly sensors and sensor systems have become smarter and more complex. They must be able to interpret data and to communicate with other systems. End of 2017 the group employs 94 people or 12% of the total employees in R&D, while the group currently holds 39 patents. Looking forward we estimate a stable R&D ratio.

Since 2007 the company distributed no dividends to their shareholders but we understand this policy to give investments in future profitable growth a higher priority. For FY 2017e management plans the reopening of dividend payments and made the proposal to the annual shareholder meeting to pay EUR 0.16 per share or in absolute terms EUR 1.6m. We interpret this as a positive sign for the group's outlook and expect a further increase to EUR 0.18 for FY 2018e.

### Q1' 18 with decreased output due to ERP system introduction

Due to ongoing lively demand from end-markets FIS reported a 12% increase in the order intake to EUR 39.3m. In contrast, group sales came out nearly stable and amounted to EUR 34.5m. The fact that sales came out stable "only" is explained by the introduction of a new ERP system and a related decline of the group's output level, mainly in January. So far it has to put into perspective that the book-to-bill ratio increased to 1.14 (1.02). By end-markets mainly Industrial was affected. This segment reported a sales decline of 8.4% yoy, while the other two segments Medical and Mobility reported higher sales figures. The ERP system introduction effect is visible too at for example a higher inventory level, a partly higher order backlog, lower sales per employee and a lower EBIT-margin level. In a conference call management stated that in February and March production levels were up



again, and we expect a positive shift both in sales and profit during the course of the year 2018.

The full year financial targets for 2018 were confirmed. Group sales should reach a level of EUR 150 – 160m, while our estimate amounted to EUR 157m. On average the next three quarters have to deliver sales of EUR 40m each in order to reach our estimate. According to FIS the EBIT-margin should reach 7% - 9% and we are forecasting 7.9%.

**Exhibit 34: FIS Q1 2018 with growing order intake and temporary lower EBIT-margin**

EUR m	Q1 2018	Q1 2017	% YoY	equinet	Delta
<b>Order intake</b>	<b>39.3</b>	<b>35.1</b>	<b>12.0%</b>	<b>37.2</b>	<b>5.6%</b>
<b>Revenues</b>	<b>34.5</b>	<b>34.3</b>	<b>0.6%</b>	<b>36.3</b>	<b>-5.0%</b>
<i>of which: Industrial</i>	<i>16.3</i>	<i>17.8</i>	<i>-8.4%</i>	<i>18.8</i>	<i>-13.3%</i>
<i>of which: Medical</i>	<i>7.4</i>	<i>6.4</i>	<i>15.6%</i>	<i>6.8</i>	<i>8.8%</i>
<i>of which: Mobility</i>	<i>10.8</i>	<i>10.1</i>	<i>6.9%</i>	<i>10.7</i>	<i>0.9%</i>
<b>Book-to-bill ratio group</b>	<b>1.14</b>	<b>1.02</b>		<b>1.02</b>	
<b>EBIT</b>	<b>1.1</b>	<b>1.8</b>	<b>-40.2%</b>	<b>2.6</b>	<b>-59.3%</b>
EBIT Margin	3.1%	5.2%		7.2%	
<b>Net income</b>	<b>0.2</b>	<b>1.2</b>	<b>-83.9%</b>	<b>1.8</b>	<b>-88.9%</b>
<b>EPS, EUR</b>	<b>0.02</b>	<b>0.13</b>	<b>-84.9%</b>	<b>0.17</b>	<b>-88.5%</b>

Source: First Sensor AG, equinet Research

With the Austrian ams AG one of the competitors already reported its Q1 2018 results. Due to the acquisition of Key Lemon from Switzerland both sales (+147% yoy) and operating profit (from USD 5.0m to USD 77.3m) were up significantly. The non-consumer area, which is comparable to First Sensor's activities, performed positive as expected. Looking forward, the second quarter will be burdened by a temporary weaker business in the consumer segment (lower business for mobile phones), while this effect cannot be transferred to First Sensor.

## Financial analysis

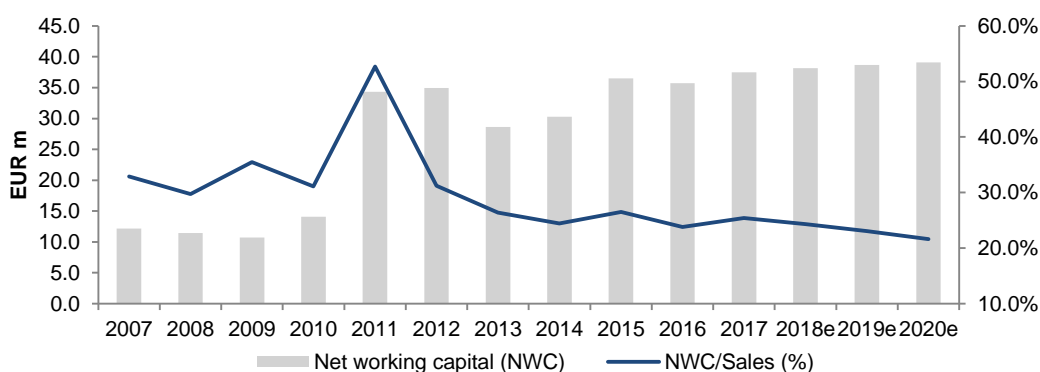
The overall financial situation of First Sensor is solid in our view and has no significant restrictions with regard to the growth plans.

One of the areas of improving the operational excellence is a further optimization of the net working capital. The strong increase in 2011 is related to the takeover of Sensortechnics GmbH from Augusta Technology. This M&A-transaction in general was an important step forward for First Sensor at that time. The move resulted, among other factors, in a new level for the net working capital (NWC). As a one-time effect the NWC 2011 sharply increased to 53%, but immediately normalized in the following year to 31%.

Last year the NWC in absolute terms amounted to EUR 37.5m (EUR 35.7m) or 25.4% (23.8%) of sales. On the basis of a more efficient management of inventories and

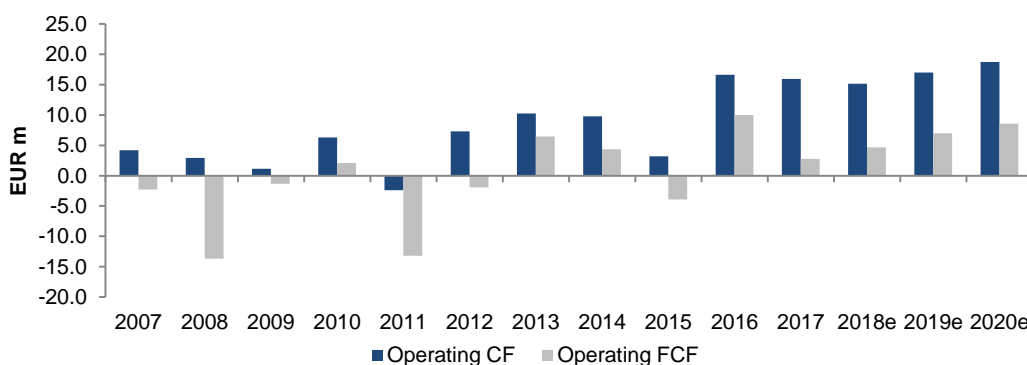
receivables we see a good chance that over time NWC/Sales can go down further in the direction of 20%. A further reduction will become more challenging in our view, having in mind large product variety and the need to have full delivery capacities.

**Exhibit 35: Net Working Capital will be reduced over time**



Source: First Sensor AG, equinet Research

**Exhibit 36: First Sensor a strong cash flow generator**



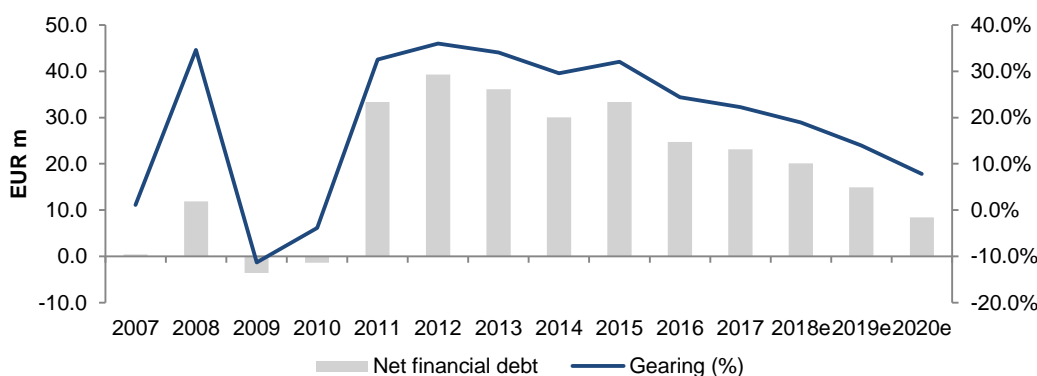
Source: First Sensor AG, equinet Research

First Sensor presented itself as a strong cash flow generator. The takeover of Sensortechnics GmbH also had a negative impact on the operating cash flow in 2011.

Last year the operating cash flow amounted to EUR 16.0m (EUR 16.6m). Due to a strong increase in investments the operating free cash flow significantly came down to EUR 2.7m (10.0m). First Sensor implemented a new and unique ERP-software, and invested in new production capacities. In 2018e the capex figure will „normalize“ to a level of EUR 10.5m. This is close to our estimate for depreciation of EUR 10.2m. This is also purely organic and does not include any M&A activity. The cash conversion rate (Operating cash flow / EBIT) for the next years is estimated to stay above „1“.

With regard to the net financial debt our numbers include pension provisions while First Sensor does not include this item. But the effect is negligible, because in 2017 pensions amounted to only EUR 0.3m. During the last years the net financial debt was reduced steadily because financial debt came down and liquidity improved. Last year's figure of EUR 23.1m (FIS: EUR 22.8m) resulted in a gearing of 22.2%.

**Exhibit 37: Net financial debt reduction expected**



Source: First Sensor AG, equinet Research

**Exhibit 38: Maturity of promissory notes**

Placement	EUR m	Term	Due date
2013	12.0	5 years	2018
2015	7.0	5 years	2020
2015	18.0	7 years	2020
2015	3.0	6 years	2022
Total amount	40.0		

Source: First Sensor AG

Gross financial debt of EUR 48.3m includes EUR 40.0m of promissory notes. During 2018 the promissory note of EUR 12.0m will become due. A possible refinancing model is not yet communicated. With regard to interest rates First Sensor on average 2017 had to pay 2.6% (2016: 3.5%). We assume that in the current year for Germany we will not see an interest rate hike and so far a refinancing most likely can be made on a low interest rate level again.

End of 2017 First Sensor on top has access to unused credit lines in an amount of EUR 11.1m. This volume of debt gives the company enough financial flexibility to finance further growth. From this perspective and given an equity ratio of slightly above 50% it seems that for the time being no further equity cash injection is needed in our view. It can change for example in case of a larger M&A transaction.

## List of abbreviations

ADAS	Advanced driver assistance system
APD	Avalanche photodiode
CIS	Contact image sensor
CMOS	Complementary metal-oxide semiconductor
DOE	Diffractive Optical Element
HVAC	Heating, ventilation and air conditioning
ICT	In-circuit testing
LiDAR	Light detection and ranging
MEMS	Microelectromechanical system
VCSEL	Vertical-Cavity Surface-Emitting Laser
WLO	Wafer Level Optics

**First Sensor AG : Summary tables**

<b>PROFIT &amp; LOSS (EURm)</b>	<b>12/2014</b>	<b>12/2015</b>	<b>12/2016</b>	<b>12/2017</b>	<b>12/2018e</b>	<b>12/2019e</b>
<b>Sales</b>	<b>124</b>	<b>138</b>	<b>150</b>	<b>148</b>	<b>157</b>	<b>168</b>
Cost of Sales & Operating Costs	-111	-126	-128	-128	-134	-145
Non Recurrent Expenses/Income	0.0	0.0	-2.2	0.0	0.0	0.0
<b>EBITDA</b>	<b>13.1</b>	<b>11.5</b>	<b>19.4</b>	<b>19.6</b>	<b>22.6</b>	<b>23.3</b>
<b>EBITDA (adj.)*</b>	<b>13.1</b>	<b>11.5</b>	<b>21.6</b>	<b>19.6</b>	<b>22.6</b>	<b>23.3</b>
Depreciation	-9.0	-10.3	-9.4	-9.1	-10.2	-9.8
<b>EBITA</b>	<b>4.1</b>	<b>1.2</b>	<b>10.0</b>	<b>10.6</b>	<b>12.4</b>	<b>13.5</b>
<b>EBITA (adj)*</b>	<b>4.1</b>	<b>1.2</b>	<b>12.2</b>	<b>10.6</b>	<b>12.4</b>	<b>13.5</b>
Amortisations and Write Downs	0.0	0.0	0.0	0.0	0.0	0.0
<i>of which PPA amortisation</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>
<b>EBIT</b>	<b>4.1</b>	<b>1.2</b>	<b>10.0</b>	<b>10.6</b>	<b>12.4</b>	<b>13.5</b>
<b>EBIT (adj.)*</b>	<b>4.1</b>	<b>1.2</b>	<b>12.2</b>	<b>10.6</b>	<b>12.4</b>	<b>13.5</b>
Net Financial Interest	-2.4	-2.4	-1.8	-1.9	-2.1	-2.2
Other Financials	0.0	0.0	0.0	0.0	0.0	0.0
Associates	0.0	0.0	0.5	-1.5	0.0	0.0
Other Non Recurrent Items	0.0	0.0	0.0	0.0	0.0	0.0
<b>Earnings Before Tax (EBT)</b>	<b>1.7</b>	<b>-1.2</b>	<b>8.7</b>	<b>7.2</b>	<b>10.2</b>	<b>11.4</b>
Tax	-1.3	-0.4	-2.6	-2.8	-3.1	-3.4
<i>Tax rate</i>	<i>76.3%</i>	<i>n.m.</i>	<i>30.2%</i>	<i>38.9%</i>	<i>30.0%</i>	<i>30.0%</i>
Discontinued Operations	0.0	0.0	0.0	0.0	0.0	0.0
Minorities	-0.2	-0.2	-0.3	-0.2	-0.3	-0.3
<b>Net Profit (reported)</b>	<b>0.2</b>	<b>-1.7</b>	<b>5.7</b>	<b>4.1</b>	<b>6.9</b>	<b>7.7</b>
<b>Net Profit (adj.)</b>	<b>0.2</b>	<b>-1.7</b>	<b>5.8</b>	<b>4.1</b>	<b>6.9</b>	<b>7.7</b>
<b>CASH FLOW (EURm)</b>	<b>12/2014</b>	<b>12/2015</b>	<b>12/2016</b>	<b>12/2017</b>	<b>12/2018e</b>	<b>12/2019e</b>
Cash Flow from Operations before change in NWC	11.4	9.5	15.8	17.8	15.8	17.5
Change in Net Working Capital	-1.6	-6.3	0.8	-1.8	-0.7	-0.5
<b>Cash Flow from Operations</b>	<b>9.8</b>	<b>3.2</b>	<b>16.6</b>	<b>16.0</b>	<b>15.2</b>	<b>17.0</b>
Capex	-5.4	-7.1	-6.6	-13.2	-10.5	-10.0
Net Financial Investments	1.1	2.0	0.1	0.7	0.0	0.0
<b>Free Cash Flow</b>	<b>5.5</b>	<b>-1.9</b>	<b>10.1</b>	<b>3.5</b>	<b>4.7</b>	<b>7.0</b>
Dividends	0.0	0.0	0.0	0.0	-1.6	-1.8
Other (incl. Capital Increase & share buy backs)	0.0	0.0	0.0	0.0	0.0	0.0
<b>Change in Net Debt</b>	<b>5.5</b>	<b>-1.9</b>	<b>10.1</b>	<b>3.5</b>	<b>3.0</b>	<b>5.2</b>
NOPLAT	2.9	0.8	8.5	7.4	8.7	9.5
<b>BALANCE SHEET &amp; OTHER ITEMS (EURm)</b>	<b>12/2014</b>	<b>12/2015</b>	<b>12/2016</b>	<b>12/2017</b>	<b>12/2018e</b>	<b>12/2019e</b>
Net Tangible Assets	36.4	35.0	33.0	36.4	37.2	36.9
Net Intangible Assets (incl. Goodwill)	52.2	49.6	49.1	48.9	48.4	48.9
Net Financial Assets & Other	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total Fixed Assets</b>	<b>88.7</b>	<b>84.6</b>	<b>82.1</b>	<b>85.3</b>	<b>85.6</b>	<b>85.8</b>
Inventories	29.9	27.1	25.9	24.6	25.1	25.6
Trade receivables	8.6	17.0	18.4	20.8	21.2	21.4
Other current assets	4.8	4.7	3.8	3.4	3.7	3.8
Cash (-)	-14.5	-21.5	-23.8	-25.5	-29.5	-35.0
<b>Total Current Assets</b>	<b>57.8</b>	<b>70.4</b>	<b>71.9</b>	<b>74.3</b>	<b>79.5</b>	<b>85.8</b>
<b>Total Assets</b>	<b>146</b>	<b>155</b>	<b>154</b>	<b>160</b>	<b>165</b>	<b>172</b>
Shareholders Equity	71.6	70.7	76.5	80.8	86.0	91.8
Minority	0.4	0.6	0.9	1.2	1.2	1.2
Total Equity	72.0	71.3	77.4	82.0	87.2	93.0
Long term interest bearing debt	35.3	44.5	37.2	36.3	36.3	35.6
Provisions	0.5	0.7	0.3	0.3	0.3	0.3
Other long term liabilities	13.0	11.8	8.1	7.4	7.5	7.6
<b>Total Long Term Liabilities</b>	<b>48.8</b>	<b>57.0</b>	<b>45.6</b>	<b>44.0</b>	<b>44.1</b>	<b>43.5</b>
Short term interest bearing debt	9.0	10.0	11.0	12.0	13.0	14.0
Trade payables	8.2	7.6	8.6	7.9	8.1	8.3
Other current liabilities	8.5	9.1	11.4	13.7	12.7	12.7
<b>Total Current Liabilities</b>	<b>25.7</b>	<b>26.7</b>	<b>31.0</b>	<b>33.6</b>	<b>33.8</b>	<b>35.0</b>
<b>Total Liabilities and Shareholders' Equity</b>	<b>146</b>	<b>155</b>	<b>154</b>	<b>160</b>	<b>165</b>	<b>172</b>
<b>Net Capital Employed</b>	<b>115</b>	<b>117</b>	<b>110</b>	<b>113</b>	<b>115</b>	<b>116</b>
<b>Net Working Capital</b>	<b>30.3</b>	<b>36.5</b>	<b>35.7</b>	<b>37.5</b>	<b>38.2</b>	<b>38.7</b>
<b>GROWTH &amp; MARGINS</b>	<b>12/2014</b>	<b>12/2015</b>	<b>12/2016</b>	<b>12/2017</b>	<b>12/2018e</b>	<b>12/2019e</b>
<i>Sales growth</i>	<i>14.2%</i>	<i>11.1%</i>	<i>9.0%</i>	<i>-1.7%</i>	<i>6.4%</i>	<i>7.0%</i>
<b>EBITDA (adj.)* growth</b>	<b>-16.4%</b>	<b>-11.9%</b>	<b>87.3%</b>	<b>-9.2%</b>	<b>15.1%</b>	<b>3.3%</b>
<i>EBITA (adj.)* growth</i>	<i>-43.8%</i>	<i>-70.7%</i>	<i>916.7%</i>	<i>-13.5%</i>	<i>17.4%</i>	<i>9.2%</i>
<i>EBIT (adj.)* growth</i>	<i>-43.8%</i>	<i>-70.7%</i>	<i>916.7%</i>	<i>-13.5%</i>	<i>17.4%</i>	<i>9.2%</i>

**First Sensor AG : Summary tables**

<b>GROWTH &amp; MARGINS</b>	<b>12/2014</b>	<b>12/2015</b>	<b>12/2016</b>	<b>12/2017</b>	<b>12/2018e</b>	<b>12/2019e</b>
Net Profit growth	-93.5%	n.m.	n.m.	-28.2%	66.3%	11.4%
EPS adj. growth	-93.6%	n.m.	n.m.	-28.3%	66.3%	11.4%
DPS adj. growth				n.m.	12.5%	11.1%
EBITDA (adj)* margin	10.6%	8.4%	14.4%	13.3%	14.4%	13.9%
EBITA (adj)* margin	3.3%	0.9%	8.1%	7.2%	7.9%	8.0%
EBIT (adj)* margin	3.3%	0.9%	8.1%	7.2%	7.9%	8.0%
<b>RATIOS</b>	<b>12/2014</b>	<b>12/2015</b>	<b>12/2016</b>	<b>12/2017</b>	<b>12/2018e</b>	<b>12/2019e</b>
Net Debt/Equity	0.4	0.5	0.3	0.3	0.2	0.2
Net Debt/EBITDA	2.3	2.9	1.3	1.2	0.9	0.6
Interest cover (EBITDA/Fin.interest)	5.4	4.9	10.8	10.6	10.5	10.8
Capex/D&A	60.2%	68.5%	70.1%	145.4%	102.9%	102.0%
Capex/Sales	4.4%	5.1%	4.4%	8.9%	6.7%	6.0%
NWC/Sales	24.4%	26.5%	23.8%	25.4%	24.3%	23.0%
ROE (average)	0.2%	-2.4%	7.8%	5.3%	8.2%	8.6%
ROCE (adj.)	2.4%	0.7%	7.2%	6.0%	7.0%	7.6%
WACC	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
ROCE (adj.)/WACC	0.3	0.1	1.0	0.9	1.0	1.1
<b>PER SHARE DATA (EUR)***</b>	<b>12/2014</b>	<b>12/2015</b>	<b>12/2016</b>	<b>12/2017</b>	<b>12/2018e</b>	<b>12/2019e</b>
Average diluted number of shares	10.0	10.2	10.2	10.2	10.2	10.2
EPS (reported)	0.02	-0.17	0.56	0.40	0.67	0.75
EPS (adj.)	0.02	-0.17	0.56	0.40	0.67	0.75
BVPS	7.12	6.96	7.49	7.91	8.42	8.99
DPS	0.00	0.00	0.00	0.16	0.18	0.20
<b>VALUATION</b>	<b>12/2014</b>	<b>12/2015</b>	<b>12/2016</b>	<b>12/2017</b>	<b>12/2018e</b>	<b>12/2019e</b>
EV/Sales	1.0	1.2	1.2	1.7	1.7	1.5
EV/EBITDA	9.8	13.9	8.9	12.6	11.8	11.2
<b>EV/EBITDA (adj.)*</b>	<b>9.8</b>	<b>13.9</b>	<b>8.0</b>	<b>12.6</b>	<b>11.8</b>	<b>11.2</b>
EV/EBITA	31.3	133.5	17.4	23.4	21.4	19.2
<b>EV/EBITA (adj.)*</b>	<b>31.3</b>	<b>133.5</b>	<b>14.2</b>	<b>23.4</b>	<b>21.4</b>	<b>19.2</b>
EV/EBIT	31.3	n.m.	17.4	23.4	21.4	19.2
<b>EV/EBIT (adj.)*</b>	<b>31.3</b>	<b>n.m.</b>	<b>14.2</b>	<b>23.4</b>	<b>21.4</b>	<b>19.2</b>
<b>P/E (adj.)</b>	<b>n.m.</b>	<b>n.m.</b>	<b>25.7</b>	<b>n.m.</b>	<b>35.6</b>	<b>31.9</b>
P/BV	1.4	1.8	1.9	2.8	2.8	2.7
Total Yield Ratio	0.0%	0.0%	0.0%	0.7%	0.8%	0.8%
EV/CE	1.1	1.3	1.5	2.0	2.1	2.1
OpFCF yield	4.5%	-3.1%	6.8%	1.2%	1.9%	2.9%
OpFCF/EV	3.4%	-2.4%	5.8%	1.1%	1.8%	2.7%
Payout ratio	0.0%	0.0%	0.0%	39.6%	26.8%	26.7%
Dividend yield (gross)	0.0%	0.0%	0.0%	0.7%	0.8%	0.8%
<b>EV AND MKT CAP (EURm)</b>	<b>12/2014</b>	<b>12/2015</b>	<b>12/2016</b>	<b>12/2017</b>	<b>12/2018e</b>	<b>12/2019e</b>
Price** (EUR)	9.75	12.44	14.50	21.76	23.90	23.90
Outstanding number of shares for main stock	10.0	10.2	10.2	10.2	10.2	10.2
<b>Total Market Cap</b>	<b>98</b>	<b>126</b>	<b>148</b>	<b>222</b>	<b>244</b>	<b>244</b>
<b>Net Debt</b>	<b>30</b>	<b>33</b>	<b>24</b>	<b>23</b>	<b>20</b>	<b>15</b>
<i>o/w Cash &amp; Marketable Securities (-)</i>	<i>-15</i>	<i>-22</i>	<i>-24</i>	<i>-26</i>	<i>-29</i>	<i>-35</i>
<i>o/w Gross Debt (+)</i>	<i>44</i>	<i>55</i>	<i>48</i>	<i>48</i>	<i>49</i>	<i>50</i>
<b>Other EV components</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>
<b>Enterprise Value (EV adj.)</b>	<b>128</b>	<b>160</b>	<b>174</b>	<b>247</b>	<b>265</b>	<b>260</b>

Source: Company, equinet Bank estimates.

**Notes**

\* Where EBITDA (adj.) or EBITA (adj.) = EBITDA (or EBITA) -/+ Non Recurrent Expenses/Income and where EBIT (adj.) = EBIT -/+ Non Recurrent Expenses/Income - PPA amortisation

\*\*Price (in local currency): Fiscal year end price for Historical Years and Current Price for current and forecasted years

Sector: Technology Hardware & Equipment/Technology Hardware & Equipment

Company Description: First Sensor engages in the development and manufacture of sensors, components and sensor solutions. The company serves the target markets Industrial, Medical and Mobility. The product portfolio include, among others, pressure, optical, radiation, flow, level and inertial sensors, cameras and power semiconductors. The company was founded in 1991 and is located in Berlin, Germany.

## European Coverage of the Members of ESN

<b>Aerospace &amp; Defense</b>	<b>Mem(*)</b>	Bper	BAK	Kemira	OPG	Campari	BAK
Airbus Se	CIC	Bpi	CBI	Kws Saat	EQB	Coca Cola Hbc Ag	IBG
Dassault Aviation	CIC	Caixabank	GVC	Lanxess	EQB	Corbion	NIBC
Latecoere	CIC	Commerzbank	EQB	Linde	EQB	Danone	CIC
Leonardo	BAK	Credem	BAK	Siegfried Holding Ag	EQB	Ebro Foods	GVC
Lisi	CIC	Credit Agricole Sa	CIC	Symrise Ag	EQB	Enervit	BAK
Mtu Aero Engines	EQB	Creval	BAK	Tikkurila	OPG	Fleury Michon	CIC
Ohb Se	EQB	Deutsche Bank	EQB	<b>Electronic &amp; Electrical Equipment</b>	<b>Mem(*)</b>	Forfarmers	NIBC
Rheinmetall	EQB	Deutsche Pfandbriefbank	EQB	Euro micron Ag	EQB	Heineken	NIBC
Safran	CIC	Eurobank	IBG	Neways Electronics	NIBC	Hkscan	OPG
Thales	CIC	Intesa Sanpaolo	BAK	Pkc Group	OPG	La Doria	BAK
<b>Alternative Energy</b>	<b>Mem(*)</b>	Liberbank	GVC	Rexel	CIC	Lanson-Bcc	CIC
Daldrup & Soehne	EQB	Mediobanca	BAK	Vaisala	OPG	Laurent Perrier	CIC
Siemens Gamesa Re	GVC	Merkur Bank	EQB	Viscom	EQB	Ldc	CIC
Sif Group	NIBC	National Bank Of Greece	IBG	<b>Financial Services</b>	<b>Mem(*)</b>	Lucas Bols	NIBC
Solaria	GVC	Natixis	CIC	Amundi	CIC	Massimo Zanetti	BAK
<b>Automobiles &amp; Parts</b>	<b>Mem(*)</b>	Nordea	OPG	Anima	BAK	Naturex	CIC
Bittium Corporation	OPG	Piraeus Bank	IBG	Athex Group	IBG	Olvi	OPG
Bmw	EQB	Poste Italiane	BAK	Azimut	BAK	Orsero	BAK
Brembo	BAK	Procredit Holding	EQB	Banca Farmafactoring	BAK	Pernod Ricard	CIC
Continental	EQB	Rothschild & Co	CIC	Banca Generali	BAK	Raisio	OPG
Daimler Ag	EQB	Societe Generale	CIC	Banca Ifis	BAK	Refresco Group	NIBC
Elringklinger	EQB	Ubi Banca	BAK	Banca Sistema	BAK	Remy Cointreau	CIC
Ferrari	BAK	Unicredit	BAK	Bb Biotech	EQB	Suedzucker	EQB
Fiat Chrysler Automobiles	BAK	<b>Basic Resources</b>	<b>Mem(*)</b>	Bolsas Y Mercados Espanoles Sa	GVC	Takeaway.Com	NIBC
Hella Gmbh & Co. Kgaa	EQB	Acerinox	GVC	Capman	OPG	Telepizza	GVC
Indelb	BAK	Altri	CBI	Cir	BAK	Vapiano	EQB
Kamux	OPG	Arcelormittal	GVC	Comdirect	EQB	Vidrala	GVC
Landi Renzo	BAK	Corticeira Amorim	CBI	Corestate Capital Holding S.A.	EQB	Vilmorin	CIC
Leoni	EQB	Ence	GVC	Corp. Financiera Alba	GVC	Viscofan	GVC
Nokian Tyres	OPG	Europac	GVC	Digital Magics	BAK	Vranken Pommery Monopole	CIC
Norma Group	EQB	Metka	IBG	Dobank	BAK	Wessanen	NIBC
Piaggio	BAK	Metsä Board	OPG	<b>Dws</b>	EQB	<b>Food &amp; Drug Retailers</b>	<b>Mem(*)</b>
Pwo	EQB	Mytilineos	IBG	Eq	OPG	Ahold Delhaize	NIBC
<b>Schaeffler</b>	EQB	Outokumpu	OPG	Eurazeo	CIC	Carrefour	CIC
Sogefi	BAK	Ramada	CBI	Eyemaxx Real Estate	EQB	Casino Guichard-Perrachon	CIC
Stabilus	EQB	Semapa	CBI	Ferratum	EQB	Ceconomy Ag	EQB
Stern Groep	NIBC	Ssab	OPG	Ffp	CIC	Dia	GVC
Volkswagen	EQB	Stora Enso	OPG	Finecobank	BAK	Jeronimo Martins	CBI
<b>Banks</b>	<b>Mem(*)</b>	Surteco	EQB	Grenke	EQB	Kesko	OPG
Aareal Bank	EQB	The Navigator Company	CBI	Hypoport Ag	EQB	Marr	BAK
Aktia	OPG	Tubacex	GVC	Mlp	EQB	Metro Ag	EQB
Alpha Bank	IBG	Upm-Kymmene	OPG	Ovb Holding Ag	EQB	Sligro	NIBC
Banca Carige	BAK	<b>Chemicals</b>	<b>Mem(*)</b>	Patrizia	EQB	Sonae	CBI
Banca Mps	BAK	Air Liquide	CIC	Rallye	CIC		
Banco Sabadell	GVC	Arkema	CIC	Tip Tamburi Investment Partners	BAK		
Banco Santander	GVC	Avantium	NIBC	Unipol Gruppo Finanziario	BAK		
Bankia	GVC	Brenntag	EQB	Wendel	CIC		
Bankinter	GVC	Fuchs Petrolub	EQB	<b>Food &amp; Beverage</b>	<b>Mem(*)</b>		
Bbva	GVC	Holland Colours	NIBC	Acomo	NIBC		
Bcp	CBI	Imcd	NIBC	Atria	OPG		

<b>General Industrials</b>	<b>Mem(*)</b>	Oriola-Kd	OPG	Talgo	GVC	Salini Impregilo	BAK
2G Energy	EQB	Orion	OPG	Technotrans	EQB	Sias	BAK
Aalberts	NIBC	Orpea	CIC	Valmet	OPG	Sonae Industria	CBI
Accell Group	NIBC	Pihlajalinna	OPG	Wacker Neuson Se	EQB	Srv	OPG
Ahlstrom	OPG	Recordati	BAK	Wärtsilä	OPG	Tarkett	CIC
Arcadis	NIBC	Silmaasema	OPG	Zardoya Otis	GVC	Thermador Groupe	CIC
Aspo	OPG	Terveystalo	OPG	<b>Industrial Transportation</b>	<b>Mem(*)</b>	Titan Cement	IBG
Cembre	BAK	<b>Household Goods</b>	<b>Mem(*)</b>	Bolloré	CIC	Trevi	BAK
Huhtamäki	OPG	De Longhi	BAK	Citt	CBI	Uponor	OPG
Kendrion	NIBC	Elica	BAK	Logwin	EQB	Vicat	CIC
Nedap	NIBC	Fila	BAK	<b>Insurance</b>	<b>Mem(*)</b>	Vinci	CIC
Pöyry	OPG	Maisons Du Monde	CIC	Allianz	EQB	Volkerwessels	NIBC
Prelios	BAK	Philips Lighting	NIBC	Axa	CIC	Yit	OPG
Saf-Holland	EQB	<b>Industrial Engineering</b>	<b>Mem(*)</b>	Banca Mediolanum	BAK	<b>Media</b>	<b>Mem(*)</b>
Serge Ferrari Group	CIC	Accsys Technologies	NIBC	Cattolica Assicurazioni	BAK	Alma Media	OPG
Tkh Group	NIBC	Aixtron	EQB	Generali	BAK	Arnoldo Mondadori Editore	BAK
<b>General Retailers</b>	<b>Mem(*)</b>	Alstom	CIC	Hannover Re	EQB	Atresmedia	GVC
Beter Bed Holding	NIBC	Ansaldo Sts	BAK	Mapfre Sa	GVC	Axel Springer	EQB
Elumeo Se	EQB	Biesse	BAK	Munich Re	EQB	Brill	NIBC
Fielmann	EQB	Caf	GVC	Sampo	OPG	Cairo Communication	BAK
Fnac Darty	CIC	Cargotec Corp	OPG	Talanx Group	EQB	Cofina	CBI
Folli Follie Group	IBG	Carraro	BAK	Unipol Sai	BAK	Cts Eventim	EQB
Fourlis Holdings	IBG	Cnh Industrial	BAK	<b>Materials, Construction &amp; Infrastructure</b>	<b>Mem(*)</b>	Digital Bros	BAK
Grandvision	NIBC	Danieli	BAK	Abertis	GVC	Gedi Gruppo Editoriale	BAK
Hombach Holding	EQB	Datalogic	BAK	Acs	GVC	GI Events	CIC
Inditex	GVC	Deutz Ag	EQB	Aena	GVC	Impresa	CBI
Jumbo	IBG	Duerr	EQB	Aeroports De Paris	CIC	loI	BAK
Ovs	BAK	Emak	BAK	Astaldi	BAK	Ipsos	CIC
Rapala	OPG	Envipco	NIBC	Atlantia	BAK	Jcdecoux	CIC
Stockmann	OPG	Exel Composites	OPG	Boskalis Westminster	NIBC	Lagardere	CIC
Takkt Ag	EQB	Fincantieri	BAK	Buzzi Unicem	BAK	M6-Metropole Television	CIC
Tokmanni	OPG	Gea Group	EQB	Caverion	OPG	Mediaset	BAK
Unieuro	BAK	Gesco	EQB	Cramo	OPG	Mediaset Espana	GVC
Windeln.De	EQB	Heidelberger Druck	EQB	Eiffage	CIC	Notorious Pictures	BAK
Yoox Net-A-Porter	BAK	Ima	BAK	Ellaktor	IBG	Nrj Group	CIC
Zalando	EQB	Indus Holding Ag	EQB	Eltel	OPG	Publicis	CIC
<b>Healthcare</b>	<b>Mem(*)</b>	Interpump	BAK	Ezentis	GVC	Rcs Mediagroup	BAK
4Sc	EQB	Koenig & Bauer	EQB	Fcc	GVC	Relx	NIBC
Abivax	NIBC	Kone	OPG	Ferrovial	GVC	Rtl Group	EQB
Advicenne	NIBC	Konecranes	OPG	Heidelberg Cement Ag	CIC	Sanoma	OPG
Amplifon	BAK	Krones Ag	EQB	Heijmans	NIBC	Solocal Group	CIC
Bayer	EQB	Manitou	CIC	Imerys	CIC	Spir Communication	CIC
Biotest	EQB	Manz Ag	EQB	Lafargeholcim	CIC	Syzygy Ag	EQB
Diasorin	BAK	Max Automation Ag	EQB	Lehto	OPG	Teleperformance	CIC
El.En.	BAK	Metso Corporation	OPG	Lemminkäinen	OPG	Tf1	CIC
Epigenomics Ag	EQB	Outotec	OPG	Maire Tecnimont	BAK	Ubisoft	CIC
Genfit	CIC	Pfeiffer Vacuum	EQB	Mota Engil	CBI	Vivendi	CIC
Gerresheimer Ag	EQB	Ponsse	OPG	Obrascon Huarte Lain	GVC	Wolters Kluwer	NIBC
Guerbet	CIC	Prima Industrie	BAK	Ramirent	OPG	Xing Ag	EQB
Heidelberg Pharma	EQB	Prysmian	BAK	Royal Bam Group	NIBC		
Korian	CIC	Schaltbau Holding Ag	EQB	Sacyr	GVC		
Merck	EQB	Smt Scharf Ag	EQB	Saint Gobain	CIC		



<b>Oil &amp; Gas Producers</b>	<b>Mem(*)</b>	Hispania Activos Inmobiliarios	GVC	Lassila & Tikanoja	OPG	I Grandi Viaggi	BAK
Eni	BAK	Igd	BAK	Openjobmetis	BAK	Ibersol	CBI
Galp Energia	CBI	Lar España	GVC	Rai Way	BAK	Int. Airlines Group	GVC
Gas Plus	BAK	Merlin Properties	GVC	<b>Technology Hardware &amp; Equipment</b>	<b>Mem(*)</b>	Intralot	IBG
Hellenic Petroleum	IBG	Realia	GVC	Asm International	NIBC	Kotipizza	OPG
Maurel Et Prom	CIC	Technopolis	OPG	Asml	NIBC	Melia Hotels International	GVC
Motor Oil	IBG	Wcm Ag	EQB	Besi	NIBC	Nh Hotel Group	GVC
Neste Corporation	OPG	<b>Software &amp; Computer Services</b>	<b>Mem(*)</b>	Ericsson	OPG	Opap	IBG
Qgep	CBI	Affecto	OPG	Gigaset	EQB	Snaitech	BAK
Repsol	GVC	Akka Technologies	CIC	Nokia	OPG	Snowworld	NIBC
Total	CIC	Alten	CIC	Roodmicrotec	NIBC	Sodexo	CIC
<b>Oil Services</b>	<b>Mem(*)</b>	Altran	CIC	S&T Ag	EQB	Sonae Capital	CBI
Bourbon	CIC	Assystem	CIC	Slm Solutions	EQB	Trigano	CIC
Cgg	CIC	Atos	CIC	Stmicroelectronics	BAK	<b>Utilities</b>	<b>Mem(*)</b>
Fugro	NIBC	Axway Software	CIC	Suess Microtec	EQB	Acciona	GVC
Rubis	CIC	Basware	OPG	Teleste	OPG	Acea	BAK
Saipem	BAK	Comptel	OPG	Va-Q-Tec	EQB	Albioma	CIC
Sbm Offshore	NIBC	Ctac	NIBC	<b>Telecommunications</b>	<b>Mem(*)</b>	Direct Energie	CIC
Technipfmc Plc	CIC	Digia Plc	OPG	1&1Drillisch Ag	EQB	Edp	CBI
Tecnicas Reunidas	GVC	Econocom	CIC	Acotel	BAK	Edp Renováveis	CBI
Tenaris	BAK	Esi Group	CIC	Bouygues	CIC	Enagas	GVC
Vallourec	CIC	Exprivia	BAK	Deutsche Telekom	EQB	Endesa	GVC
Vopak	NIBC	F-Secure	OPG	Dna	OPG	Enel	BAK
<b>Personal Goods</b>	<b>Mem(*)</b>	Gft Technologies	EQB	Elisa	OPG	Erg	BAK
Adidas	EQB	Ict Group	NIBC	Euskaltel	GVC	Eydap	IBG
Adler Modemaerkte	EQB	Indra Sistemas	GVC	Freenet	EQB	Falck Renewables	BAK
Amer Sports	OPG	Nemetschek Se	EQB	Iliad	CIC	Fortum	OPG
Basicnet	BAK	Neurones	CIC	Kpn Telecom	NIBC	Gas Natural Fenosa	GVC
Cie Fin. Richemont	CIC	Nexus Ag	EQB	Masmovil	GVC	Hera	BAK
Geox	BAK	Novabase	CBI	Nos	CBI	Iberdrola	GVC
Gerry Weber	EQB	Ordina	NIBC	Orange	CIC	Iren	BAK
Hermes Intl.	CIC	Psi Software Ag	EQB	Ote	IBG	Italgas	BAK
Hugo Boss	EQB	Reply	BAK	Retelit	BAK	Public Power Corp	IBG
Kering	CIC	Rib Software	EQB	Tele Columbus	EQB	Red Electrica De Espana	GVC
Luxottica	BAK	Rovio Entertainment	OPG	Telecom Italia	BAK	Ren	CBI
Lvmh	CIC	Scout24	EQB	Telefonica	GVC	Snam	BAK
Marimekko	OPG	Seven Principles Ag	EQB	Telefonica Deutschland	EQB	Terna	BAK
Moncler	BAK	Sii	CIC	Telia	OPG		
Puma	EQB	Software Ag	EQB	Tiscali	BAK		
Safilo	BAK	Sopra Steria Group	CIC	United Internet	EQB		
Salvatore Ferragamo	BAK	Tieto	OPG	Vodafone	BAK		
Sarantis	IBG	Tomtom	NIBC	<b>Travel &amp; Leisure</b>	<b>Mem(*)</b>		
Swatch Group	CIC	<b>Support Services</b>	<b>Mem(*)</b>	Accor	CIC		
Technogym	BAK	Amadeus	GVC	Aegean Airlines	IBG		
Tod'S	BAK	Asiakastieto Group	OPG	Air France Klm	CIC		
<b>Real Estate</b>	<b>Mem(*)</b>	Batenburg	NIBC	Autogrill	BAK		
Adler Real Estate	EQB	Cellnex Telecom	GVC	Beneteau	CIC		
Beni Stabili	BAK	Dpa	NIBC	Compagnie Des Alpes	CIC		
Citycon	OPG	Ei Towers	BAK	Elior	CIC		
Demire	EQB	Enav	BAK	Europcar	CIC		
Deutsche Euroshop	EQB	Fiera Milano	BAK	Finnair	OPG		
Grivalia	IBG	Inwit	BAK	Gamenet	BAK		

LEGEND: BAK: Banca Akros; CIC: CM CIC Market Solutions; CBI: Caixa-Banco de Investimento; GVC: GVC Gaesco Beksa, SV, SA; EQB: equinet bank; IBG: Investment Bank of Greece, NIBC: NIBC Bank N.V.; OPG: OP Corporate Bank::as of 4<sup>th</sup> April 2018

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(\*\*) excluding: strategists, macroeconomists, heads of research not covering specific stocks, credit analysts, technical analysts

## Recommendations and Disclosures

Coverage	Analyst	Target	Rating	Disc.	Coverage	Analyst	Target	Rating	Disc.
1&1DRILLISCHAG	Sen	66.00	Buy		Merck	Miemietz	112.00	Buy	
2GEnergy	Rüzgar	23.50	Accumulate	2/3/5	Merkur Bank	Häßler	10.00	Buy	2/7
Aareal Bank	Häßler	42.00	Neutral		Metro AG	Bruns	17.00	Buy	2
adidas	Josefson	228.00	Accumulate		MLP	Häßler	7.50	Buy	2/3
Adler Modemaerkte	Josefson	6.35	Buy	7	MTU Aero Engines	Rüzgar	130.00	Reduce	2
ADLER Real Estate	Mayer	17.10	Accumulate		Munich Re	Häßler	210.00	Accumulate	
Aixtron	Sen	11.60	Accumulate	2/3	Nemetschek SE	Mildner	47.00	Reduce	5
Allianz	Häßler	200.00	Neutral		Nexus AG	Mildner	28.00	Buy	
Axel Springer	Josefson	66.50	Reduce		Norma Group	Schuldt	62.00	Neutral	
Bayer	Miemietz	118.00	Buy		OHB SE	Rüzgar	40.00	Neutral	7
Baywa	Bruns	33.00	Buy	2/7	OVH Holding AG	Häßler	20.00	Neutral	2/5/7
BB Biotech	Miemietz	73.00	Buy	7	Patrizia	Mayer	18.00	Neutral	
Biotech	Miemietz	25.00	Neutral	2/3	Pfeiffer Vacuum	Sen	162.00	Buy	5
BMW	Schuldt	105.00	Buy		Procredit Holding	Häßler	15.00	Buy	2/3/5
Brenntag	Hinkel	59.80	Buy	2	PSI SOFTWARE AG	Mildner	20.00	Buy	2/3
Ceconomy AG	Bruns	10.70	Reduce		Puma	Josefson	492.00	Buy	
Cenit	Mildner	22.50	Buy		PWO	Schuldt	52.00	Buy	2/3
comdirect	Häßler	11.20	Neutral		Rheinmetall	Rüzgar	118.00	Neutral	
Commerzbank	Häßler	13.00	Neutral		RIB Software	Mildner	25.00	Buy	2/3
Continental	Schuldt	270.00	Buy		RTL Group	Josefson	72.00	Accumulate	
CORESTATE Capital Holding S.A.	Mayer	72.00	Buy	2/5	S&TAG	Sen	21.00	Buy	2/3
CTS Eventim	Heilmann	39.50	Neutral		SAF-Holland	Schuldt	17.00	Neutral	7
Daimler AG	Schuldt	80.00	Accumulate		Schaeffler	Tanzer	14.30	Buy	
Daldrup & Soehne	Becker	14.50	Buy	2/3/5	Schaltbau Holding AG	Becker	32.20	Buy	2/7
Demire	Mayer	4.55	Buy	2/5	SCOUT24	Heilmann	31.00	Reduce	2
Deutsche Bank	Häßler	14.00	Buy		Siegfried Holding AG	Miemietz	338.00	Neutral	
Deutsche EuroShop	Mayer	33.00	Neutral		Siemens Healthineers AG	Rüzgar	35.50	Accumulate	2
Deutsche Pfandbriefbank	Häßler	13.50	Neutral		SLM Solutions	Sen	24.00	Buy	
Deutsche Telekom	Sen	13.30	Neutral		SMT Scharf AG	Rüzgar	16.70	Buy	2/3
Duerr	Augustin	120.00	Buy		Software AG	Mildner	30.00	Sell	
ElringKlinger	Schuldt	10.00	Sell		Stabilus	Tanzer	91.00	Buy	
elumeo SE	Josefson	10.90	Accumulate		Suedzucker	Bruns	12.00	Sell	
Epigenomics AG	Miemietz	4.72	Accumulate	2/3	SuessMicroTec	Sen	13.80	Accumulate	2/3
Eurochem AG	Becker	13.00	Buy	2/3/5	Surteco	Mildner	30.50	Buy	2/3
Eyemaxx Real Estate	Mayer	16.00	Buy	2/5/7	Symrise AG	Hinkel	67.00	Neutral	
Ferratum	Häßler	30.00	Buy		Syzygy AG	Heilmann	11.50	Accumulate	2/3
Fielmann	Heilmann	70.00	Neutral		TAKKT AG	Bruns	18.50	Neutral	2
First Sensor AG	Becker	27.00	Accumulate	7	Talanx Group	Häßler	40.00	Accumulate	
Freenet	Sen	36.00	Buy	2	Technotrans	Becker	45.70	Neutral	2/3
Fuchs Petrolub	Hinkel	48.00	Neutral		TELECOLUMBUS	Sen	9.70	Buy	
Gea Group	Augustin	39.00	Neutral		Telefonica Deutschland	Sen	3.40	Sell	
Gerresheimer AG	Rüzgar	69.00	Neutral		United Internet	Sen	63.00	Buy	
Gerry Weber	Josefson	8.00	Neutral		Vapiano	Bruns	26.50	Buy	2/7
Gesco	Becker	34.20	Accumulate	2/3/5	va-Q-tec	Sen	17.00	Neutral	2/3/5
GFT Technologies	Mildner	15.50	Buy	2/3	Viscom	Rüzgar	28.00	Buy	2/3
Gigaset	Sen	0.85	Accumulate	2/3	Volkswagen	Schuldt	162.00	Neutral	
Grenke	Häßler	90.00	Neutral		Wacker Neuson SE	Becker	27.20	Neutral	
Hannover Re	Häßler	110.00	Neutral		windeln.de	Josefson	3.10	Buy	2
Heidelberg Pharma	Miemietz	3.50	Accumulate	2/3	XING SE	Heilmann	300.00	Buy	
Heidelberger Druck	Augustin	3.60	Buy		Zalando	Josefson	44.50	Neutral	
HELLA GmbH & Co. KGaA	Tanzer	57.00	Accumulate						
Hornbach Holding	Bruns	89.00	Buy						
Hugo Boss	Josefson	81.00	Buy						
Hypoport AG	Häßler	172.00	Accumulate	2/7					
INDUS Holding AG	Becker	64.50	Neutral						
K+S AG	Hinkel	24.40	Neutral						
Koenig & Bauer	Augustin	72.00	Neutral						
Krones AG	Augustin	123.00	Accumulate						
KWS SAAT	Hinkel	348.00	Buy						
Lanxess	Hinkel	83.00	Buy						
Leoni	Schuldt	57.00	Neutral						
Linde	Hinkel	176.00	Neutral						
Logwin	Mildner	148.00	Neutral	2/3/5					
Manz AG	Rüzgar	37.00	Neutral	2/3					
MAX Automation AG	Becker	9.40	Buy	2/3/5					

\* = Coverage suspended

Source: equinet Recommendations

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Buy - The stock is expected to generate a total return of over 20% during the next 12 months time horizon.

Accumulate - The stock is expected to generate a total return of 10% to 20% during the next 12 months time horizon.

Hold - The stock is expected to generate a total return of 0% to 10% during the next 12 months time horizon

Reduce - The stock is expected to generate a total return of 0 to -10% during the next 12 months time horizon

Sell - The stock is expected to generate a total return below -10% during the next 12 months time horizon

### Basis of Valuation

Equinet Bank uses for valuation purposes primarily DCF-Valuations and Sum-Of-The-Parts-Valuations as well as peer group comparisons.

### Share prices

Share prices in this analysis are the German closing prices of the last trading day before the publication.

### Sources

Equinet Bank has made any effort to carefully research all information contained in the analysis. The information on which the analysis is based has been obtained from sources which we believe to be reliable such as, for example, Reuters, Bloomberg and the relevant press as well as the company which is the subject of the analysis. Only that part of the research note is made available to the issuer, who is the subject of the analysis, which is necessary to properly reconcile with the facts. Should this result in considerable changes a reference is made in the research note.

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-BaFin- (Federal Financial Supervisory Authority)  
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Marie-Curie-Str. 24-28, 60439 Frankfurt am Main

### Recommendation history for FIRST SENSOR AG

Date	Recommendation	Target price	Price at change date
17. Mai 18	Accumulate	27.00	23.90

Source: Factset & ESN, price data adjusted for stock splits.

This chart shows equinet Bank continuing coverage of this stock; the current analyst may or may not have covered it over the entire period. Current analyst: Winfried Becker (since 25/04/2018)



## ESN Recommendation System

The ESN Recommendation System is **Absolute**. It means that each stock is rated on the basis of a **total return**, measured by the upside potential (including dividends and capital reimbursement) over a **12 month time horizon**.



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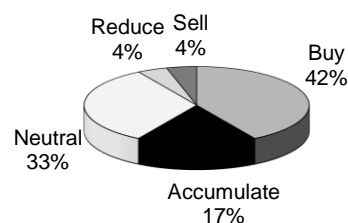
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### Meaning of each recommendation or rating:

- **Buy:** the stock is expected to generate total return of **over 15%** during the next 12 months time horizon
- **Accumulate:** the stock is expected to generate total return of **5% to 15%** during the next 12 months time horizon
- **Neutral:** the stock is expected to generate total return of **-5% to +5%** during the next 12 months time horizon
- **Reduce:** the stock is expected to generate total return of **-5% to -15%** during the next 12 months time horizon
- **Sell:** the stock is expected to generate total return **under -15%** during the next 12 months time horizon
- **Rating Suspended:** the rating is suspended due to a change of analyst covering the stock or a capital operation (take-over bid, SPO, ...) where the issuer of the document (a partner of ESN) or a related party of the issuer is or could be involved
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Certain flexibility on the limits of total return bands is permitted especially during higher phases of volatility on the markets

### Equinet Bank Ratings Breakdown



For full ESN Recommendation and Target price history (in the last 12 months) please see ESN Website [Link](#)

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