BRYAN, GARNIER & CO

INDEPENDENT RESEARCH

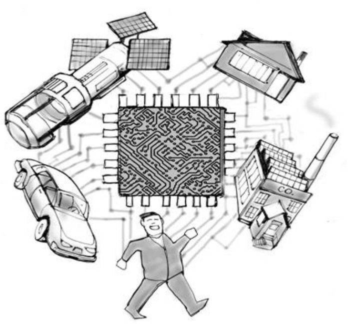
21st July 2016

Semiconductors

Looking for lost growth

Semiconductors

ARM HOLDINGS		**Tender to the offer**	**FV 1410p vs.1340p**
Bloomberg	ARM.LN	Reuters	ARM.L
Price	1663p	High/Low	1675/848.5
Market cap.	GBP23,404m	Enterprise Val	GBP22,420m
PE (2016e)	46.3x	EV/EBIT (2016e)	47.0x
ASML		**SELL**	**FV EUR81**
Bloomberg	ASML NA	Reuters	ASML.AS
Price	EUR94.52	High/Low	94.52/71.75
Market Cap.	EUR40,959m	Enterprise Val	EUR39,005m
PE (2016e)	31.4x	EV/EBIT (2016e)	26.5x
DIALOG SEMICONDUCTOR		**BUY**	**FV EUR37 vs. 35**
Bloomberg	DLG GR	Reuters	DLGS.DE
Price	EUR28.85	High/Low	53.269/24.42
Market Cap.	EUR2,246m	Enterprise Val	EUR1,493m
PE (2016e)	12.1x	EV/EBIT (2016e)	4.4x
INFINEON		**BUY Top picks**	**FV EUR16 vs. 15**
Bloomberg	IFX GY	Reuters	IFXGn.DE
Price	EUR13.915	High/Low	14.03/8.687
Market Cap.	EUR15,754m	Enterprise Val	EUR15,195m
PE (2016e)	17.1x	EV/EBIT (2016e)	19.1x
MELEXIS		**SELL**	**FV EUR48**
	Coverage initiated		
Bloomberg	MELE BB	Reuters	MLXS.BR
Price	EUR61	High/Low	61/37.7
Market Cap.	EUR2,464m	Enterprise Val	EUR2,405m
PE (2016e)	25.8x	EV/EBIT (2016e)	21.6x
SOITEC		**NEUTRAL**	**FV EUR0.5 vs. 0.45**
Bloomberg	SOI FP	Reuters	SOIT.PA
Price	EUR0.75	High/Low	0.75/0.3838
Market Cap.	EUR455m	Enterprise Val	EUR480m
PE (2016e)	15.7x	EV/EBIT (2016e)	18.0x
STMICROELECTRONICS		**NEUTRAL**	**FV EUR6.5 vs. 6.3**
Bloomberg	STM FP	Reuters	STM.FR
Price	EUR5.552	High/Low	7.44/4.608
Market Cap.	EUR5,058m	Enterprise Val	EUR4,376m
PE (2016e)	26.5x	EV/EBIT (2016e)	16.6x
u-blox		**BUY**	**FV CHF265**
	Coverage initiated		
Bloomberg	UBXN SW	Reuters	UBXN.S
Price	CHF228.5	High/Low	231.1/164
Market Cap.	CHF1,555m	Enterprise Val	CHF1,485m
PE (2016e)	33.3x	EV/EBIT (2016e)	24.8x



For the semiconductors industry, 2015 and the first half of 2016 probably marked the start of a sluggish cycle. This market context has led to a radical change in the industry. A number of players are focusing on M&A while others are refocusing on their core business. The result is that yesterday's leaders are not necessarily tomorrow's leaders. In this backdrop, we recommend that investors favour specialists (or ultra-specialists) irrespective of their size.

- **Average growth of 0.6% for the next three years.** Whereas the industry has been growing by more than 9% on average over the past 30 years, coming years are set to be sluggish. Growth has evaporated given the lack of momentum in the PC market and with a smartphone market no longer playing the role of catalyst in a sluggish economic backdrop.

- **The search for critical mass leading nowhere.** While many observers consider that the record number of M&A operations seen in 2015 reflect a search for critical mass (and hence operating leverage), we are convinced that in the majority of cases, acquisitions are above all motivated by an aim to deliver short-term growth forecasts. We believe that, for the semiconductors industry, the preconceived idea that size is a success factor is no longer true. In contrast, we are convinced that in today's market focusing on unique expertise and a strong positioning in a small number of verticals is preferable.

- **In this changing environment, we believe that stock-picking is more essential than ever.** We continue to favour players with strong positions in the automotive and industrial sectors. The two segments remain among the most dynamic with average 2015-18e growth rates of 6.8% and 7.5% respectively.

- **As such, we are initiating coverage of two medium-sized companies that are highly specialised: Melexis** (Sell, FV EUR48) specialised in car components and **u-blox** (Buy, FV CHF265) specialised in positioning chips and connectivity for the automotive and industrial sectors.

Analyst:
Dorian Terral
33(0) 1.56.68.75.92
dterral@bryangarnier.com

Sector Analyst Team:
Richard-Maxime Beaudoux
Thomas Coudry
Gregory Ramirez

Table of contents

1. Darwinism in the industry

In 2016, the semiconductors industry is more than ever in an extreme situation. While investments in the development of microchips seem to be a bottomless pit, their production requires outsized and expensive production facilities, involving, for example, the construction of fabs of more than three million square metres that house precision tools of less than half a nanometre (two atoms), costing up to USD12bn (e.g. Samsung plant in Pyeongtaek) and requiring 150,000 employees in white rooms. In the end, these tools are destined to become obsolete just two years after their installation while the chips that cost so much to develop become redundant after just a few months. However, players in the sector have managed to become accustomed to this hostile environment.

Changes in both the environment and the behaviour of players have been noticed recently, thereby meaning the entire industry needs to evolve.

So far, the real challenges for chipmakers have been the lack of visibility, uncertainty and the cyclical nature of the business, although these factors have been offset by high growth. **However, changes in both the environment and the behaviour of players have been noticed recently, thereby meaning the entire industry needs to evolve.**

2015 was a sluggish year and the outlook for the next two years also points to a huge lack of momentum. We explain this by the lacklustre global economy prompting a structural change in the industry. **The result is reduced volatility, better control of global production capacity and the development of cannibalistic behaviour in order to offset the lack of growth.**

1.1. Growth at a standstill…

1.1.1. Sluggish economic backdrop to blame

Comparison of historical changes in the semiconductors market and expectations for the sector in coming years, shows that a massive slowdown is on the cards. Indeed, while historical growth levels have often exceeded 25% over the past two decades with average annual growth of 9% over the past 30 years, forecasts for future years are for low single-digit growth.

Fig. 1: Average growth of 0.6% over the next three years

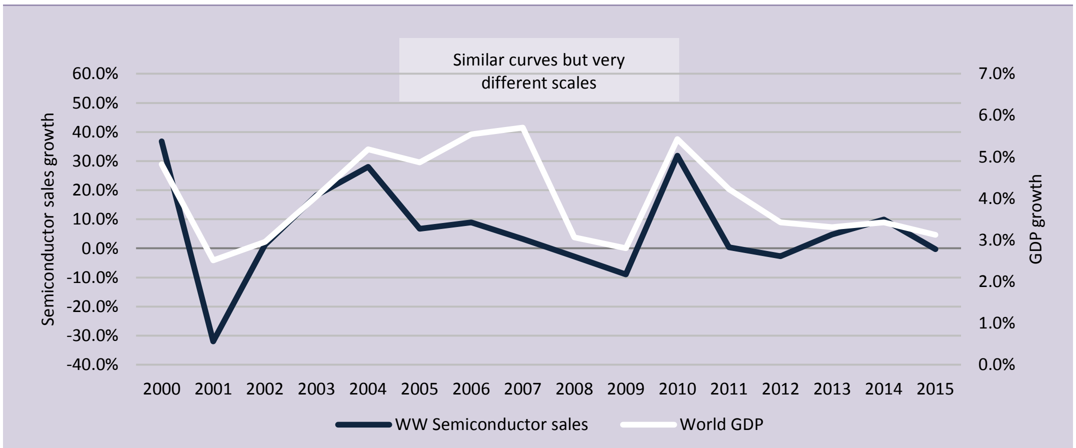
IC market by Component	2009	2010	2011	2012	2013	2014	2015	2016e	2017e	2018e	CAGR 15-18e
Discrete Semiconductors	14.2	19.8	21.4	19.1	18.2	20.2	18.6	18.7	19.2	19.7	2.0%
Optoelectronics	17.0	21.7	23.1	26.2	27.6	29.9	33.3	33.9	35.5	36.8	3.4%
Sensors	4.8	6.9	8.0	8.0	8.0	8.5	8.8	9.5	9.8	10.1	4.8%
Integrated Circuits	190.3	249.9	247.1	238.2	251.8	277.3	274.5	265.1	269.1	274.3	0.0%
o/w Analog	32.0	42.3	42.3	39.3	40.1	44.4	45.2	45.7	47.1	48.4	2.3%
o/w Micro (MPU & MCU)	48.3	60.6	65.2	60.2	58.7	62.1	61.3	61.6	62.3	63.3	1.1%
o/w Logic (ASIC, ASSP, …)	65.2	77.4	78.8	81.7	85.9	91.6	90.8	88.5	88.7	89.7	-0.4%
o/w Memories	44.8	69.6	60.7	57.0	67.0	79.2	77.2	69.3	71.1	72.9	-1.9%
Total IC Market	**226.3**	**298.3**	**299.5**	**291.6**	**305.6**	**335.8**	**335.2**	**327.2**	**333.7**	**340.9**	**0.6%**

Sources: WSTS; Bryan, Garnier & Co ests.

Growth in the semiconductors industry is closely correlated with global growth and hence GDP.

Growth in the semiconductors industry is closely correlated with global growth and hence GDP. Historically, the sector has suffered the effects of a recession or an acceleration in the economy accentuated clearly by inappropriate management of production capacities that we set out further on.

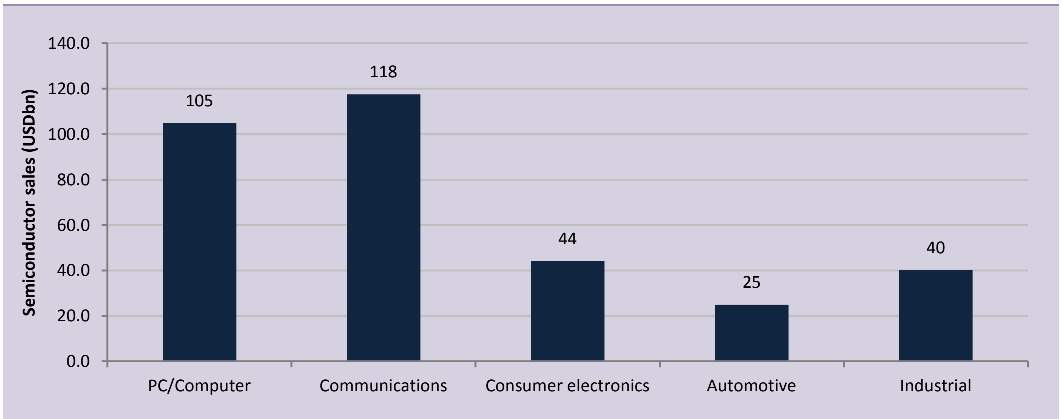
Fig. 2: An industry that accentuates economic cycles



Sources: WSTS; IMF; Bryan, Garnier & Co ests.

This correlation stems from 1/ the very upstream position in the electronics value chain, 2/ sales contracts and agreements that do not include inertial sales stabilisation mechanisms (volume generation) and 3/ a very wide breakdown of components sales. Around a third of the components produced are used for telecoms applications (handsets, networks etc.), a third for IT in the wider sense (PCs, servers etc.) and another third for various applications such as automotive, the industrial segment and consumer electronic devices (excluding mobiles and PCs).

Fig. 3: A market divided in three: computers, mobiles.... and the rest



Sources: WSTS; Bryan, Garnier & Co ests.

In 2015, global production of electronic devices (all categories combined) narrowed by 2%, thereby prompting a 0.3% fall in semiconductor sales.

2016 does not look better with economic slowdown in several parts of the world.

2016 does not look better with economic slowdown in several parts of the world. This is notably the case of China (30% of global semiconductor consumption) where growth could fall below 7% in 2016 bearing in mind that the country is the leading consumer of electronic products and especially computers, smartphones and smart-TVs. Indeed, since end-2015, economic momentum in the country has shown signs of stabilising, notably in view of the various stimulus measures put in place (including repeated interest rate cuts and the devaluation in the renminbi). However, while a hard landing looks increasingly less likely, comparison bases remain difficult for this economy.

In the US (20% of global components consumption), expectations are no more encouraging since certain indicators point to a forthcoming recession and especially a decline in average corporate profitability, a downturn in employment as well as an increase in defaults. Changes in GDP in the country confirm a gradual slowdown with Q4 2015 and Q1 2016 growth of 1.4% and 1.1% compared with 3.9% and 2.0% in Q2 and Q3 2015. US growth therefore remains especially penalised by a strong dollar, in particular in the manufacturing sector whereas consumer spending is generally the growth driver (consumption up 2.2% in Q4 2015 on a quarterly annualised basis vs. 3% in Q3 2015).

For the semiconductors industry, the bright side of this is that sluggishness has helped reduce volatility.

In all, for 2016, the IMF forecasts growth of 3.2% or global GDP of USD75.8tn vs. USD73.5tn in 2015. For the semiconductors industry, the bright side of this is that sluggishness has helped reduce volatility.

Fig. 4: Economic hazards are still the main volatility factors in the industry

Sources: WSTS; IMF; Bryan, Garnier & Co ests.

Unfortunately, this clearly comes to the detriment of momentum, since over the long term, current growth forecasts for the industry (if they prove correct) point to a significant slowdown. Again, three-year forecasts suggest average growth of just 0.6% whereas between 1986 and 2015, average growth exceeded 9%.

1.1.2. Increasingly strong correlation between global growth/industry growth

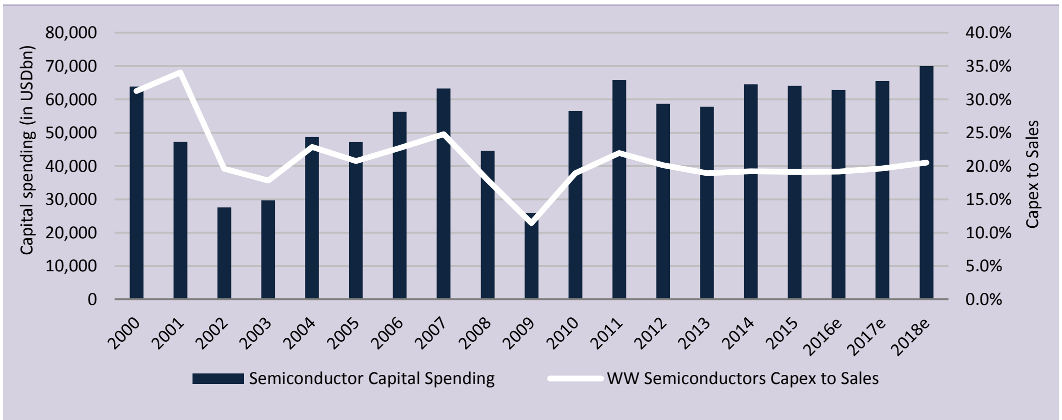
In historical terms, another reason for high volatility in the industry was the mismanagement of global production capacities.

In historical terms, another reason for high volatility in the industry was the mismanagement of global production capacities. In periods of recovery, in order to seize the high growth opportunity, all players were quick to extend their production capacity. However, these concert investments rapidly transformed into surplus production on a global level, prompting pressure on prices and leading the industry into recession.

The industry seems to have learnt from its mistakes and investments now seem to be more reasonable.

The industry seems to have learnt from its mistakes and investments now seem to be more reasonable. In 2015, aggregate investments by all players in the industry totalled USD62.3bn according to Gartner, or 18.6% of total sales in the sector. This is a reasonable level bearing in mind that a record was reached in 2000 with investments reaching almost 35% of global sales in the industry. We believe that investment momentum is currently very similar to sales momentum although it remains influenced by the ongoing Moore law and that increasingly few players are investing in advanced production capacity. For example, 25 industrial groups invested in advanced production tools in 2002 (130nm) whereas only three invested in the 10nm in 2016.

Fig. 5: A stable and coherent ratio of investments to sales



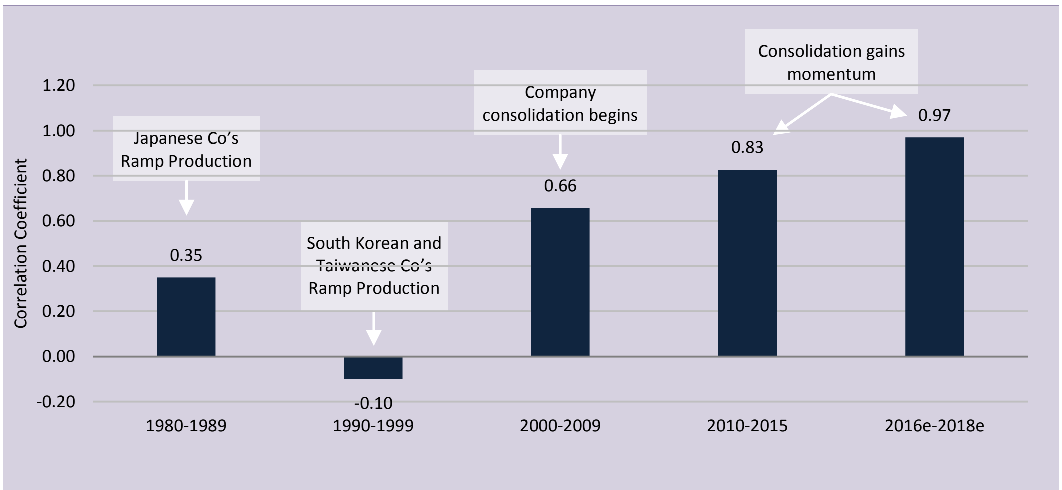
Sources: Gartner; Bryan, Garnier & Co ests.

In volume terms, global semiconductors production is currently situated at around 190m wafers a year (200mm or equivalent, source: IC Insight). More than 40% of this capacity concerns a technology of less than or equal to 40nm (13%≤20nm) , which also signifies that more than 50% of global production is generated with technologies that are now more than eight years old.

The correlation between global growth and changes in the semiconductors industry is now far higher than it was two decades ago.

This better stability is also reflected in statistics since the correlation between global growth and changes in the semiconductors industry is now far higher than it was two decades ago.

Fig. 6: GDP/IC Market growth: an increasing correlation



Source: Bryan, Garnier & Co ests.

1.2. … leading to refocusing…

Whereas the entire industry is only like to post modest growth in coming years, a number of sub-segments are set to perform better than others. These sectors are the same as in 2015, namely the automotive and industrial sectors (see Buying the European Powerhouses).

We have noted that they are increasingly refocusing on their core businesses and groups are preferring to sell off sluggish and sometimes fairly unprofitable non-core businesses.

This does not mean that players active in other market segments will disappear, but we have noted that they are increasingly **refocusing on their core businesses**. This trend has affected all players, whether large or small and all market segments.

In the quest for efficiency and growth, groups are preferring to sell off sluggish and sometimes fairly unprofitable non-core businesses and are therefore creating an artificially attractive comparison basis (since companies always present figures in terms of same-structure growth). There have been numerous examples of this recently:

- **Maxim Integrated (US; c. USD10.6bn mkt cap.):** In early 2015, Maxim Integrated decided to withdraw from MEMS and touch screen sensors for consumer devices (i.e. smartphones in this case) in order to focus on automotive sensors.

- **Texas Instruments (US.; c. USD62.6bn mkt cap.):** TI also decided to slim down its teams (1,100 staff) in charge of developing mobile chips a few years earlier when the group decided to abandon the smartphone chips segment.

- **KLA-Tencor (US; c. USD11.6bn mkt cap.):** Mid-2015, the US equipment manufacturer announced a realignment plan for its business and decided to cut headcount (around 10%). In fact, it halted investments in EUV.

- **Qualcomm (US; c. USD80.5bn mkt cap.):** Also in mid-2015, the group (specialised in developing processors for smartphones) announced that it intended to reorganise its businesses into two main pillars, chip design and IP licences. After selling off its non-core activities, the group cut its headcount by 15%.

- **AMD (US; c. USD4.3bn mkt cap.):** At the end of 2015, as the no. 2 player in computer processors was struggling in both processors and graphic cards, it decided to focus its efforts on activities considered key and outsource the rest. Around 5% of its employees were made redundant.

- **NXP Semiconductors (NL; c. USD30.0bn mkt cap.):** In May 2015, NXP announced the sale of the RF Power division (which became Ampleon) to Chinese investor Jianguang AM, with its 1,250 employees. A year later in June 2016, NXP announced it was selling off its Discrete Power division (to become Nexperia) to the same Chinese investors explaining that the group preferred to focus its efforts on a lower number of verticals. This refocusing was due to the group's rapid growth following the acquisition of Freescale in 2015.

As a result, all these groups will now be able to report favourable adjusted sales growth figures.

As a result, all these groups will now be able to report favourable adjusted sales growth figures.

In addition to the above examples, we would underscore two others: Intel and STMicroelectronics.

> **"Intel Corporation […] announced a restructuring initiative to accelerate its evolution from a PC company to one that powers the cloud and billions of smart, connected computing devices."** – Intel Corp., April 19, 2016

The failure of Intel in smartphones is a proof that legitimacy is not given for free in new segment.

Intel's decision to refocus its efforts on a small number of growth segments is symptomatic of the current state of the industry. The group's attempt to focus on the internet of things (IoT) has actually involved abandoning all initiatives in the smartphone chips segments. Historically, semi-conductor players have been used to relying on a strong vertical to finance investments in other high-potential market segments. Most often, this involved hesitant diversifications capitalising on the internal expertise already in place. However, this strategy does not seem to have worked over the past 10 years and it now looks difficult to enter a market segment which already has an ecosystem and well-established players. The group's failure in the smartphones market shows how a player like Intel, which clearly boasts the greatest know-how in terms of design and manufacture of digital chips, has no preferential treatment or legitimacy in another market segment (however similar).

> **"ST to discontinue the development of new platforms and standard products for set-top-boxes and home gateways"** – STMicroelectronics, 27th January 2016

STMicroelectronics never benefited from its large product portfolio.

This is another interesting sample since it shows that a technological lead does not necessarily ensure success, that market share losses can be very fast and fatal and that diversification is not always a source of stability or growth. In our view, STMicroelectronics has the largest product portfolio in the industry. However, this does not ensure it the top place in the sector (ST is struggling to maintain its position in Top 10 ranking) and has in contrast, forced it to invest more than its peers in R&D, taking an automatic toll on its margins. Over the last few years, the group focused on a breakthrough technology, FD-SOI, to offer set-top box manufacturers high-quality chips when maintaining an attractive price range. Unfortunately, Broadcom, its main rival in this segment, made the most of the development time for this new platform to gain a higher market share and impose itself as the clear leader. After several quarters of development, the new STMicroelectronics platform for set-top boxes (STB) arrived too late, the division had no hope left and management announced in January 2016 that it would undertake a reorganisation implying the withdrawal from the STB business and the departure of 1,400 staff. This example is a good illustration of the importance of control in a market segment. Although STMicroelectronics ended up offering a high-quality platform, the group did not manage to win sufficient market share to justify further investments in the set-top box chip segment. In addition, although STMicroelectronics is very diversified, it has never benefited from a better stability or far higher growth than its peers.

In a context of rapid market change, it therefore seems important to favour 1/ players with a dominant position in one vertical and/or specific expertise (vs. outsiders), and 2/ players whose expertise is focused in a small number of market segments.

1.3. …and the rise in cannibalism

In 2015, we noted a major consolidation trend with sizeable merger/acquisition operations.

In 2015, we noted a major consolidation trend with sizeable merger/acquisition operations, like three major deals including Broadcom by Avago for USD37bn, Freescale by NXP for USD12bn and Altera by Intel for USD17bn.

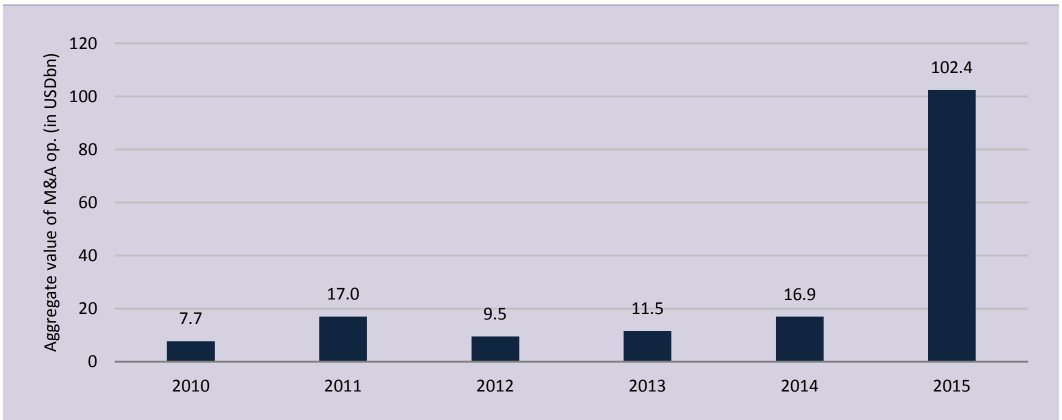
Fig. 7: A record number of M&A operations in 2015…

Announced	Buyer	Target	Purchase Price ($M)	Type of Transaction
January	Lattice (U.S.)	Silicon Image (U.S.)	607	Cash
February	Intel (U.S.)	Lantiq (Germany)	-	-
February	MacLinear (U.S.)	Entropic Comm. (U.S.)	287	Cash & Share
March	NXP (Netherlands)	Freescale (U.S.)	11800	Cash & Share
March	Microsemi (U.S.)	Vitesse (U.S.)	389	Cash
March	Uphill Investment (China)	ISSI (U.S.)	731	Cash
April	Hua Capital, investors (China)	OmniVision (U.S.)	1900	Cash
May	Microchip (U.S.)	Micrel (U.S.)	839	Cash & Share
May	Avago (Singapore)	Broadcom (U.S.)	37000	Cash & Share
May	JAC Capital (China)	NXP RF power unit (Netherlands)	1800	Cash
June	Intel (U.S.)	Altera (U.S.)	16700	Cash
June	Parade Technologies (Taiwan)	Cypress touchscreen Ics (U.S.)	100	Cash
July	Tsinghua Unigroup (China)	Micron (U.S.)	23000	Cash
July	Autoliv (Sweden)	Macom Automotive unit (U.S.)	100	Cash
July	AMS (Austria)	NXP CMOS sensor unit (Netherlands)	-	
October	Skyworks (U.S.)	PMC-Sierra (U.S.)	2031	Cash
November	ON Semiconductor (U.S.)	Fairchild (U.S.)	2400	Cash
October	Western Digital	SanDisk	19000	Cash & Share
October	LAM Research	KLA-Tencor	10600	Cash or Share
December	Microchip (U.S.)	Atmel (U.S.)	3560	Cash & Share

This is a non-exhaustive list of M&A deals >USD100m.
Sources: Company Data; Bryan, Garnier & Co ests.

Even adjusted for operations closed in 2015 alone (vs. total M&A activity including the operations announced and closed), the aggregate value of all of these operations, or USD102bn, clearly exceeded the level of previous years (around USD12.5bn/year on average).

Fig. 8: …actually masking a growth problem



Source: Company Data; Bryan, Garnier & Co ests.

We believe that the trend is above all a clear reflection of the aim to find the means to boost growth

This has been driven by a particularly beneficial environment for M&A activity with low interest rates and undemanding valuations. **However, we believe that the trend is above all a clear reflection of the aim to find the means to boost growth** (short-term growth) and acquire and control new key technologies in order to face competition (long-term growth).

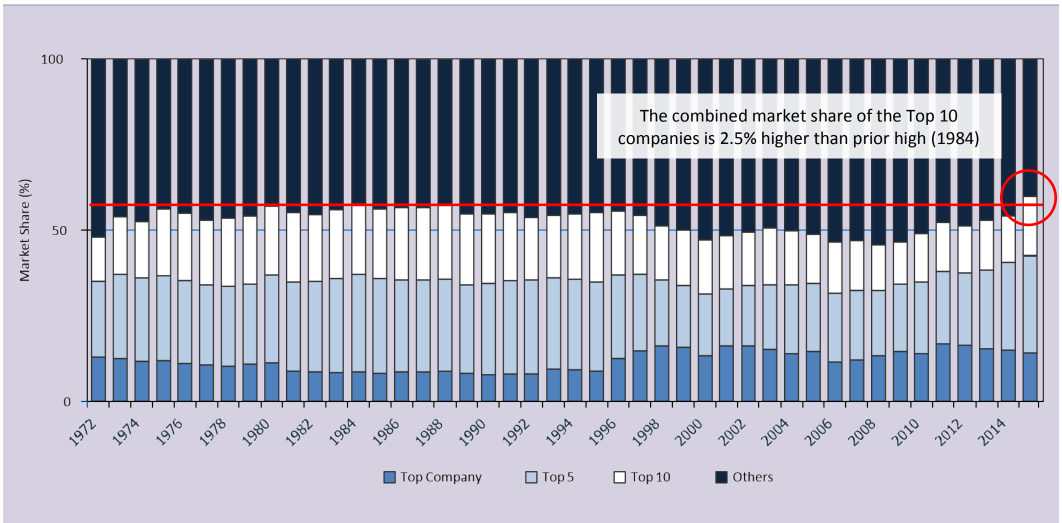
This trend has also been confirmed in surveys carried out with leading sector managers. In their view, these numerous operations have been driven by rising R&D costs (cited by 45% of those questioned), extensions in the technological portfolio (41% of answers) and a deterioration in prices forcing companies to find acquisitions opportunities (for 40% of those questions) or to reduce competition by buying out rivals.

As such, the time when several dozen rivals were present in the same market (memory, microchips etc.) has past and it is natural to see a consolidation in a same market segment since differentiation (and hence the reason to exist) is increasingly difficult to maintain on several segments.

As a consequence of the numerous M&A operations in 2015, the Top 10 players achieved an aggregated market share of almost 60%, the highest level so far.

As a consequence of the numerous M&A operations in 2015, the Top 10 players achieved an aggregated market share of almost 60%, the highest level so far.

Fig. 9: A concentration trend reflected in market shares



Sources: Gartner/Dataquest; IC Insights; Mentor Graphics; Bryan, Garnier & Co ests.

2. Stock-picking more than necessary

2.1. The biggest are not necessarily the strongest

When commenting on the semiconductors industry, many observers are persuaded that **size is now the main success factor** – and by success we understand profitable growth. **In our view, recent changes in the industry undermine this preconceived idea and the reasons for success look quite different now.**

2.1.1. The size of a player does not guarantee its success

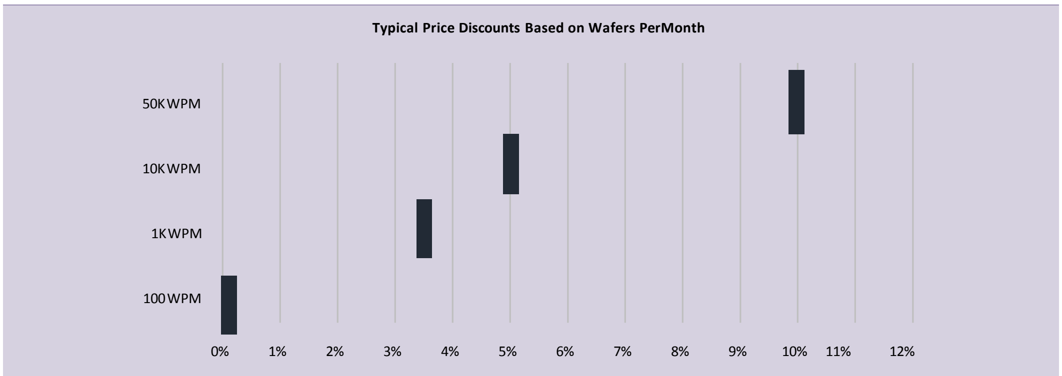
As in many sectors, these economies of scale are also relevant in the semiconductors industry but in a slightly more specific way.

For some people, the search for critical mass explains the strong wave of M&A activity seen in 2015. Indeed, the driving force behind consolidation is generally the synergies unlocked by economies of scale and higher volumes. **As in many sectors, these economies of scale are also relevant in the semiconductors industry but in a slightly more specific way.** Indeed, an integrated manufacturer (IDM) such as Intel or Infineon should be able to make the most of the beneficial effects, but the technologies acquired need to be sufficiently close to the buyer's core business. However, IDMs represent an increasingly low share of the semiconductors industry.

By focusing on one of the crucial points of economies of scale, namely the unit cost of wafer production, we note that the maximum discount granted by foundries is limited

In 2016, a large share of semiconductors players are fabless or fablite. However, in a model where more and more players are outsourcing production to foundries, the gains generated by higher orders are actually rarely significant. **By focusing on one of the crucial points of economies of scale, namely the unit cost of wafer production, we note that the maximum discount granted by foundries is only 10% for a volume of 50,000 wafers per month** (source: IBS), or the equivalent of Apple's consumption for its iPhone chips. These are volume levels that few players are capable of selling, even by doubling in size thanks to an acquisition, thereby reducing average production savings more to 3-5%.

Fig. 10: The price model of foundries only offers limited leverage relative to volumes ordered

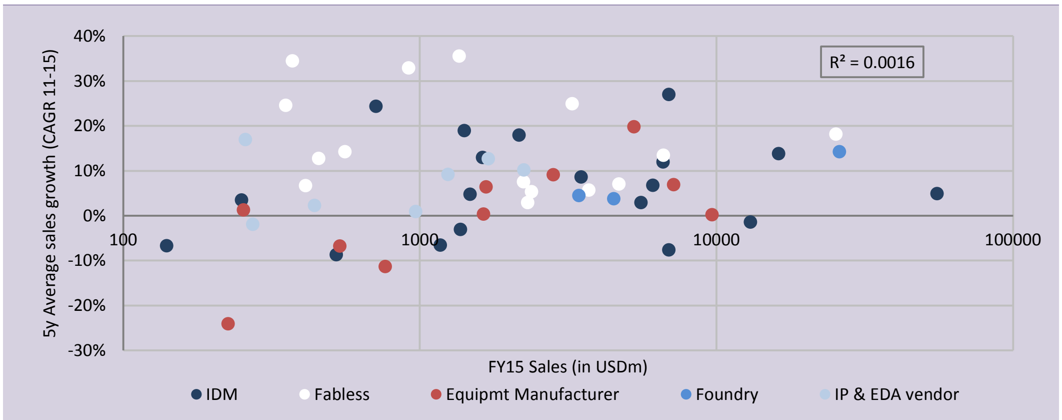


Source: IBS – August 2015

Other synergy sources, namely R&D and marketing do not materialise systematically either as it seems that there is no correlation between revenue, growth, profitability and improvement of margins.

Other synergy sources, namely R&D and marketing do not materialise systematically either as it seems that there is no correlation between revenue, growth, profitability and improvement of margins. First, the relationship between sales generated and growth in a sample of 54 stocks[1] in the sector that we monitor actively, is actually insignificant with a low linear regression coefficient ($R^2 = 0.0017$).

Fig. 11: No correlation between size and growth



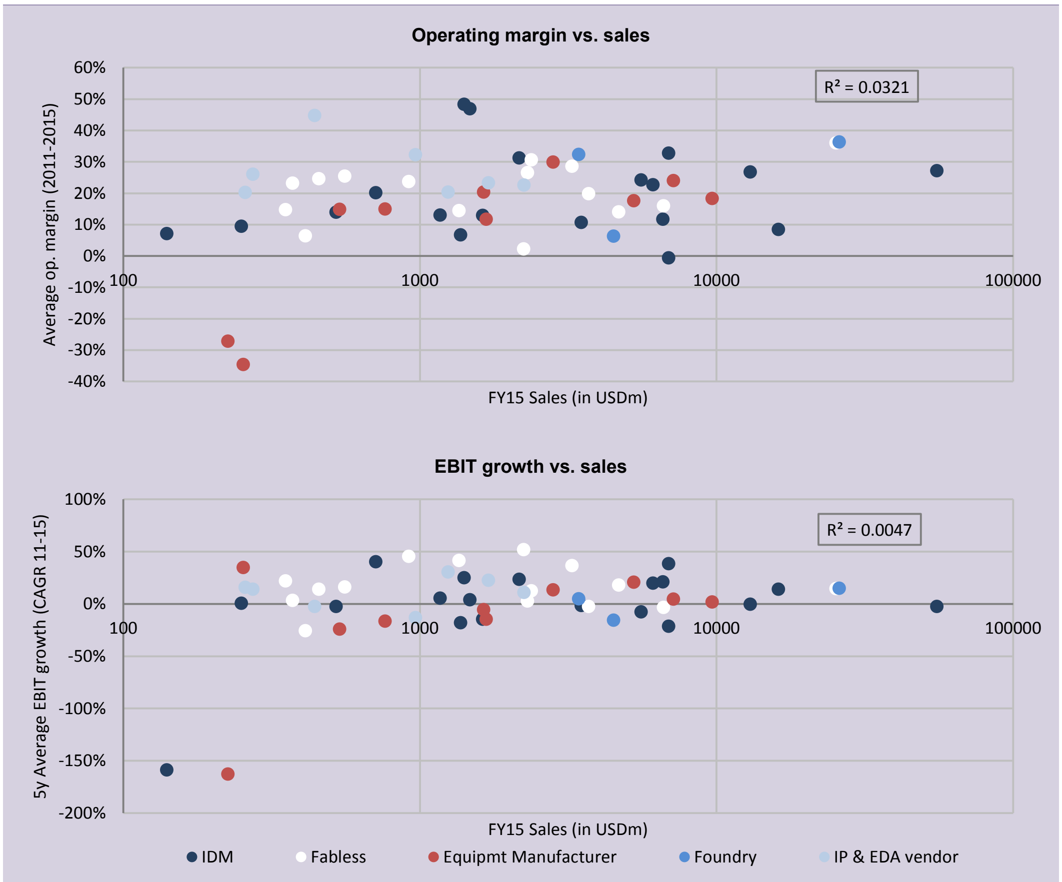
Sources: Thomson Reuters I.B.E.S.; Bryan, Garnier & Co ests.

This chart also highlights the fact that whatever the business model (IDM, fabless, foundry) or the business speciality (components or equipment manufacturing or design), size is not a growth factor.

More interestingly, a similar exercise in profitability also highlights the lack of correlation between the size of groups and their margin levels.

[1] Analog Devices, Applied Mats., ARM Holdings, ASM International, ASM Pacific, ASML, Atmel, ams, Broadcom, Cadence Design, CEVA, Cirrus Logic, Cypress, Dialog, Dolby Laboratories, Elmos, Fairchild, Imagination Technologies, Infineon, Intel, Interdigital, Intersil, Invensense, KLA Tencor, Kulicke & Soffa, Lam Research, Lattice Semiconductor, Linear Technology, Marvell, Maxim Integrated, MediaTek, Melexis, Mentor Graphics, Microchip Tech., Micron Technology, Micronas Semicon., Nvidia, NXP Semiconductors, ON Semiconductor, Qualcomm, Sandisk, Semtech, Skyworks Solutions, SMIC, Soitec, STMicroelectronics Synopsys, Teradyne, Tessera, Texas Instruments, TSMC, u-blox Holding, UMC, Xilinx

Fig. 12: Similarly, there is no correlation between size and margin levels



Sources: Thomson Reuters I.B.E.S.; Bryan, Garnier & Co ests.

Similarly, profitability is not affected by the business model chosen, or the type of business expertise. In our sample, the 20 most profitable companies have very different profiles: analogical expertise, wireless and logic, and even players in memory, foundries or equipment makers.

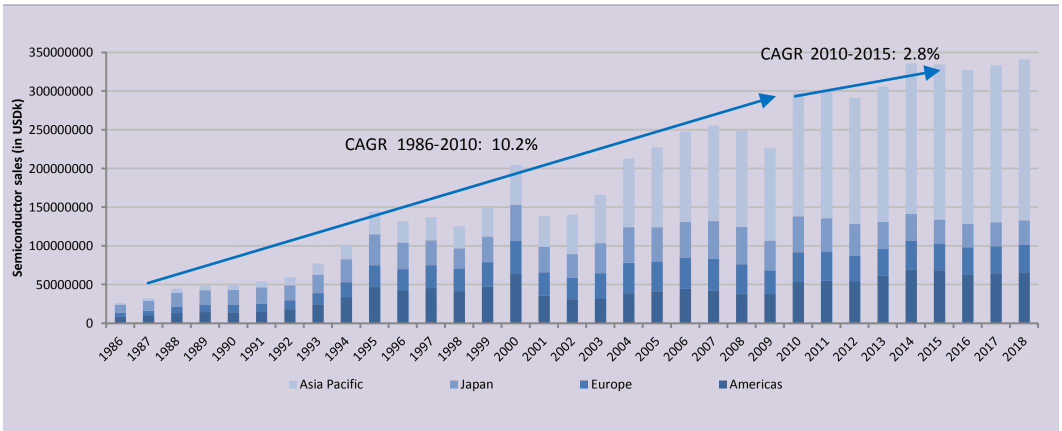
Fig. 13: No differentiation by expertise or business model either

Company	5y avg. EBIT margin	Business model - Expertise
Arm Holdings	48%	IP Vendor - Logic
Linear Technology	47%	IDM - Analog/mixed-signal
Interdigital	45%	IP Vendor - Wireless/RF
TSMC	36%	Foundry - All
Qualcomm	36%	Fabless - Wireless/RF
Broadcom	33%	IDM - Analog/mixed-signal
Analog Devices	32%	IDM - Analog/mixed-signal
Dolby Laboratories	32%	IP Vendor - Mixed-signal
Microchip Tech.	31%	IDM - Logic
Xilinx	31%	Fabless - Logic
KLA Tencor	30%	Equipment Manufacturer
Ceva	27%	IP Vendor - Mixed-signal
Skyworks Solutions	29%	Fabless - Wireless/RF
Intel	27%	IDM - Logic
Texas Instruments	27%	IDM - Analog/mixed-signal
Maxim Integrated	27%	Fabless - Analog/mixed-signal
Tessera Techs.	26%	IP Vendor - Backend
Semtech	25%	Fabless - Analog/mixed-signal
Melexis	25%	Fabless - Analog/mixed-signal
Sandisk	24%	IDM - Memory

Sources: Thomson Reuters I.B.E.S.; Bryan, Garnier & Co ests.

In our view, this provides additional proof that the wave of mergers and acquisitions noted in 2015 was above all driven by the aim for certain players to acquire growth and/or weaken the competition and thereby satisfy demanding expectations from investors who are used to strong growth.

Fig. 14: A similar conclusion: the M&A wave has been due to a lack of growth



Sources: WSTS; Bryan, Garnier & Co ests.

In addition, although we are not questioning these M&A strategies, we have noted that certain groups have seen their product portfolios expand massively via these operations. However, the increase in product and customer portfolios is likely to result in further pressure on the performances of sales teams and distribution networks.

2.1.2. Positioning is a more certain characteristic

Today, we believe that the main factor for success lies more in a group's expertise and leading position in a defined market segment rather than a being among Top 10 worldwide players.

Today, we believe that the main factor for success lies more in a group's expertise and leading position in a defined market segment rather than a being among Top 10 worldwide players. This was also noted over 2010-2015 when the market only grew by 2.8% on average whereas companies exposed to the smartphone segment enjoyed robust momentum. Among the best performers (growth in sales between 2010 and 2015), only Lam Research and u-blox do not generate the majority of their sales in the mobile segment.

Fig. 15: Over the past five years, the best growth rates were noted in the mobile/smartphone segment

Rank	Company	5y average sales growth	Market segment (comment)
1	Dialog Semicon.	36%	PMICs for Smartphones
2	Invensense	34%	Sensors for Smartphones
3	Cirrus Logic	33%	Audio ICs for Smartphones
4	Broadcom	27%	Logic ICs for Smartphones & Industry (M&A Avago/Broadcom)
5	Skyworks Solutions	25%	Wireless ICs for Smartphones
6	**u-blox Holding**	**25%**	**Positioning/Wireless for Automobile & Industry**
7	austriamicrosystems	24%	Sensors for Smartphones
8	**Lam Research**	**20%**	**Equipment manufacturer**
9	ARM Holdings	19%	IP blocks for Application processors
10	Qualcomm	18%	Wireless ICs for Smartphones

Sources: Thomson Reuters I.B.E.S.; Bryan, Garnier & Co ests.

As such, with the slowdown in the smartphone market, we expect a change in this ranking over coming years.

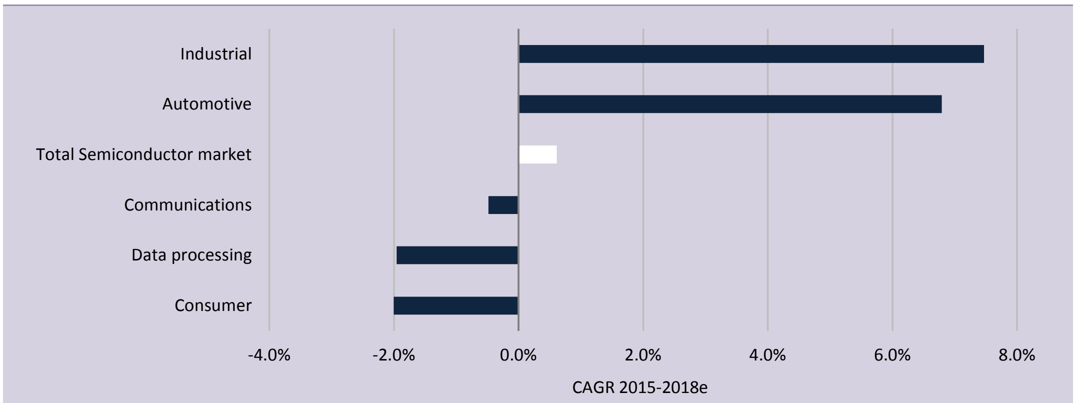
2.1.3. The auto and industrial robotisation sectors are strong catalysts

Our conviction is that the industrial sector, especially via plant robotisation, and the automotive sector, are the sectors that offer an opportunity to exceed market growth.

Our conviction is that the industrial sector, especially via plant robotisation, and the automotive sector, are the sectors that offer an opportunity to exceed market growth.

On an average three-year growth basis, these segments should post outperformances of between six and seven percentage points relative to the semiconductors market.

Fig. 16: Automotive and industry sectors offer the best opportunities



Sources: WSTS; IHS; Bryan, Garnier & Co ests.

This is a point that we already highlighted in our sector note of June 2015 (Buying the European Powerhouses) and still holds today. **However, the valuations of a number of sector players still do not reflect these opportunities.**

Fig. 17: Overall, automotive/industry players are not overvalued

Auto/Industry players (14)	Mkt Cap (EURm)	Perf YTD	P/E		EV/EBIT		EV/EBITDA		EV/Sales	
			CY16	CY17	CY16	CY17	CY16	CY17	CY16	CY17
Analog Devices	16,823	9.2%	21.8x	18.9x	15.1x	13.0x	13.0x	11.3x	4.8x	4.4x
Lattice Semiconductor	57,662	11.8%	14.7x	12.4x	15.3x	11.6x	12.6x	9.9x	5.9x	4.7x
Elmos	210	-32.5%	14.4x	11.5x	8.4x	6.4x	3.6x	3.1x	0.8x	0.7x
Infineon	15,754	2.6%	19.1x	16.8x	15.4x	13.1x	8.4x	7.6x	2.2x	2.0x
Linear Technology	10,499	14.4%	24.0x	22.3x	15.7x	14.5x	14.5x	13.1x	7.0x	6.4x
Maxim Integrated Prds.	9,763	0.3%	23.3x	19.2x	16.7x	13.7x	12.0x	11.0x	4.4x	4.2x
Melexis	2,464	16.8%	25.0x	22.7x	19.1x	17.2x	15.6x	14.1x	4.9x	4.5x
NXP Semiconductors	25,622	-3.0%	14.2x	10.9x	13.7x	10.2x	10.0x	7.8x	3.6x	3.0x
ON Semiconductor	3,567	-3.0%	11.3x	9.1x	10.8x	8.5x	6.6x	5.8x	1.3x	1.2x
Renesas	8,706	-9.9%	24.9x	15.0x	7.1x	6.5x	8.5x	5.7x	1.7x	1.2x
STMicroelectronics	5,058	-10.5%	29.8x	15.5x	22.6x	11.0x	5.0x	4.4x	0.7x	0.7x
Texas Instruments	59,225	18.9%	22.0x	20.1x	14.2x	13.1x	11.8x	11.0x	4.9x	4.6x
u-blox	1,434	7.7%	33.7x	27.9x	21.8x	17.9x	14.5x	11.9x	3.2x	2.7x
Xilinx	11,037	3.0%	23.4x	22.4x	15.3x	15.7x	13.9x	14.5x	4.6x	4.6x
Auto/Industry players (14) average	**13,921**	**3%**	**22.8x**	**18.4x**	**17.1x**	**12.9x**	**11.0x**	**9.7x**	**3.5x**	**3.2x**
All segment IDM/Fabless players (31) average	**17,322**	**5%**	**20.6x**	**18.3x**	**14.8x**	**11.5x**	**10.3x**	**8.7x**	**2.9x**	**2.6x**

Sources: Thomson Reuters I.B.E.S. as of 19/07/2016; Bryan, Garnier & Co ests.

Groups specialised in chip manufacturing for the automotive and industrial sectors are not better valued than the rest of the industry.

We have retained two factors from this data:

- **Groups specialised in chip manufacturing for the automotive and industrial sectors are not better valued than the rest of the industry.** Average 2016e EV/EBITDAs of specialists work out to 11.0x close to the industry average 2016e EV/EBITDA of 10.3x (we use EV/EBITDA ratio as the sample is composed of Fabless and IDMs).

- Despite a more buoyant environment, the stockmarket performance of these specialists since the beginning of the year has also been very close to the sector performance. The 14 specialised groups only had a performance of 3%, just slightly below the 5% gain made by our sample including 31 IDMs and fabless players.

2.1.4. Focus on foundries, observation towers in industry

We consider momentum for foundries particularly interesting to observe since these players are at the heart of the value chain, with exposure to the various market and/or technology sub-segments, and therefore have transversal visibility on the industry's health.

In 2015, the general sluggishness in the industry also upset the usually robust pace of growth of foundries.

In 2015, the general sluggishness in the industry also upset the usually robust pace of growth of these players (+5pp on average relative to the industry). In 2016, 16/14nm production lines should run at maximum but the focus is now on the roll-out of 10nm production. Note here that investments in 10nm production are currently being stepped up. At GlobalFoundries, Vice-President David Jensen expects a slightly stronger year in 2016 compared with 2015, especially thanks to the constant increase in value in smartphones and new applications in the automotive sector and the internet of things, prompting Mr Jensen to forecast growth of 5-7% for all foundries. This figure is in line with the historical outperformance of outsourcers of around 5% as we mentioned previously and growth expected for the industry as a whole (around 0%).

Also, note that foundries are also the main groups that invest in new production technologies (advanced nodes). We estimate that combined investments by these players exceed two-thirds of the annual investments made in advanced nodes. On this point, we expect modest growth in investments that are set to be directed towards 1/ expanding in 28nm production capacities, 2/ additional 16/14nm capacity for larger players (primarily TSMC, Samsung and GlobalFoundries) and 3/ the roll-out of a 10nm production line since Q2 2016. This forecast has been confirmed in messages from the directors of LAM Research, KLA-Tencor, Applied Materials, and ASML, namely the main components makers in the industry.

We would add three things to these observations for 2016. Firstly, the transition to 16/14nm at TSMC, Samsung and GlobalFoundries was not simple and yields have remained low so far. However, in 2016, these yields should pick up considerably in our view, thereby clearly increasing production capacity for these nodes. **This could prompt TSMC, Samsung and GlobalFoundries to be more aggressive commercially** although TMSC and Samsung both agree in saying that despite increased competition and the arrival of the 10nm, 14/16nm production should be maintained over the long term. This is good news for components markets since it indicates that the tools currently used for this production and which correspond to leading-edge components makers are unlikely to be transferred to 10nm production. Indeed, a number of equipment makers offer the possibility of improving the tools owned by semiconductors manufacturers which may provide a competitive edge, but could also damage sales of future generations of tools.

Secondly, the share of production between 40nm and 20nm remains very high, and we estimate it at around 30% of global production, virtually all of which in 28nm bulk. This production currently carries lower margins than advanced production (≤20nm) for foundries but it should last since it still offers a particularly attractive price/performance ratio for semiconductors manufacturers. In this environment, we have noted that new entrants are positioning themselves, as is the case of SMIC and UMC. We expect this to add further pressure to the foundries already established in this production.

Finally, we have also noted that demand remains high for 200mm production (vs. 300mm for production of digital components) due to radio components in smartphones and IoT, as well as power management chips and components for the automotive sector. For this reason, we consider that the backdrop is currently more beneficial for speciality foundries such as Towerjazz, Magnachip and X-Fab.

2.2. Opportunities in the universe we cover

After initiating coverage of Melexis and u-blox, our universe now includes 8 European companies with different profiles.

After initiating coverage of Melexis and u-blox, our universe now includes 8 European companies. These groups have very different profiles since they include both **IDMs (Infineon and STMicroelectronics)**, **Fabless (Dialog, Melexis et u-blox)**, **IP block seller (ARM Holdings)**, **equipment manufacturer (ASML)** and **semiconductor materials manufacturer (Soitec)**. The smallest group is Soitec with a stockmarket capitalisation of close to EUR300m and the largest is ASML with a capitalisation of about EUR40bn.

Fig. 18: BG Semiconductor universe

BG Coverage (8)	Business model	Mkt Cap
ARM Holdings	IP vendor	23,573 GBPm
ASML	Equipment manufacturer	40,300 EURm
Dialog Semiconductor	Fabless	2,246 EURm
Infineon	IDM	15,754 EURm
Melexis	Fabless	2,464 EURm
Soitec	Material	455 EURm
STMicroelectronics	IDM	5,058 EURm
u-blox	Fabless	1,555 CHFm

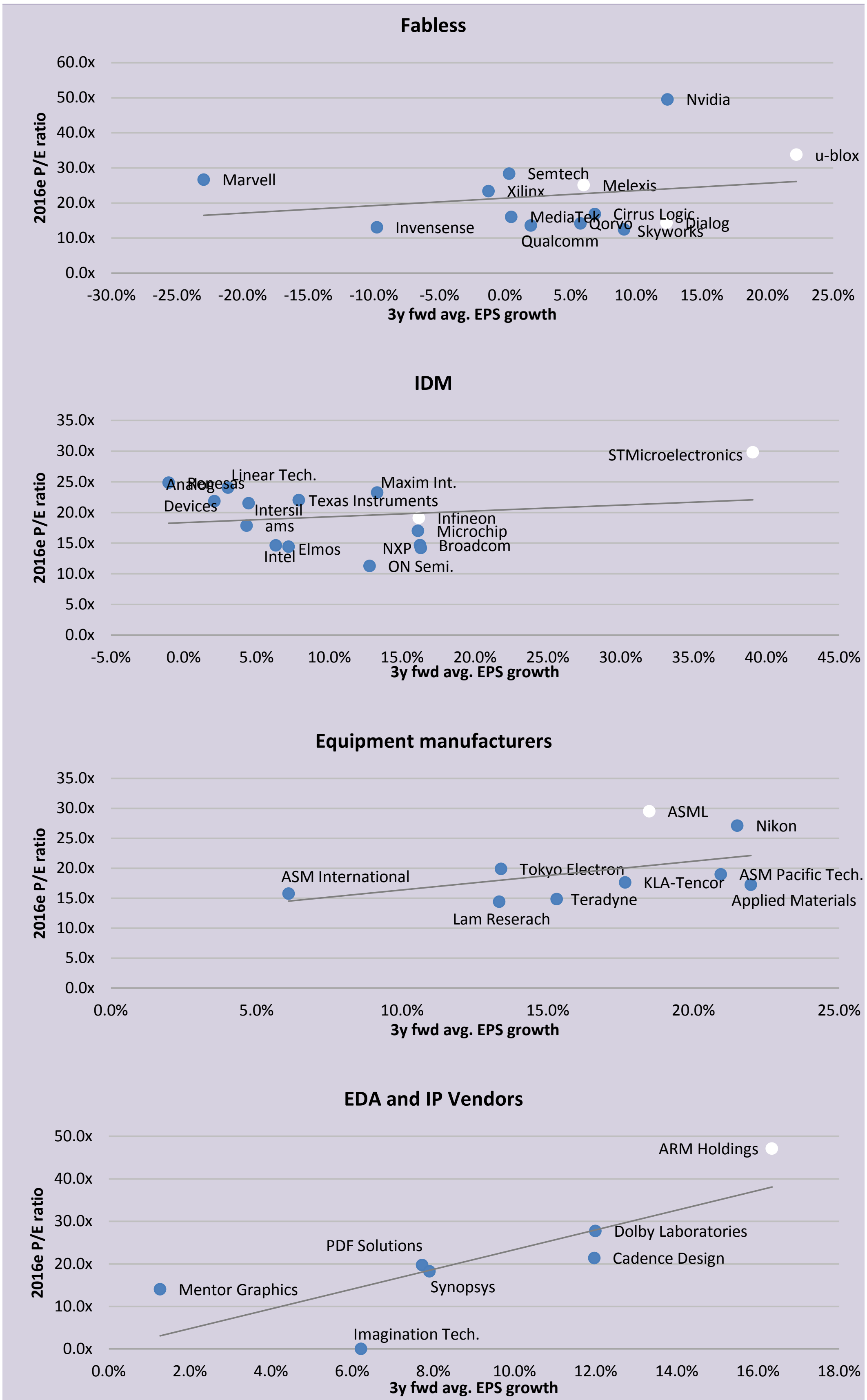
Sources: Thomson Reuters I.B.E.S. as of 19/07/2016; Bryan, Garnier & Co ests.

While the sector shows low average growth for coming years, it still offers robust growth opportunities for well-positioned players. As such, the semiconductors industry still offers growth opportunity for some players and in this respect not taking an interest in the groups' growth profiles and only focusing on the usual valuation multiples such as EV/Sales, EV/EBITDA, EV/EBIT and P/E could prove mistaken. As such, we believe it is interesting to take into account an additional dimension when valuing the shares, namely growth.

Virtually all of the industry players have a positive net cash position, such that using P/E multiples is coherent in our view as long since the impact of financial expenses on net profit is mostly marginal. Nevertheless, it requires to take into account the differences of business model among industry players (IDMs, fabless, IP vendors, equipment manufacturers…) when using EV/EBIT and P/E ratios. Indeed, since fabless groups have no plant, they do not depreciate equipment like IDMs, thereby distorting all comparisons based on EV/EBIT and P/E. As a result, we would underscore the **importance of differentiating players by group depending on the business model operated.**

On a comparable business model basis, use of PEG therefore remains interesting as it also allows to take into account the growth profile of industry players.

Fig. 19: PEG ratio's by player category



Sources: Thomson Reuters I.B.E.S. as of 19/07/2016; Bryan, Garnier & Co ests.

In all, in a backdrop currently in the throes of change, **our recommendations are based on:**

- **A bottom-up approach** that helps identify groups that are undervalued relative to their potential (especially Dialog) and eliminate groups whose valuation leaves little room for upside potential (ASML, Melexis, STMicroelectronics),

- **A top-down approach** via which we identify the best stocks in segments identified as buoyant (Infineon and u-blox).

As such, our top picks are currently Dialog, Infineon and u-blox.

Fig. 20: BG Semiconductor universe – Valuation metrics

BG Coverage (8)	Currency	Mkt Cap	Price	Reco.	FV (Upside)	P/E 2016e	EV/EBIT 2016e	EV/Sales 2016e	ROCE	PEG
ARM Holdings	GBP	23,573	1,663	Tender to the offer	1,410p (n.s.)	46.3x	39.7x	19.9x	35%	2.8x
ASML	EUR	40,300	94.52	Sell	EUR81 (-14%)	31.4x	27.9x	6.3x	23%	1.4x
Dialog Semiconductor	EUR	2,246	28.85	Buy	EUR37 (+29%)	12.1x	9.3x	1.8x	47%	1.4x
Infineon	EUR	15,754	13.92	Buy	EUR16 (+15%)	17.1x	15.1x	2.4x	19%	1.0x
Melexis	EUR	2,464	61.00	Sell	EUR48 (-21%)	25.8x	22.1x	5.4x	53%	5.0x
Soitec	EUR	455	0.75	Neutral	EUR0.50 (-33%)	n.s.	17.1x	1.8x	15%	n.s.
STMicroelectronics	EUR	5,058	5.55	Neutral	EUR6.5 (+17%)	26.5x	19.2x	0.7x	5%	0.9x
u-blox	CHF	1,555	228.5	Buy	CHF265 (+16%)	33.3x	26.1x	3.9x	22%	1.1x
Average						**27.5x**	**22.0x**	**5.3x**	**27%**	**1.9x**

Sources: Thomson Reuters I.B.E.S. as of 19/07/2016; Bryan, Garnier & Co ests.

Page left blank intentionally

INDEPENDENT RESEARCH UPDATE

21st July 2016

TMT

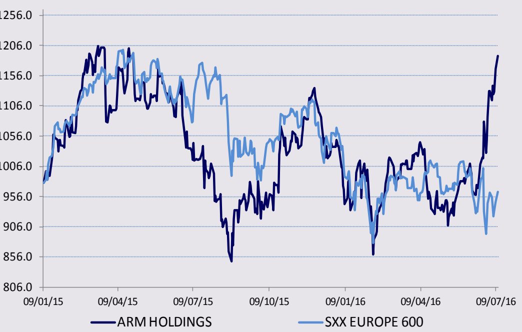
ARM Holdings

SoftBank leverages Brexit to acquire ARM

Fair Value 1410p vs. 1340p (price 1,663p) **Tender to the offer**

Bloomberg	ARM.LN
Reuters	ARM.L
12-month High / Low (p)	1,675 / 848.5
Market capitalisation (GBPm)	23,404
Enterprise Value (BG estimates GBPm)	22,420
Avg. 6m daily volume ('000 shares)	4,680
Free Float	79.4%
3y EPS CAGR	17.9%
Gearing (12/15)	-36%
Dividend yield (12/16e)	0.68%

YE December	12/15	12/16e	12/17e	12/18e
Revenue (GBPm)	968.30	1,179	1,385	1,541
EBITA GBPm)	499.8	590.9	717.3	810.6
Op.Margin (%)	51.6	50.1	51.8	52.6
Diluted EPS (p)	30.20	35.94	43.94	49.54
EV/Sales	23.50x	19.02x	15.89x	13.96x
EV/EBITDA	42.0x	34.7x	28.2x	24.4x
EV/EBITA	45.5x	37.9x	30.7x	26.5x
P/E	55.1x	46.3x	37.9x	33.6x
ROCE	34.9	40.8	49.6	55.7



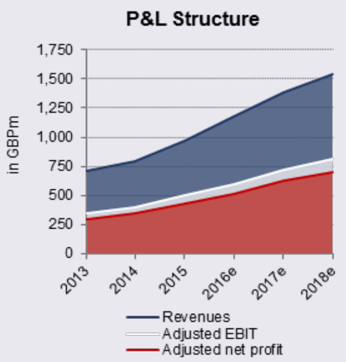
On 18th June, SoftBank launched the acquisition of ARM for 1,700p per share, valuing ARM at GBP24.3bn. The Japanese group has made the most of a valuation made more affordable by the plunge in the GBP against the JPY, but has above all taken an attractive opportunity to capture profitable growth with 1/ momentum in the internet of things (IoT) and 2/ the rising momentum of ARM architecture in servers and infrastructure. In all, SoftBank is a serious buyer that has the means to pay for ARM in cash while offering historical shareholders a juicy premium (+43%). It has a good track-record in acquisitions and should maintain the group's current profile. We have updated our model, especially for forex, and consequently increased our FV from 1,340p to 1,410p.

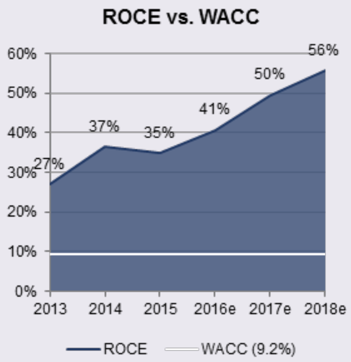
- **SoftBank has invested in capturing the opportunity provided by the Internet of Things.** During H1 2016, ARM's share price performance was hampered by the slowdown in the smartphones market. However, ARM still boasts numerous assets and especially 1/moves upscale in processors (32 bits vs. 64 bits), 2/ the multiplication in cores, and 3/ the adoption of ARM's Mali graphics technology, enabling it to increase smartphone revenues (>50% of royalties) by more than 9% a year on average between 2015 and 2018e. **In addition to this comes the fresh source of growth harboured in IoT, network equipment and servers.** IoT remains a difficult catalyst to materialise but its positive impact was clearly visible in the past two publications and the same is true for network equipment with constant market share gains. Finally, momentum in servers is constantly improving with a stronger ecosystem especially since the arrival of Qualcomm in the list of partners.

- **In all, SoftBank seems to have the perfect profile as a buyer.** In terms of ARM's historical investors, the offer harbours attractive upside (+43% vs. the pre-announcement price) and is paid in cash. Concerning ARM, SoftBank has already stated it would change nothing to the current way of operating. The chip designer is to remain an independent unit with its head offices still in Cambridge and the same management team. SoftBank also stated that it would do everything to provide ARM the means to ramp-up, particularly in human resources with an additional budget to step up the recruitment of engineers.

Analyst:
Dorian Terral
33(0) 1.56.68.75.92
dterral@bryangarnier.com

Sector Analyst Team:
Richard-Maxime Beaudoux
Thomas Coudry
Gregory Ramirez





Company description

ARM is a UK group specialised in the design of processor architectures and graphic chips. Virtually all semiconductor players are licencees of the group and use the designs developed by ARM to help them design their own chips. ARM has benefited massively from the boom in smartphones, 85% of which use processors based on an ARM architecture. To continue expanding, the group now needs to develop new growth sources including IoT, servers and networking infrastructure. Currently, ARM is the subject of a takeover bid by the Japanese company SoftBank.

Simplified Profit & Loss Account (GBPm)	**31/12/13**	**31/12/14**	**31/12/15**	**31/12/16e**	**31/12/17e**	**31/12/18e**
Revenues	715	795	968	1,179	1,385	1,541
Change (%)	*23.9%*	*11.3%*	*21.8%*	*21.7%*	*17.5%*	*11.3%*
Adjusted EBITDA	445	437	542	646	782	882
Adjusted EBIT	351	400	500	591	717	811
EBIT	153	309	406	477	587	666
Change (%)	*-26.3%*	*101%*	*31.4%*	*17.4%*	*23.1%*	*13.4%*
Financial results	13.2	11.0	11.8	13.9	15.2	15.4
Pre-Tax profits	163	317	415	486	595	675
Tax	(73.4)	(68.6)	(82.6)	(95.5)	(110)	(124)
Net profit	105	255	340	400	501	568
Adjusted net profit	291	343	429	509	623	702
Change (%)	*41.7%*	*17.9%*	*25.2%*	*18.7%*	*22.2%*	*12.8%*
Cash Flow Statement (GBPm)						
Depreciation & amortisation	94.3	36.6	42.3	54.8	64.4	71.7
Change in working capital	33.2	(45.5)	(57.0)	(24.8)	(24.3)	(18.4)
Operating cash flows	315	342	380	530	652	747
Capex, net	(45.3)	(30.4)	(41.0)	(41.3)	(48.5)	(53.9)
Free Cash flow	270	311	339	489	603	693
Acquisition, net	(24.8)	(12.8)	(65.0)	0.0	0.0	0.0
Financial investments, net	(3.4)	(2.8)	2.6	(5.9)	(6.9)	(7.7)
Dividends	(68.9)	(86.1)	(108)	(159)	(197)	(205)
Issuance of shares	5.9	(60.1)	(82.8)	0.0	0.0	0.0
Issuance (repayment) of debt	(4.4)	(7.6)	(5.1)	0.0	0.0	0.0
Other	28.8	(57.1)	(102)	13.9	15.2	15.4
Net debt	(584)	(668)	(647)	(984)	(1,398)	(1,894)
Balance Sheet (GBPm)						
Tangible fixed assets	33.6	43.4	61.6	38.0	10.3	(20.5)
Intangibles assets & goodwill	609	644	743	754	768	784
Investments	149	221	318	322	327	333
Deferred tax assets	72.2	64.8	70.9	70.9	70.9	70.9
Other non-current assets	1.6	1.7	1.4	1.4	1.4	1.4
Cash & equivalents	588	675	658	996	1,410	1,905
Current assets	185	187	267	319	369	407
Total assets	1,638	1,837	2,120	2,501	2,957	3,480
Shareholders' equity	1,311	1,528	1,798	2,152	2,582	3,085
Provisions	45.1	45.6	46.3	46.3	46.3	46.3
Deferred tax liabilities	18.9	32.3	33.8	33.8	33.8	33.8
Current liabilities	259	225	231	258	284	304
L & ST Debt	4.2	6.5	11.3	11.3	11.3	11.3
Total Liabilities	1,638	1,837	2,120	2,501	2,957	3,480
Capital employed	728	860	1,151	1,168	1,183	1,192
Ratios						
Gross margin	94.79	95.52	96.19	96.32	96.30	96.60
Adjusted operating margin	49.10	50.35	51.62	50.13	51.80	52.60
Tax rate	45.14	21.67	19.91	19.67	18.45	18.36
Adjusted Net margin	40.68	43.10	44.30	43.21	44.97	45.56
ROE (after tax)	7.98	16.71	18.90	18.59	19.40	18.41
ROCE (after tax)	26.98	36.58	34.85	40.76	49.57	55.65
Gearing	(44.51)	(43.73)	(35.99)	(45.74)	(54.17)	(61.38)
Pay out ratio	65.09	33.36	31.56	39.47	39.11	35.86
Number of shares, diluted	1,412	1,421	1,418	1,417	1,417	1,417
Data per Share (p)						
EPS	7.50	18.16	24.10	28.47	35.63	40.41
Restated EPS	20.59	24.12	30.20	35.94	43.94	49.54
% change	*39.8%*	*17.1%*	*25.2%*	*19.0%*	*22.2%*	*12.8%*
BVPS	0.93	1.08	1.27	1.52	1.82	2.18
Operating cash flows	0.22	0.24	0.27	0.37	0.46	0.53
FCF	0.19	0.22	0.24	0.34	0.43	0.49
Net dividend	4.88	6.06	7.60	11.24	13.94	14.49

Source: Company Data; Bryan, Garnier & Co ests.

BRYAN, GARNIER & CO

INDEPENDENT RESEARCH UPDATE

21st July 2016

TMT

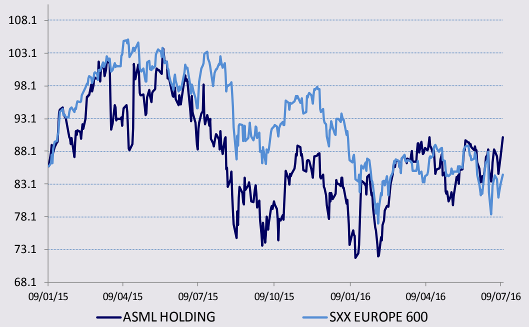
ASML

Unattactive risk reward profile

Fair Value EUR81 (price EUR94.52) **SELL**

Bloomberg	ASML NA
Reuters	ASML.AS
12-month High / Low (EUR)	94.5 / 71.8
Market capitalisation (EURm)	40,959
Enterprise Value (BG estimates EURm)	39,005
Avg. 6m daily volume ('000 shares)	1,272
Free Float	58.6%
3y EPS CAGR	21.7%
Gearing (12/15)	-27%
Dividend yield (12/16e)	1.11%

YE December	12/15	12/16e	12/17e	12/18e
Revenue (EURm)	6,287	6,487	7,415	8,742
EBITA EURm)	1,565	1,469	2,017	2,666
Op.Margin (%)	24.9	22.7	27.2	30.5
Diluted EPS (EUR)	3.21	3.01	4.24	5.79
EV/Sales	6.15x	6.01x	5.20x	4.32x
EV/EBITDA	20.7x	22.0x	16.5x	12.5x
EV/EBITA	24.7x	26.5x	19.1x	14.2x
P/E	29.5x	31.4x	22.3x	16.3x
ROCE	22.9	20.7	27.7	35.4



Last April, we downgraded the ASML share to Sell pointing out that risks were present on 1/ the timing for EUV adoption given the current ramp-up in 10nm production and 2/demand for DUV tools for 10nm production in a fairly sluggish backdrop. With a valuation that leaves very little room for disappointment, risk-reward does not look attractive to us and we are maintaining our Sell recommendation.

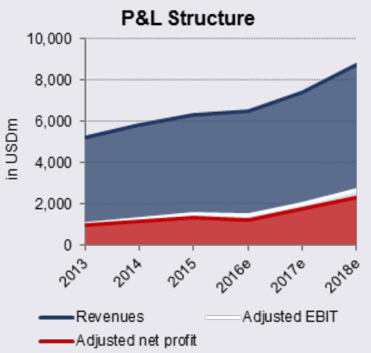
- **Demand could weaken.** In a backdrop of sluggish growth and where digital players are looking for catalysts in the internet of things (which does not use chips produced with advanced production technologies), we believe that demand for traditional ASML tools could be lower than expected. Investments in 10nm are indeed going ahead at present, but the number of clients capable of offering advanced node production is constantly falling (not to mention demand for components themselves). EUV should provide fresh impetus for the industry with margin widening thanks to a simplification in production. However, with a ramp-up in 10nm production that only started in Q2 2016, we believe that 7nm production (triggering orders for EUV tools) may not start at end-2017 as expected by the market, but with several quarters delay.

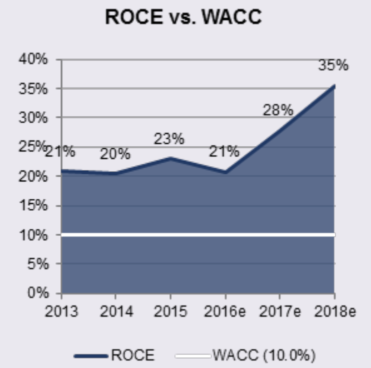
- **Rising uncertainty on future earnings.** Although EUV is not used in mass production, ASML's lithography tools are sent to three clients to carry out tests. These tools are not billed on delivery but only when a certain number of contractualised performance targets have been reached. However, neither ASML, nor clients have control over the EUV tool performances and this could result in surprises in sales in coming quarters (one EUV tool is sold at around EUR110m) and on margins since gross margin on these tools is significantly lower than ASML's DUV tools (25-30% vs. 50%).

- **Valuation that leaves very little room for error.** Whereas uncertainty hangs over the share, the valuation leaves no room for disappointment. The share is trading on 2016e P/E of 31x compared with an historical average of 22x and peer comparison of 18x. We fine-tuned our model with no impact on our valuation.

Analyst:
Dorian Terral
33(0) 1.56.68.75.92
dterral@bryangarnier.com

Sector Analyst Team:
Richard-Maxime Beaudoux
Thomas Coudry
Gregory Ramirez





Company description

ASML is an equipment maker specialised in lithographic tools for the semiconductors industry. In a growing lithography market, the group has managed to increase its market share over the years, from 30% in 2000 to 80% at present. ASML is the only group to have invested in the EUV technology, enabling a further reduction in the size of transistors making up chip components and solving the cost equation facing the semiconductors industry. As an equipment maker, the group is dependent on investments by semiconductors manufacturers including Intel, Samsung, TSMC, SMIC, SK Hynix, Micron…

Simplified Profit & Loss Account (USDm)	**31/12/13**	**31/12/14**	**31/12/15**	**31/12/16e**	**31/12/17e**	**31/12/18e**
Revenues	5,245	5,856	6,287	6,487	7,415	8,742
Change (%)	*10.9%*	*11.6%*	*7.4%*	*3.2%*	*14.3%*	*17.9%*
Gross profit	2,177	2,596	2,896	2,828	3,411	4,126
Adjusted EBITDA	1,290	1,547	1,864	1,774	2,337	3,031
Adjusted EBIT	1,048	1,282	1,565	1,469	2,017	2,666
EBIT	1,048	1,282	1,565	1,469	2,017	2,666
Change (%)	*-9.4%*	*22.4%*	*22.1%*	*-6.1%*	*37.3%*	*32.2%*
Financial results	(24.5)	(8.6)	(16.5)	(17.0)	(19.5)	(22.9)
Pre-Tax profits	1,023	1,274	1,549	1,452	1,997	2,643
Tax	(8.0)	(77.0)	(161)	(186)	(240)	(291)
Net profit	1,015	1,197	1,387	1,266	1,758	2,353
Adjusted net profit	1,015	1,197	1,387	1,266	1,758	2,353
Change (%)	*-11.4%*	*17.8%*	*15.9%*	*-8.7%*	*38.8%*	*33.8%*
Depreciation & amortisation						
Change in working capital	(402)	(607)	17.4	(33.3)	(155)	(222)
Operating cash flows	1,054	1,025	2,026	1,538	1,922	2,496
Capex, net	(659)	(361)	(545)	(357)	(371)	(437)
Free Cash flow	396	664	1,481	1,181	1,552	2,058
Financial investments, net	290	345	(615)	0.0	0.0	0.0
Dividends	(216)	(268)	(302)	(442)	(500)	(565)
Issuance of shares	31.8	39.7	33.2	0.0	0.0	0.0
Issuance (repayment) of debt	368	(4.1)	(3.6)	0.0	0.0	0.0
Other	(297)	(696)	(561)	(1,065)	(600)	(700)
Net debt	(1,936)	(1,600)	(2,279)	(1,953)	(2,405)	(3,199)
Tangible fixed assets						
Intangibles assets & goodwill	3,085	3,526	3,814	3,799	3,779	3,754
Deferred tax assets	264	188	162	162	162	162
Other non-current assets	46.0	55.3	124	124	124	124
Cash & equivalents	3,011	2,754	3,409	3,083	3,534	4,328
Current assets	3,891	4,232	4,166	4,297	4,910	5,785
Total assets	11,514	12,204	13,295	13,152	14,267	16,008
Shareholders' equity	6,922	7,513	8,389	8,148	8,806	9,894
Provisions	6.8	6.0	4.9	4.9	4.9	4.9
Deferred tax liabilities	384	276	263	263	263	263
Current liabilities	3,126	3,256	3,509	3,607	4,064	4,717
L & ST Debt	1,075	1,154	1,130	1,130	1,130	1,130
Total Liabilities	11,514	12,204	13,295	13,152	14,267	16,008
Capital employed	4,986	5,912	6,110	6,195	6,401	6,695
Ratios						
Gross margin	41.51	44.33	46.06	43.60	46.00	47.20
Operating margin	19.98	21.90	24.89	22.65	27.20	30.50
Tax rate	0.78	6.05	10.42	12.81	12.00	11.00
Net margin	19.36	20.43	22.06	19.52	23.71	26.91
ROE (after tax)	14.67	15.93	16.54	15.54	19.96	23.78
ROCE (after tax)	20.85	20.38	22.95	20.68	27.73	35.44
Gearing	(27.97)	(21.30)	(27.17)	(23.97)	(27.31)	(32.33)
Pay out ratio	22.43	22.28	21.69	34.69	28.29	23.86
Number of shares, diluted	433	440	432	421	414	407
Data per Share (USD)						
EPS	2.36	2.74	3.23	3.03	4.27	5.82
Restated EPS	2.34	2.72	3.21	3.01	4.24	5.79
% change	*-12.7%*	*16.2%*	*17.9%*	*-6.2%*	*41.0%*	*36.4%*
BVPS	15.97	17.09	19.41	19.37	21.26	24.33
Operating cash flows	2.43	2.33	4.69	3.66	4.64	6.14
FCF	0.91	1.51	3.43	2.81	3.75	5.06
Net dividend	0.53	0.61	0.70	1.05	1.21	1.39

Source: Company Data; Bryan, Garnier & Co ests.

BRYAN, GARNIER & CO

INDEPENDENT RESEARCH UPDATE

21st July 2016

TMT

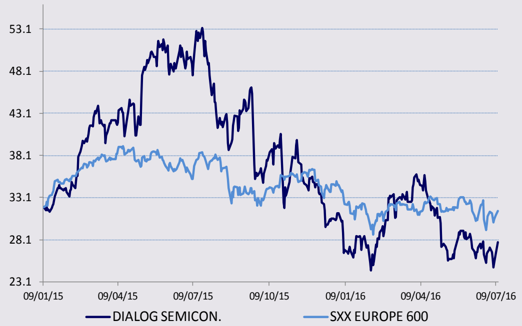
Dialog Semiconductor

Low point reached

Fair Value EUR37 vs. EUR35 (price EUR28.85) **BUY**

Bloomberg	DLG GR
Reuters	DLGS.DE
12-month High / Low (EUR)	53.3 / 24.4
Market capitalisation (EURm)	2,246
Enterprise Value (BG estimates EURm)	1,493
Avg. 6m daily volume ('000 shares)	6.90
Free Float	96.0%
3y EPS CAGR	9.5%
Gearing (12/15)	-54%
Dividend yield (12/16e)	NM

YE December	12/15	12/16e	12/17e	12/18e
Revenue (USDm)	1,355	1,250	1,467	1,754
EBITA USDm)	317.7	243.0	313.9	384.5
Op.Margin (%)	23.4	19.5	21.4	21.9
Diluted EPS (USD)	3.02	2.38	3.12	3.96
EV/Sales	1.25x	1.19x	0.90x	0.62x
EV/EBITDA	4.7x	4.8x	3.4x	2.4x
EV/EBITA	5.3x	6.1x	4.2x	2.8x
P/E	9.6x	12.1x	9.2x	7.3x
ROCE	46.9	39.2	51.7	63.3



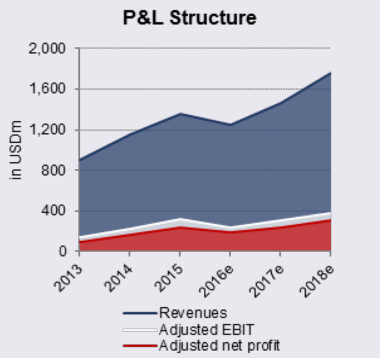
Dialog is currently in a transition year. The smartphones market is slowing, especially at Apple, and has frozen the group's growth for 2016. However, we remain convinced that the group's momentum should improve and expect sequential growth of more than 50% in H2 2016. Thanks to the R&D programmes currently underway, Dialog should then benefit from market share gains at its main clients as of 2017. With the skies brightening, momentum improving and low valuation multiples (2016e P/E of 12.1x vs 18x for peers), we are making no change to our Buy recommendation. We updated our model, especially on FX, and our FV from EUR35 to EUR37.

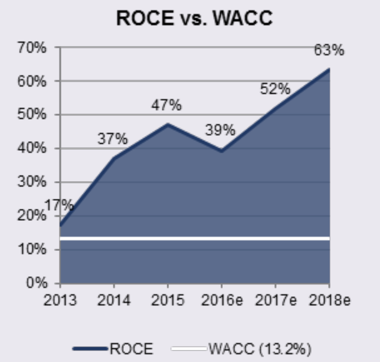
- **Growth should return as of 2017.** By maintaining its R&D capex, the group has confirmed its confidence in restoring robust growth as of 2017 (BG ests. +17%). We believe that DLG should reap the benefits of innovation currently in development, and this should be passed onto PMIC prices in future smartphone generations (especially the iPhone). However, the group should also benefit from 1/ an increase in smartphone contents, 2/ongoing positive trends in connectivity and power conversion, 3/ market share gains thanks to a closer collaboration with new Chinese players such as HiSilicon and Spreadtrum and a strengthened partnership with MediaTek, and 4/ marginally, the development of new product lines such as audio chips and PMICs for ARM laptops, televisions, set-top boxes, media sticks and wireless routers. In all, the recovery in business should help the group increase EPS by 9.5% on average over 2015-2018e (i.e. PEG of 1.4x).

- **In addition to the gradual improvement in business, the group still boasts a solid profile.** Although it is having a difficult year (2016e sales down 8%), the group should nevertheless maintain comfortable 2016e underlying EBIT margin of 19.6% enabling it to generate 2016e FCF of USD256m, or a FCF yield of 11.6% including a share buyback programme currently underway for EUR50m. As such, the balance sheet remains very strong and the group had net cash of EUR662m at the end of Q1 2016 (more than 30% of its capitalisation).

Analyst:
Dorian Terral
33(0) 1.56.68.75.92
dterral@bryangarnier.com

Sector Analyst Team:
Richard-Maxime Beaudoux
Thomas Coudry
Gregory Ramirez





Company description

Dialog Semiconductor is a German based semiconductor manufacturer specialised power management IC for consumer devices (PMIC). The group realises 80% of its sales with one client (Apple). The strong momentum realised by this client allows Dialog to show a significant profitable growth since 2008, despite a temporary slowdown at the moment. Today's challenge of Dialog is to expend its customer base and diversify its product portfolio.

Simplified Profit & Loss Account (USDm)	**31/12/13**	**31/12/14**	**31/12/15**	**31/12/16e**	**31/12/17e**	**31/12/18e**
Revenues	901	1,156	1,355	1,250	1,467	1,754
Change (%)	*16.5%*	*28.3%*	*17.2%*	*-7.8%*	*17.4%*	*19.6%*
Adjusted EBITDA	174	269	360	312	386	456
Adjusted EBIT	140	230	318	243	314	384
EBIT	103	186	260	337	249	323
Change (%)	*12.8%*	*81.1%*	*39.7%*	*29.8%*	*-26.0%*	*29.4%*
Financial results	(12.9)	(16.6)	(4.9)	(2.6)	(1.6)	(1.9)
Pre-Tax profits	89.7	169	255	335	248	321
Tax	(27.5)	(31.2)	(77.6)	(84.6)	(55.0)	(65.0)
Net profit	62.2	138	177	247	190	252
Restated net profit	97.6	172	238	185	240	304
Change (%)	*22.1%*	*76.4%*	*38.5%*	*-22.2%*	*29.2%*	*27.0%*
Cash Flow Statement (USDm)						
Depreciation & amortisation	48.6	56.0	56.9	69.0	72.0	72.0
Change in working capital	(9.8)	73.1	66.1	2.5	(8.4)	(11.1)
Operating cash flows	111	270	318	319	253	313
Capex, net	(38.7)	(42.6)	(69.4)	(63.0)	(73.0)	(73.0)
Free Cash flow	72.0	228	248	256	180	240
Financial investments, net	(306)	(0.44)	0.35	0.0	0.0	0.0
Dividends	0.0	0.0	0.0	0.0	0.0	0.0
Issuance of shares	0.0	0.0	0.0	0.0	0.0	0.0
Issuance (repayment) of debt	104	(105)	0.0	0.0	(5.0)	(5.0)
Other	3.1	15.9	(2.4)	(55.5)	0.0	0.0
Net debt	104	(114)	(554)	(754)	(929)	(1,164)
Balance Sheet (USDm)						
Tangible fixed assets	58.5	59.3	68.4	75.4	87.4	99.4
Intangibles assets & goodwill	393	376	390	370	352	334
Investments	1.5	1.4	3.8	3.8	3.8	3.8
Deferred tax assets	24.9	28.8	28.5	28.5	28.5	28.5
Other non-current assets	1.6	2.0	0.05	7.1	14.1	21.1
Cash & equivalents	186	324	567	767	942	1,177
Current assets	261	214	231	214	252	302
Total assets	927	1,006	1,288	1,465	1,679	1,965
Shareholders' equity	457	624	1,025	1,217	1,401	1,648
Provisions	9.5	10.3	4.6	4.4	4.7	5.1
Deferred tax liabilities	40.6	5.5	1.6	1.6	1.6	1.6
L & ST Debt	290	210	13.2	13.2	13.2	13.2
Current liabilities	131	156	244	229	259	297
Total Liabilities	927	1,006	1,288	1,465	1,679	1,965
Capital employed	560	510	471	463	472	484
Ratios						
Operating margin	15.49	19.92	23.44	19.45	21.40	21.92
Tax rate	30.66	18.45	30.44	25.29	22.21	20.26
Net margin	10.83	14.89	17.59	14.84	16.33	17.34
ROE (after tax)	13.62	22.14	17.30	20.32	13.53	15.29
ROCE (after tax)	17.28	36.85	46.89	39.24	51.71	63.31
Gearing	22.68	(18.28)	(54.02)	(61.96)	(66.30)	(70.62)
Pay out ratio	0.0	0.0	0.0	0.0	0.0	0.0
Number of shares, diluted	67.68	76.88	79.66	78.00	76.76	76.76
Data per Share (USD)						
EPS	0.95	2.05	2.42	3.25	2.57	3.42
Restated EPS	1.44	2.27	3.02	2.38	3.12	3.96
% change	*21.0%*	*57.6%*	*33.0%*	*-21.3%*	*31.3%*	*27.0%*
EPS bef. GDW	NM	NM	NM	NM	NM	NM
BVPS	6.75	8.11	12.87	15.60	18.25	21.47
Operating cash flows	1.64	3.52	3.99	4.09	3.30	4.08
FCF	1.06	2.96	3.12	3.28	2.35	3.13
Net dividend	0.0	0.0	0.0	0.0	0.0	0.0

Source: Company Data; Bryan, Garnier & Co ests.

INDEPENDENT RESEARCH UPDATE

21st July 2016

TMT

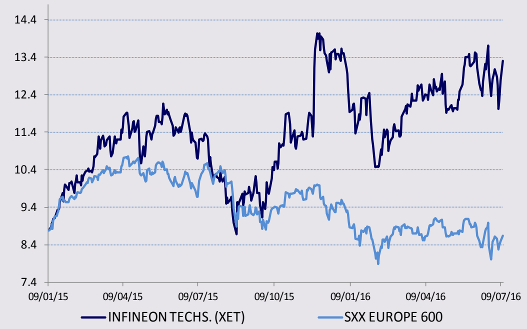
Infineon

Under Estimated Potential

Fair Value EUR16 vs. EUR15 (price EUR13.92) **BUY-Top Picks**

Bloomberg	IFX GY
Reuters	IFXGn.DE
12-month High / Low (EUR)	14.0 / 8.7
Market capitalisation (EURm)	15,754
Enterprise Value (BG estimates EURm)	15,195
Avg. 6m daily volume ('000 shares)	5,558
Free Float	99.5%
3y EPS CAGR	16.8%
Gearing (09/15)	-5%
Dividend yield (09/16e)	1.44%

YE September	09/15	09/16e	09/17e	09/18e
Revenue (EURm)	5,795	6,540	7,003	7,432
EBITA EURm)	898.0	1,044	1,195	1,335
Op.Margin (%)	15.5	16.0	17.1	18.0
Diluted EPS (EUR)	0.60	0.81	0.86	0.96
EV/Sales	2.68x	2.32x	2.10x	1.90x
EV/EBITDA	9.4x	8.0x	7.0x	6.1x
EV/EBITA	17.3x	14.6x	12.3x	10.6x
P/E	23.0x	17.1x	16.3x	14.4x
ROCE	18.5	16.6	17.0	18.8



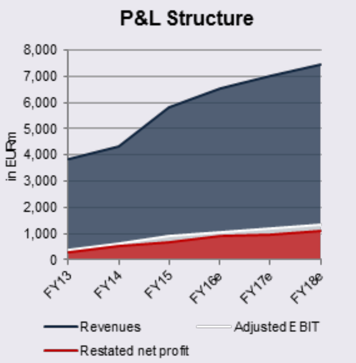
A year ago, we initiated coverage of Infineon with the conviction that the group could integrate International Rectifier more quickly than expected. This is indeed what happened and prompted the group to surprise the market with enthusiastic full-year guidance in a difficult backdrop (in November 2015). The share price has gained 26% over one year (vs Stoxx 600 -16%), but given the group's strong operating performance over the period, we believe that the share's potential remains intact. We updated our model to integrate changes in FX, as a result our FV is up from EUR15 to EUR16 (upside potential of 15%) and we are reiterating our Buy recommendation.

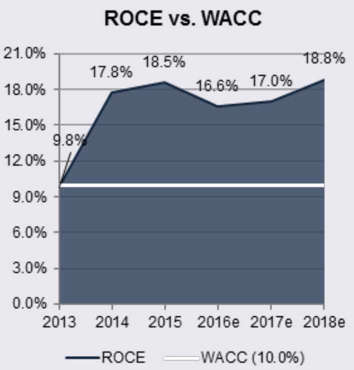
- **The share price has suffered recently from the downgrade to FY16 guidance whereas business remains particularly robust.** At the Q2 2016 earnings publication in May (FYE 30th September), management reviewed FY 2016 guidance and reduced its estimate for 2016e sales to 12% (median point) vs +13% and 16%, respectively. Some feared that this adjustment reflects certain weaknesses in the backdrop, but management was clear in stating that it was only due to exchange rate adjustments (EUR/USD at 1.15 vs. 1.10). Consequently, Infineon's valuation multiples have plunged significantly, from a peak level of 2016e P/E of 22.6x at end-December 2015 to 17.1x at present (-24%), which is also lower than the one-year average of 18.3x. In the meantime however, the Brexit vote has significantly strengthened the EUR/USD exchange rate to levels close to 1.10.

- **Growth and margin improvement potential still exists.** The group boasts strong expertise in powerful semiconductors and exploits this in other market segments (especially the automotive and industrial sectors). Consequently, IFX outstrips market growth (average five-year growth of +9.5% vs +2.3%) and maintains a competitive edge thanks to the R&D programmes selected (FY 2015 R&D: 12% of sales). Infineon also invests in production technologies and is currently preparing the transition to 300mm production from the 200mm currently used, which is unique for analogue players. The rise in momentum of this production should provide an additional catalyst for margins as of 2017 and accentuate the group's competitive edge.

Analyst:
Dorian Terral
33(0) 1.56.68.75.92
dterral@bryangarnier.com

Sector Analyst Team:
Richard-Maxime Beaudoux
Thomas Coudry
Gregory Ramirez





Company description

Infineon is a German semiconductors manufacturer active in the automotive sector, electrical power management especially for industry, and security applications such as bank cards. In early 2015, the group completed the acquisition of International Rectifier, a US rival particularly active in power management. Via this acquisition, the group has consolidated its leading position in this segment. Infineon is also a leader in the automotive segment.

Simplified Profit & Loss Account (EURm)	**30/09/13**	**30/09/14**	**30/09/15**	**30/09/16e**	**30/09/17e**	**30/09/18e**
Revenues	3,843	4,320	5,795	6,540	7,003	7,432
Change (%)	*-1.6%*	*12.4%*	*34.1%*	*12.9%*	*7.1%*	*6.1%*
Adjusted EBITDA	843	1,134	1,658	1,894	2,106	2,302
Adjusted EBIT	377	620	898	1,044	1,195	1,335
EBIT	324	526	555	795	943	1,097
Change (%)	*-28.8%*	*62.3%*	*5.5%*	*43.3%*	*18.5%*	*16.4%*
Financial results	(19.0)	(6.0)	(34.0)	(67.4)	(58.1)	(54.3)
Pre-Tax profits	305	520	521	728	884	1,043
Tax	(22.0)	(30.0)	102	(43.7)	(133)	(156)
Minority interests	(0.07)	(0.06)	0.20	(0.06)	(0.15)	(0.15)
Net profit	283	490	622	684	752	886
Restated net profit	297	539	680	918	967	1,089
Change (%)	*-34.0%*	*81.4%*	*26.2%*	*35.0%*	*5.3%*	*12.7%*
Cash Flow Statement (EURm)						
Depreciation & amortisation	(466)	(514)	(760)	(850)	(910)	(966)
Change in working capital	(230)	(71.0)	(602)	(53.6)	(50.4)	(45.8)
Operating cash flows	601	981	817	1,398	1,612	1,807
Capex, net	(375)	(664)	(728)	(850)	(910)	(966)
Free Cash flow	226	317	89.0	548	701	840
Financial investments, net	46.0	392	(1,865)	0.0	0.0	0.0
Dividends	(129)	(129)	(202)	(225)	(225)	(225)
Issuance of shares	2.0	1.0	11.0	15.0	0.0	0.0
Issuance (repayment) of debt	52.0	4.0	2,398	4.0	0.0	0.0
Other	(154)	(336)	(2,443)	(3.0)	0.0	0.0
Net debt	(1,983)	(2,232)	(220)	(558)	(1,035)	(1,651)
Balance Sheet (€m)						
Tangible fixed assets	1,600	1,700	2,093	1,993	1,893	1,793
Intangibles assets & goodwill	170	250	1,738	1,838	1,938	2,038
Investments	34.0	35.0	33.0	33.0	33.0	33.0
Deferred tax assets	325	378	607	607	607	607
Other non-current assets	153	141	155	155	155	155
Current assets	3,096	2,876	3,442	3,616	3,758	3,886
Cash & equivalents	527	1,058	673	986	1,463	2,079
Total assets	5,905	6,438	8,741	9,229	9,847	10,591
Shareholders' equity	3,776	4,158	4,671	5,145	5,672	6,334
Provisions	292	449	498	498	498	498
Deferred tax liabilities	4.0	5.0	147	147	147	147
Current liabilities	1,530	1,640	1,638	1,735	1,826	1,908
L & ST Debt	303	186	1,793	1,768	1,768	1,768
Total Liabilities	5,905	6,438	8,741	9,229	9,847	10,591
Capital employed	3,552	3,286	5,791	5,927	5,977	6,023
Ratios						
Operating margin	9.81	14.35	15.50	15.96	17.07	17.97
Tax rate	7.21	5.77	(19.62)	6.00	15.00	15.00
Net margin	7.73	12.48	11.73	14.04	13.80	14.65
ROE (after tax)	7.49	11.78	13.32	13.30	13.25	13.99
ROCE (after tax)	9.85	17.78	18.54	16.56	17.00	18.85
Gearing	(52.52)	(53.68)	(4.71)	(10.85)	(18.25)	(26.06)
Pay out ratio	43.41	23.93	29.73	24.51	23.26	20.65
Number of shares, diluted	1,081	1,128	1,126	1,129	1,129	1,129
Data per Share (EUR)						
EPS	0.25	0.48	0.56	0.61	0.67	0.79
Restated EPS	0.26	0.48	0.60	0.81	0.86	0.96
% change	*-33.7%*	*82.2%*	*25.8%*	*34.5%*	*5.3%*	*12.7%*
BVPS	3.49	3.69	4.15	4.56	5.02	5.61
Operating cash flows	0.56	0.87	0.73	1.24	1.43	1.60
FCF	0.21	0.28	0.08	0.48	0.62	0.74
Net dividend	0.12	0.12	0.18	0.20	0.20	0.20

Source: Company Data; Bryan, Garnier & Co ests.

INDEPENDENT RESEARCH

21st July 2016

TMT

Melexis

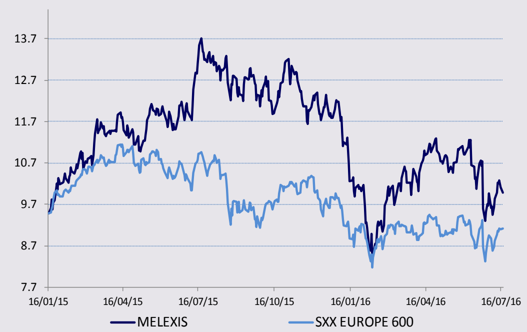
Even diamonds have a price

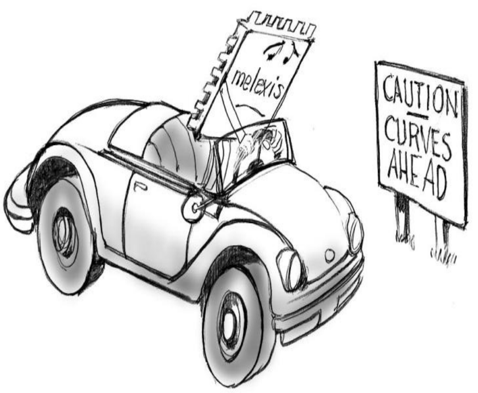
Fair Value EUR48 (price EUR61.00) **SELL**

Coverage initiated

Bloomberg	MELE BB
Reuters	MLXS.BR
12-month High / Low (EUR)	61.0 / 37.7
Market capitalisation (EURm)	2,464
Enterprise Value (BG estimates EURm)	2,405
Avg. 6m daily volume ('000 shares)	38.50
Free Float	35.6%
3y EPS CAGR	5.3%
Gearing (12/15)	-24%
Dividend yields (12/16e)	3.02%

YE December	12/15	12/16e	12/17e	12/18e
Revenue (EURm)	400.14	453.31	494.53	535.98
EBITA EURm)	107.6	111.4	123.1	133.5
Op.Margin (%)	26.9	24.6	24.9	24.9
Diluted EPS (EUR)	2.45	2.37	2.64	2.86
EV/Sales	6.01x	5.31x	4.81x	4.38x
EV/EBITDA	18.4x	17.3x	15.3x	14.0x
EV/EBITA	22.4x	21.6x	19.3x	17.6x
P/E	24.9x	25.8x	23.1x	21.3x
ROCE	52.5	46.2	46.0	45.3





Melexis is a Belgian company specialised in the design of components for the automotive sector. Helped by a buoyant market, the group has a solid track record, managing to maintain average annual sales growth of 21% between 2009 and 2015. However, we believe this momentum will start to slow in coming years. With Melexis' share trading on 2016e P/E of 25.8x, our EPS estimate of 5.1% points to PEG of 5.0x. In this backdrop, we advise avoiding the share and have adopted a Sell recommendation.

- **A rare and attractive profile.** Melexis is among the groups that seem to have an ideal profile at first sight. It is fabless and specialises in automotive sensors, the most buoyant segment at the moment. It has a solid track record with few disappointments and an impressive growth history. As such, it seems to tick all the right boxes for becoming one of our top picks.

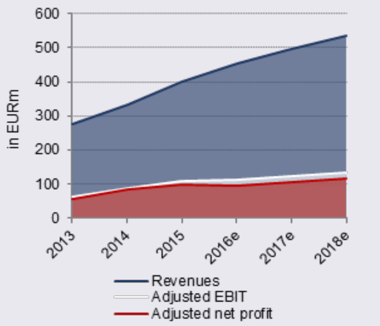
- **Nevertheless, a slower momentum limits EPS growth to 5.1% on average over the next three years.** This is primarily due to a less dynamic top line than in the past with the longer maturity of products sold by Melexis (2015-2018e CAGR in sales of 10%), but also due to a margin slightly under pressure in view of increased R&D capex requirements. In all, we expect average EPS growth of 5.1% between 2015 and 2018e. In addition, we expect a downward revision to consensus estimates. Indeed, our estimates are around 3% lower than those of the market, which is currently forecasting EPS growth of 5.9%, adding a weight to the share's upside.

- **Our model points to downside potential of 21%.** Despite the group's attractive track record and profile, the recent share price performance to reach peaks levels over one year prompts us to avoid the share. With low EPS growth and a share trading on 25.8x 2016e net earnings, Melexis' PEG works out to 5.0x, or the highest among the semiconductor stocks we cover. Moreover, our valuation of EUR48 per share points to downside potential of 21%. As such, we believe there is nothing left to play on the share and advise avoiding it, hence our Sell recommendation.

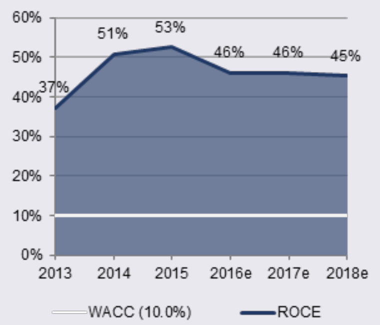
Analyst:
Dorian Terral
33(0) 1.56.68.75.92
dterral@bryangarnier.com

Sector Analyst Team:
Richard-Maxime Beaudoux
Thomas Coudry
Gregory Ramirez

P&L structure



ROCE vs. WACC



Company description

Melexis is a Belgian group specialised in sensor production for the automotive sector. The group operates a fabless model and outsources the majority of its production to XFab, a sister-company foundry. Within its segment of automotive sensors, Melexis remains in the number four positioned behind Bosch Sensortec, Infineon and Allegro.

Simplified Profit & Loss Account (CHFm)	31/12/13	31/12/14	31/12/15	31/12/16e	31/12/17e	31/12/18e
Revenues	275	332	400	453	495	536
Change (%)	*11.5%*	*20.7%*	*20.4%*	*13.2%*	*9.2%*	*8.4%*
Adjusted EBITDA	79.2	111	130	139	155	168
Adjusted EBIT	63.7	89.2	108	111	123	133
EBIT	63.7	89.2	108	111	123	133
Change (%)	*14.1%*	*40.0%*	*20.7%*	*3.5%*	*10.6%*	*8.4%*
Financial results	(0.50)	2.9	1.9	0.62	2.5	2.7
Pre-Tax profits	63.2	92.1	109	112	126	136
Tax	(8.0)	(7.1)	(10.4)	(16.4)	(18.8)	(20.4)
Net profit	55.2	85.0	99.1	95.5	107	116
Adjusted net profit	55.2	85.0	99.1	95.5	107	116
Change (%)	*7.2%*	*53.9%*	*16.6%*	*-3.6%*	*11.8%*	*8.4%*
Cash Flow Statement (CHFm)						
Depreciation & amortisation	15.5	22.1	22.8	27.8	32.1	34.8
Change in working capital	0.77	(10.0)	(5.0)	(13.1)	(9.4)	(9.4)
Operating cash flows	70.8	95.0	115	109	130	141
Capex, net	(22.5)	(23.7)	(40.3)	(38.6)	(44.5)	(48.2)
Free Cash flow	48.3	71.3	74.7	70.3	85.0	92.9
Acquisition, net	0.0	0.0	0.0	0.0	0.0	0.0
Financial investments, net	0.82	4.8	0.33	0.0	0.0	0.0
Dividends	(28.0)	(40.1)	(52.1)	(74.5)	(59.0)	(63.9)
Issuance (repurchase) of own shares	0.0	0.0	0.0	0.0	0.0	0.0
Issuance (repayment) of debt	(14.6)	(4.1)	(3.0)	(0.05)	0.0	0.0
Other	14.5	0.33	(2.7)	4.8	0.0	0.0
Net debt	(9.2)	(41.4)	(58.7)	(59.3)	(85.4)	(114)
Balance Sheet (CHFm)						
Tangible fixed assets	66.3	71.7	90.3	101	114	127
Intangibles assets & goodwill	4.7	4.7	7.4	7.2	7.2	7.2
Investments	0.01	0.01	0.01	0.01	0.01	0.01
Deferred tax assets	14.1	13.2	10.9	9.8	9.8	9.8
Other non-current assets	1.5	0.96	0.01	0.01	0.01	0.01
Cash & equivalents	31.5	59.6	73.9	74.5	101	130
Inventories	44.3	56.4	64.1	66.1	72.1	78.1
Current assets	52.4	50.1	60.2	74.4	79.5	84.7
Total assets	215	257	307	333	383	437
Shareholders' equity	158	201	243	264	312	364
Provisions	0.0	0.0	0.0	0.0	0.0	0.0
Deferred tax liabilities	0.0	0.0	0.0	0.0	0.0	0.0
Current liabilities	33.7	35.2	47.4	52.9	54.7	56.5
L & ST Debt	23.5	20.2	16.8	16.5	16.5	16.5
Total Liabilities	215	257	307	333	383	437
Capital employed	150	162	185	206	228	250
Ratios						
Gross margin	46.31	48.53	48.01	46.60	46.80	47.00
Adjusted operating margin	23.14	26.83	26.89	24.57	24.90	24.90
Tax rate	12.66	7.70	9.50	14.68	15.00	15.00
Adjusted Net margin	20.05	25.57	24.76	21.09	21.59	21.59
ROE (after tax)	35.03	42.21	40.85	36.20	34.25	31.83
ROCE (after tax)	37.21	50.82	52.51	46.13	45.97	45.29
Gearing	(5.85)	(20.58)	(24.21)	(22.48)	(27.40)	(31.48)
Pay out ratio	50.78	47.13	52.56	77.93	55.23	55.23
Number of shares, diluted	40.40	40.40	40.40	40.40	40.40	40.40
Data per Share (CHF)						
EPS	1.37	2.10	2.45	2.36	2.64	2.86
Restated EPS	1.37	2.10	2.45	2.36	2.64	2.86
% change	*9.4%*	*53.9%*	*16.6%*	*-3.6%*	*11.8%*	*8.4%*
BVPS	3.90	4.98	6.00	6.53	7.72	9.00
Operating cash flows	1.75	2.35	2.85	2.70	3.21	3.49
FCF	1.20	1.76	1.85	1.74	2.10	2.30
Net dividend	0.69	0.99	1.29	1.84	1.46	1.58

Source: Company Data; Bryan, Garnier & Co ests.

Table of contents

1. Investment Case

Why the interest now?

The reason for writing now

Melexis boasts an outstanding profile and track record and for this reason is particularly well-liked by investors and is currently trading at one-year high levels, which is an attractive performance so soon after the Brexit vote. However, **we believe the market is overly optimistic** and does not fully price in the change in momentum on the cards (2015-19e CAGR in sales of 10% vs. >20% over the past six years). As such, we are in a situation whereby the share is trading on 2016e P/E of 25.8x whereas average EPS growth expected for the next three years only stands at 5.1%, or a PEG of 5.0x!. In addition, our models point to downside potential. **In this backdrop, we have adopted a Sell recommendation.**

Cheap or Expensive?

Valuation

Our EUR48 Fair Value stems from a DCF valuation (WACC of 10.0%). On the basis of our estimates, the share is trading on **2016e EV/sales of 5.0x and 2016e P/E of 25.8x**.

When will I start making money?

Catalysts

Melexis is active in semiconductors primarily destined for the automotive segment. At present, **momentum in the sector is buoyant, but we have noted that competition in Melexis products is strengthening and this could partly limit the group's growth potential**. The group's next publication, expected on 27th July, could bring this weakness to light.

What's the value added?

Difference from consensus

Our estimates show a slight difference relative to the consensus. Our three-year average growth estimate is higher in sales terms (BG ests. 2015-2018e CAGR +10% vs CS +9%) but lower in net profit terms since we have factored in higher R&D investment requirements (as a % of sales). In all, our EPS estimates work out 3% below those of the consensus.

Could I lose money?

Risks to our investment case

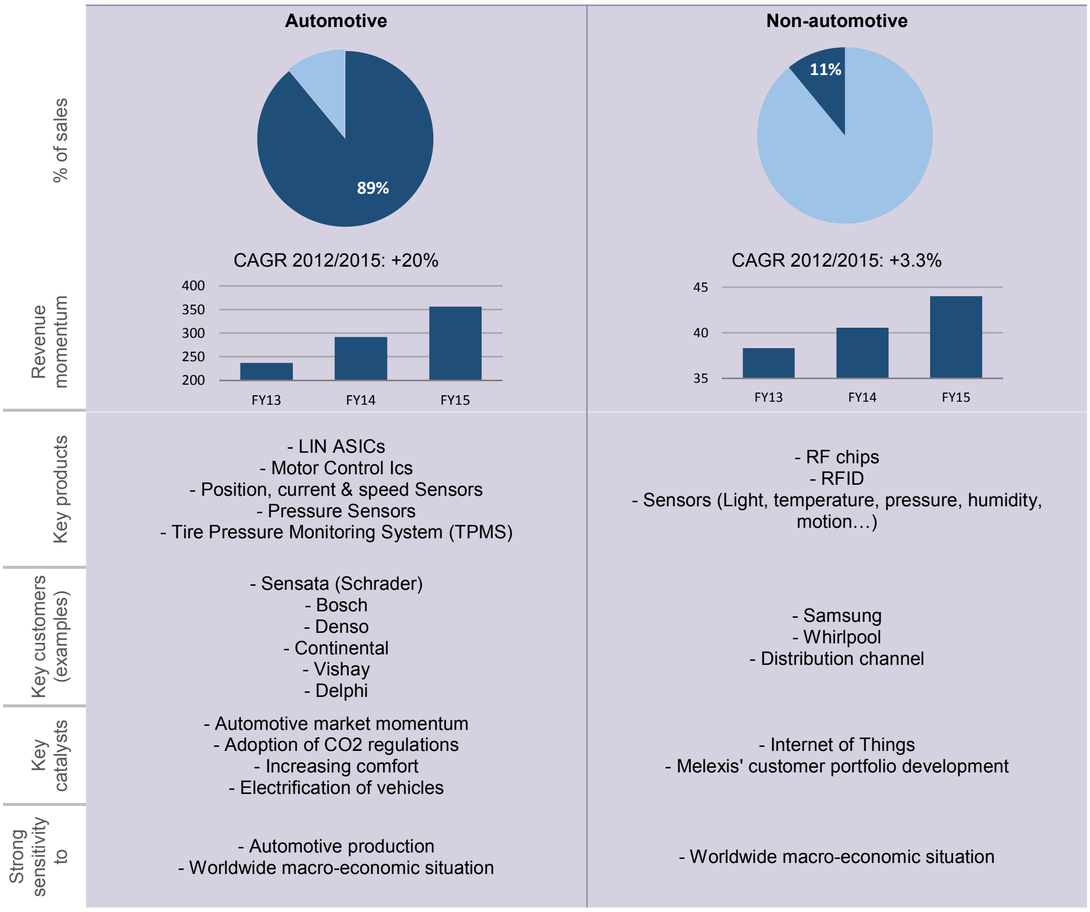
Melexis is clearly exposed to the automotive segment and is therefore particularly **sensitive to macro-economic momentum,** which could have a negative or positive effect on our forecasts.

2. Group snapshot

Melexis is a Belgian group specialised in the design of semiconductor devices destined for the automotive sector

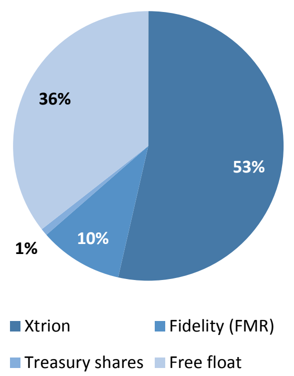
Melexis is a Belgian group specialised in the design of semiconductor devices destined for the automotive sector (almost 89% of 2015 sales). The remaining 11% is sold via partnerships, primarily for connected objects.

Fig. 1: The automotive segment represents almost 90% of the group's sales



Source: Bryan, Garnier & Co.

Melexis shareholders



Source: Company

Melexis had adopted a fabless model whereby it operates no plant and focuses on developing and selling chips. This widely-used model in the semiconductors industry has the advantage of offering greater flexibility in operating spending and helping to get through cycle lows more easily. We estimate that around 95% of production is outsourced to X-fab, a European speciality foundry, with the remaining 5% outsourced to other foundries such as TSMC (primarily) and UMC (occasionally). Note importantly that the choice of X-Fab as a foundry is not irrelevant since X-Fab is a sister company to Melexis. The majority shareholder in the foundry is Xtrion, which is also the majority shareholder in Melexis.

In the automotive segment, Melexis has established its expertise in analogue chips and especially in sensors and actuators (micro-machine controlling and moving parts that help control flows for example), which **represent more than 85% of the group's overall activity.** Thanks to a solid product portfolio, Melexis manages to defend itself in the automotive market against players such as NXP, Bosch Sensortec (which is also a customer), STMicroelectronics and Infineon.

3. Beware of disappointments

Melexis has an impressive track record. The group has rarely disappointed the market and between 2009 and 2015, its sales rose from EUR129m to EUR400m, namely average annual growth of 21% over the period. As such, the group has a good reputation in European stockmarkets and is seen as being a solid growth stock.

While we are clearly in admiration of the group's historical performances, we believe there is a risk in terms of future growth.

3.1. Forex effects masking a slowdown

The group is primarily active in a semiconductors universe destined for the automotive segment and more specifically sensors. In 2015, the auto components market reached USD29.3bn (source IDC) but is divided into five main product categories: powerful semiconductors, sensors, microcontrollers (MCU), ASSPs (Application Specific Standard Product, mainly connectivity and amplificators) and logic semiconductors. **Melexis' offer is above all made up of sensors.** For example, the group has magnetic sensors that are used for reducing car fuel consumption and gyroscopes/accelerometres for safety applications (ABS, airbag…).

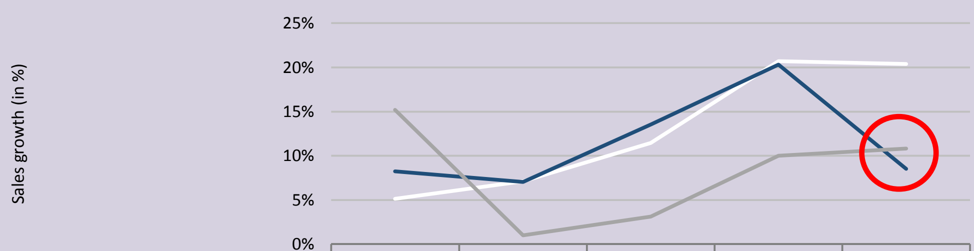
Melexis has historically benefited from trends to equip vehicles with electronic components, allowing it to generate impressive average growth since 2009.

As such, Melexis has historically benefited from trends to equip vehicles with electronic components, allowing it to generate impressive average growth since 2009. However, the group has also won market share thanks to better momentum in automotive sensors than in other components. Thanks to its intelligent positioning, the group has therefore managed to outperform its market for several years, although **we think things are beginning to change and a slowdown is starting to take shape.**

We think things are beginning to change and a slowdown is starting to take shape. This slowdown is only visible when the group's sales are adjusted for forex effects.

This slowdown is only visible when the group's sales are adjusted for forex effects. Indeed, between 2011 and 2015, average sales growth adjusted for forex effects worked out to 14.8%. Compared with average growth in the automotive semiconductors segment, the group also posted an outperformance of 8.7pp. However, while the group's 2015 growth stood at more than 20%, adjusted for forex, it only worked out to 9%. Admittedly, this is an excellent performance, but over the same period, market growth ran at around 10.8% according to IDC data.

Fig. 2: Growth driven by a beneficial EUR/USD exchange rate

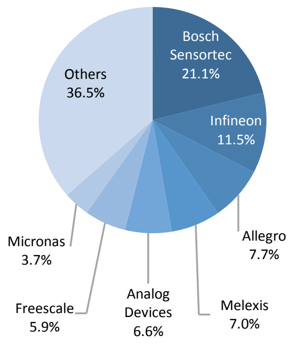


	FY11	FY12	FY13	FY14	FY15
Melexis sales growth	+5.1%	+7.1%	+11.5%	+20.7%	+20.4%
Melexis sales growth at constant change	+8.3%	+7.0%	+13.5%	+20.3%	+8.5%
Semi Automotive market growth	+15.2%	+1.0%	+3.1%	+10.0%	+10.8%

Sources: IDC; Bryan, Garnier & Co ests.

3.2. Competition is changing

Automotive sensors – market share



Source: Strategic Analytics

Melexis is virtually exclusively exposed to the automotive segment, meaning that the group is still advantageously positioned, with the segment continuing to generate healthy momentum in 2016 and offering attractive prospects for coming years. In addition, the market segment has high entry barriers and the group of players active in this segment has remained virtually the same for 20 years. However, we have noticed changes within the segment that could be disadvantageous for Melexis.

Firstly, we would point out STMicroelectronics' aim to penetrate the automotive sensors segment. Boasting good expertise in consumer sensors and a healthy positioning in the automotive segment via other products, the group is now looking for a new source of fresh growth in automotive sensors. Although it is not really visible as yet, we believe that ST has all the right ingredients (expertise, production ability, commercial network etc.) to become a heavyweight rival and 2016 should be a key year for STMicroelectronics in this segment.

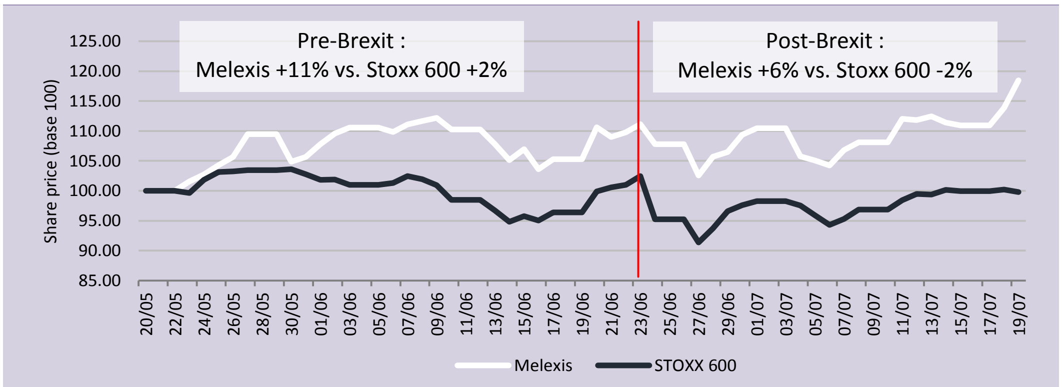
We also see the acquisition of Micronas by Japanese group TDK (announced in December 2015, closed in March 2016 valuing Micronas at almost CHF214m) as a potentially dangerous operation for Melexis since we believe TDK could provide Micronas additional means to extend and strengthen its product portfolio.

3.3. Macro: a solid group but not insensitive

With recent negative newsflow in smartphones and PCs, numerous investors have found a safe-haven in Melexis, believing the share to be better positioned (thanks to its automotive exposure) and protected from macro-economic hazards. Just looking at the share's reaction in recent weeks is enough to understand the view of Melexis' solidity that investors have.

Just looking at the share's reaction in recent weeks is enough to understand the view of Melexis' solidity that investors have.

Fig. 3: Market sentiment: market impact of the Brexit seems to be limited on Melexis share price evolution



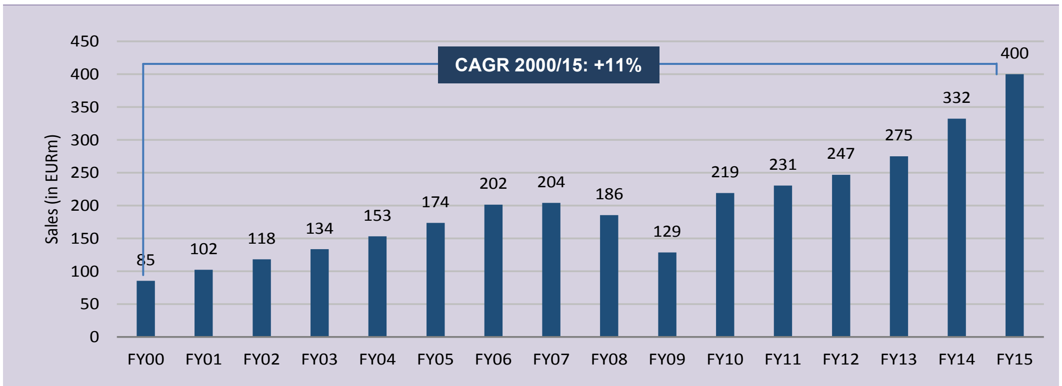
Sources: Bloomberg; Bryan, Garnier & Co ests.

While the overall market always seems to have trouble to get back to pre-Brexit level (Stoxx 600 + 1% over the past two months), Melexis has little suffered from the impact Brexit market (that either before or after the announcement of results). We are not discussing the impact of Brexit on Melexis' business here, but would simply highlight the very positive market sentiment underpinning the share price.

The group nevertheless suffered harshly from the global recession prompted by the financial crisis in 2008.

Furthermore, whereas the market still has this sentiment of solidity, Melexis has already proved that it is not immune to the hazards of the global economy. Between 2000 and 2015, the group generated growth of 11% on average whereas the 2000/2015 CAGR in global sales in the industry stood at 3.2%. **The group nevertheless suffered harshly from the global recession prompted by the financial crisis in 2008.** In semi-conductors, significant sensitivity to the economic backdrop is not surprising, but we would note that Melexis suffered more than the rest of the industry. Between 2007 and 2009, global semiconductor sales fell by 6% on an average annual basis whereas the group saw its sales plummet 21% a year on average.

Fig. 4: Robust growth but sensitive to the economic backdrop

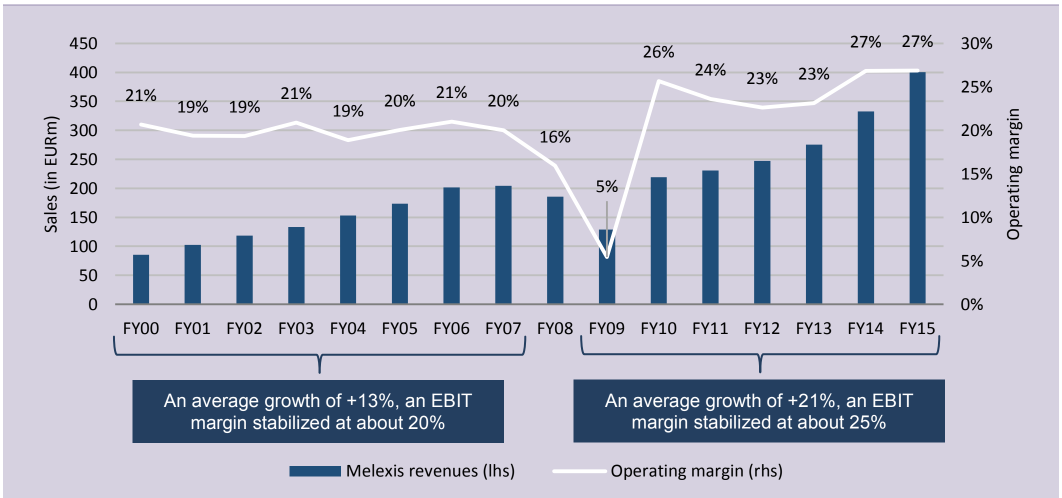


Sources: Melexis; Bryan, Garnier & Co ests.

Over the same period, we noted that despite the fabless model operated by Melexis, the margin was also affected.

Over the same period, we noted that despite the fabless model operated by Melexis, the margin was also affected. Between 2000 and 2007, when average growth stood at 13% a year, the group managed to generated average operating margin of 20%. Then from 2007 to 2009, when the global recession seriously upset the group's growth profile, Melexis did not manage to maintain its historical margin level. As such, in 2009, EBIT margin hit a low point of 5%.

Fig. 5: Margins more sensitive to growth than business volumes



Sources: Melexis; Bryan, Garnier & Co ests.

As such, although the group has a solid business model, it is not insensitive to macro-economic hazards. **At present, we have no reason to think that there is a potential risk for the group's business, but would point out that the share currently benefits from very positive market sentiment that is likely to change rapidly.** In this respect, the market situation is very similar to that of Dialog until the acquisition of Atmel in September 2015. Also, we remind that IMF recently revised down its growth forecasts (again). IMF’s projection for global growth are now down to 3.1% from 3.2% for 2016, and to 3.4% from 3.5% for 2017.

4. Our scenario

4.1. A brake on growth

We are forecasting average 2015/2018e growth of 10.0% and a 25% EBIT margin.

With increased competition in Melexis products (STMicroelectronics is currently entering the segment, Bosch Sensortec is firmly maintaining its positions, Micronas has been acquired by TDK and could see its product portfolio strengthen rapidly), we estimate that the group could no longer be in a position of significant market share gains. In addition, since the beginning of 2016, the evolution of the EUR/USD exchange rate appears to be less favourable compared with 2015. As such, we do not expect the group to outperform significantly its peers and **are forecasting average 2015/2018e growth of 10.0%.**

With this growth momentum, we estimate that the **group can maintain EBIT margin at 25%.** Indeed, outsourcing of production has not enabled it to efficiently activate any leverage thanks to additional volumes and we believe **the group will not risk cutting R&D and sales investments and these could grow slightly faster than top-line growth.** As such, we are forecasting a downturn in margins as of 2016 with 2016e EBIT margin at 25% (vs. 27% in 2015). Our scenario points to average EPS growth of 5.1% over the next three years.

Fig. 6: P&L – Average EPS growth of 5.1% over 2015/2018e

[in EURm]	2015	1Q16	2Q16e	3Q16e	4Q16e	2016e	2017e	2018e	CAGR 15/18e
Sales	**400**	**109**	**113**	**114**	**116**	**452**	**492**	**533**	**10.0%**
Seq. growth	20%	7%	4%	0%	2%	13%	9%	8%	
Gross profit	**192**	**49**	**54**	**54**	**54**	**211**	**230**	**251**	
Gross margin	48%	45%	47%	47%	47%	47%	47%	47%	
R&D	-57	-15	-17	-18	-19	-69	-74	-80	
% of sales	-14%	-13%	-15%	-16%	-17%	-15%	-15%	-15%	
G&A	-19	-5	-5	-5	-6	-20	-23	-26	
% of sales	-5%	-4%	-4%	-5%	-5%	-5%	-5%	-5%	
S&M	-9	-2	-3	-3	-3	-10	-11	-12	
% of sales	-2%	-2%	-2%	-2%	-2%	-2%	-2%	-2%	
EBIT	**108**	**28**	**29**	**28**	**26**	**111**	**123**	**133**	**7.3%**
Operating margin	27%	25%	26%	24%	23%	25%	25%	25%	
Financial result	2	-1	1	1	1	1	2	3	
% of sales	0%	-1%	1%	1%	1%	0%	1%	1%	
Income tax	-10	-4	-4	-4	-4	-16	-19	-20	
Income tax rate	-10%	-14%	-15%	-15%	-15%	-15%	-15%	-15%	
Net profit	**99**	**23**	**25**	**24**	**23**	**95**	**106**	**115**	**5.1%**
Net margin	25%	21%	22%	21%	20%	21%	22%	22%	
Dil. EPS	**2.45**	**0.57**	**0.63**	**0.60**	**0.57**	**2.36**	**2.63**	**2.85**	**5.1%**
EPS seq. growth	17%	4%	11%	-5%	-4%	-4%	11%	8%	

Source: Bryan, Garnier & Co ests.

For the next three years, our EPS estimates are on average 3% lower than the consensus. **As such, we estimate there is a risk that the consensus could reduce its figures in coming months.**

4.2. Cash generation intact

The group's profile is changing in terms of momentum. However, this slower trend should not change Melexis' cash generation ability. Our scenario therefore shows cash generation in the coming three years and a 2016e free cash flow yield of 3.0%.

Fig. 7: Still extensive cash generation

[in EURm]	2015	1Q16	2Q16e	3Q16e	4Q16e	2016e	2017e	2018e	CAGR 15/18e
EBITDA	**130**	**33**	**37**	**35**	**34**	**139**	**155**	**168**	
Change in WCR	-43	-4	-3	-1	-1	-15	-9	-9	
Other	28	-6	-4	-4	-3	-15	-16	-18	
Cash flow from operating activities	115	23	30	31	29	109	130	141	
Capex	-40	-8	-10	-10	-10	-39	-45	-48	
Free Cash Flow	**75**	**15**	**20**	**21**	**19**	**70**	**85**	**93**	**7.5%**
Acquisitions	0	0	0	0	0	0	0	0	
Other	0	0	0	0	0	0	0	0	
Cash flow used for investing activities	-40	-8	-10	-10	-10	-39	-45	-48	
Proceeds/Repayment of LT & ST debt	-3	0	0	0	0	0	0	0	
Dividend payment	-52	0	0	0	-74	-74	-59	-64	
Other	-6	1	0	0	0	1	0	0	
Cash flow from financing activities	-61	1	0	0	-74	-73	-59	-64	
Total Cash flow	14	16	20	21	-56	-3	26	29	
CTA (Cumulative translation adj.)	0	0	0	0	0	0	0	0	
Net increase in cash	14	16	20	21	-56	-3	26	29	
Cash at beginning of period	60	74	90	110	130	74	74	100	
Cash at end of period	**74**	**90**	**110**	**130**	**74**	**71**	**100**	**130**	**20.6%**

Source: Bryan, Garnier & Co ests.

4.3. Balance sheet strengthening gradually

With cash generation of more than EUR70m in 2016e, then EUR85m and EUR93m generated in 2017e and 2018e respectively, Melexis' balance sheet continues to strengthen in our model.

At the end of 2015, the group had net cash of EUR59m and this level rises to EUR114m in 2018e in our model. Gearing therefore changes from -24% in 2015 to -31% in 2018e.

Fig. 8: Balance sheet continuing to strengthen

[in EURm]	2015	1Q16	2Q16e	3Q16e	4Q16e	2016e	2017e	2018e
Cash and cash equivalents	74	90	110	130	74	74	100	130
Inventories	64	62	64	65	66	66	72	78
Account receivable Trade	51	53	55	55	56	56	61	66
Other	9	18	18	18	18	18	18	18
Total current assets	198	223	247	269	215	215	252	292
Property, plant and equipment	90	93	96	98	101	101	114	127
Intangible fixed assets	7	7	7	7	7	7	7	7
Deferred tax assets	11	10	10	10	10	10	10	10
Total non-current assets	109	110	113	115	118	118	131	144
Total assets	**307**	**333**	**360**	**384**	**333**	**333**	**383**	**437**
Account payable Trade	15	18	19	19	20	20	21	23
Current portion of LT debt	7	4	4	4	4	4	4	4
Accured expenses and payroll	7	10	10	10	10	10	10	10
Other	25	22	23	23	23	23	23	23
Current liabilities	54	54	55	56	56	56	58	60
LT debt less current portion	8	11	11	11	11	11	11	11
Deferred tax liabilities	0	0	0	0	0	0	0	0
Other non-current liabilities	2	2	2	2	2	2	2	2
Non-current liabilities	10	13	13	13	13	13	13	13
Total equity	243	266	291	315	264	264	312	364
Total liabilities and Equity	**307**	**333**	**360**	**384**	**333**	**333**	**383**	**437**

Source: Bryan, Garnier & Co ests.

5. Downside potential for the share

We generally use at least two valuation methods. However, like u-blox, the specific profile (midcap and fabless highly exposed to the automotive sector) of Melexis makes the composition of a representative sample irrelevant. As such, a peer comparison does not seem relevant.

Our Fair Value of EUR48 therefore stems from a DCF valuation and points to downside risk of 21% relative to the share price. Given the items mentioned above in Chapter 3, we have adopted a Sell recommendation on the share.

Our DCF valuation is based on the following assumptions:

- **Our base scenario, which includes estimates out to 2018e.** Like other semiconductors players that we cover, we have applied a cyclical growth scheme over the normalised period (from 2019e to 2024e). Nevertheless, in view of the fundamental changes affecting Melexis' profile, we have not applied our usual method of reproducing the characteristics of the previous cycle in the normalised period. We have assumed a growth rate of 13.0% (equivalent to the average growth rate over the past five years) at the beginning of the normalised period, or 2019e, which seems more representative of coming years. We have then applied a linear reduction to this rate out to 2024e in order to reach our terminal growth rate of 3.0%. For the 2016/25e period, this scenario points to average growth of 9.1%.

- **We have assumed average EBIT margin of 24.8% over 2016/25e**, i.e. the margin in our 2016/18e scenario and then a linear reduction in this margin in order to reach our long term margin of 24.6% (i.e. average EBIT margin of the past five years).

- **WCR close to 23% of sales over the entire period,** or slightly below the historical level in view of low growth.

- **Capex equivalent to 8.5% of sales in 2015e**, then 9.0% of sales over the rest of the period, close to the historical level.

- **A corporate tax rate close to 15% corresponding to Melexis' normal average corporate tax rate.** The group has a low corporate tax rate thanks to the advantages granted by the Belgian government to companies in technological innovation.

- **WACC of 10.0%**. We have applied beta of 1.2x similar to that applied in our valuation of ASML, Infineon and u-blox, a risk-free rate of 1.6% and a market risk premium of 7%. At end-2015, the group had net cash of EUR59m.

Fig. 9: WACC of 10.0%

WACC	
European risk-free interest rate	1.6%
Equity risk premium	7.0%
Beta	1.2
Return expected on equity	**10.0%**
Interest rate on debt	2.5%
Market capitalisation (EURm)	2,169
Net debt on 31/03/15 (EURm)	**-59**
Enterprise value (EURm)	2,111
WACC	**10.0%**

Source: Bryan, Garnier & Co. ests.

Fig. 10: DCF, FV of EUR48 or downside risk of 21%

in EURm (FYE 31/12)	2016e	2017e	2018e	2019e	2020e	2021e	2022e	2023e	2024e	2025e
Revenues	**453**	**495**	**536**	**605**	**675**	**744**	**808**	**867**	**917**	**958**
Change (%)	*13.3%*	*9.1%*	*8.4%*	*13.0%*	*11.5%*	*10.1%*	*8.7%*	*7.3%*	*5.8%*	*4.4%*
Adjusted EBIT	**111**	**123**	**133**	**151**	**168**	**185**	**200**	**214**	**227**	**236**
Adjusted operating margin	*24.6%*	*24.9%*	*24.9%*	*24.9%*	*24.9%*	*24.8%*	*24.8%*	*24.7%*	*24.7%*	*24.7%*
Tax	-16	-19	-20	-23	-25	-28	-30	-32	-34	-35
Tax rate	*14.7%*	*15.0%*	*15.0%*	*15.0%*	*15.0%*	*15.0%*	*15.0%*	*15.0%*	*15.0%*	*15.0%*
Net Operating income after tax	**95**	**104**	**113**	**128**	**143**	**157**	**170**	**182**	**193**	**201**
Capex, net	-39	-45	-48	-54	-61	-67	-73	-78	-83	-86
As a % of sales	*8.5%*	*9.0%*	*9.0%*	*9.0%*	*9.0%*	*9.0%*	*9.0%*	*9.0%*	*9.0%*	*9.0%*
Depreciation & amortisation	28	32	35	54	61	67	73	78	83	86
As a % of sales	*6.1%*	*6.5%*	*6.5%*	*9.0%*	*9.0%*	*9.0%*	*9.0%*	*9.0%*	*9.0%*	*9.0%*
WCR	104	113	123	139	155	170	185	199	210	219
As a % of sales	*23.0%*	*22.9%*	*22.9%*	*22.9%*	*22.9%*	*22.9%*	*22.9%*	*22.9%*	*22.9%*	*22.9%*
Change in working capital	-13	-9	-9	-16	-16	-16	-15	-13	-12	-9
Free cash flows	**71**	**83**	**90**	**112**	**127**	**141**	**155**	**169**	**181**	**191**
Discounted free cash flows	**68**	**72**	**72**	**81**	**83**	**84**	**84**	**83**	**81**	**78**

Total discounted FCF - 2016e-2025e	787
Discounted Terminal value - 2026e	1,101
Enterprise value	**1,888**
- Provision (incl. pension plan)	7
- Fair value minority interests	12
- Net debt on 31/12/2016e	-59
Equity value	**1,928**
Nbr of diluted shares (m)	40.400
Valuation per share (EUR)	**48**
Upside vs. current share price	-21%

		WACC				
	[in EUR]	9.0%	9.5%	10.0%	10.5%	11.0%
Op. margin	23%	53	49	45	42	39
	24%	54	50	46	43	40
	25%	56	52	**48**	44	41
	26%	58	53	49	46	43
	27%	60	55	51	47	44

Source: Bryan, Garnier & Co.

BRYAN, GARNIER & CO

INDEPENDENT RESEARCH UPDATE

21st July 2016

TMT

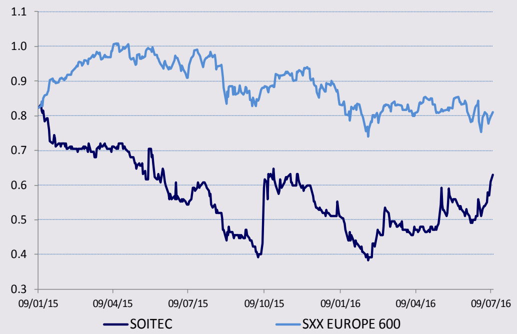
Soitec

Waiting for FD-SOI orders

Fair Value EUR0.50 vs. EUR0.45 (price EUR0.75) **NEUTRAL**

Bloomberg	SOI FP
Reuters	SOIT.PA
12-month High / Low (EUR)	0.8 / 0.4
Market capitalisation (EURm)	455
Enterprise Value (BG estimates EURm)	480
Avg. 6m daily volume ('000 shares)	1,342
Free Float	79.0%
3y EPS CAGR	
Gearing (03/16)	NM
Dividend yield (03/17e)	NM

YE March	03/16	03/17e	03/18e	03/19e
Revenue (EURm)	233.21	253.82	271.75	360.14
EBITA EURm)	22.4	26.6	31.5	36.5
Op.Margin (%)	9.6	10.5	11.6	10.1
Diluted EPS (EUR)	-0.02	0.05	0.04	0.05
EV/Sales	2.68x	1.89x	1.63x	1.12x
EV/EBITDA	17.2x	11.5x	8.6x	6.4x
EV/EBITA	27.9x	18.0x	14.0x	11.1x
P/E	NS	15.7x	18.6x	16.7x
ROCE	15.4	14.0	18.7	21.1



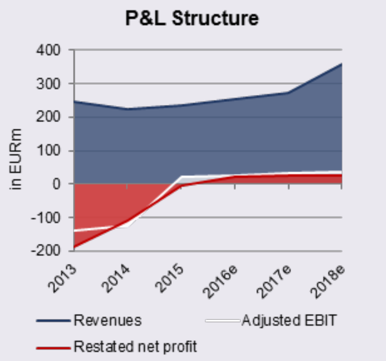
Following the two capital increases undertaken by Soitec during Q2 2016, the group is now in a far better position and boasts a stronger balance sheet. Soitec now only focuses on two products, SOI 200mm wafers (RF-SOI et Power-SOI) and SOI 300mm wafers (PD-SOI et FD-SOI). With stable demand for 200mm wafers, Soitec's challenge is now to convert the try with its new product, FD-SOI. While we consider this technology relevant and expect it to break through, we are waiting for further proof of its commercial take-off, which would genuinely boost Soitec's sales. We update our model to integrate changes in FX, as a result our FV is up from EUR0.45 to EUR0.50.

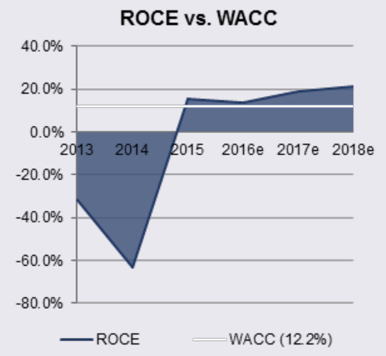
- **The electronics business now shows profitable growth.** At the group's last publication in June, the accent was placed on profitability in the electronics division. Indeed, the group generated gross margin of 29% in its fiscal H2 2016 (FYE 31st March), compared with a bottom of gross margin of -1% in H2 2014. This was possible thanks to far higher volumes (virtually double) and the cost cutting strategy. The Bernin 1 plant that handles 200mm production is now running at full capacity (gross margin of 30-35%), whereas the Bernin 2 fab, handing 300mm wafers was only running at 25% on average over FY 2016. At full capacity, Bernin 2 should also generate gross margin of more than 30%.

- **The group has now rid itself of loss-making activities (solar and lighting), and its future depends on the success of FD-SOI.** With the Bernin 1 fab now full, growth and margin improvement is primarily set to stem from the Bernin 2 plant, which has production capacity of 750k wafers. Some of this output is to be reserved for RF-SOI 300mm (around 200k-250k), and the rest should be allocated to production of FD-SOI wafers. This is an innovative technology enabling performance gains at a constant node, but it is also a new design and chip production method. This means that its success depends on the interest the industry has in adopting these wafers rather than extending the Moore's law. So far, things seem to be taking shape smoothly and the ecosystem is gradually falling into place. However, there is still nothing concrete in terms of orders and for this reason we remain cautious.

Analyst:
Dorian Terral
33(0) 1.56.68.75.92
dterral@bryangarnier.com

Sector Analyst Team:
Richard-Maxime Beaudoux
Thomas Coudry
Gregory Ramirez





Company description

Founded in 1992, and listed on Euronext Paris since 1999, Soitec is a specialist of high-performance semiconductor materials. The company develops proprietary technologies used to produce and sell wafers for the semiconductor industry, more particularly to produce Integrated Circuits . Soitec is the world leader on the SOI market with 80% of market share. Rencently, the group reinforced its balance sheet with two successive capital increases for a total amount of EUR150m. Now, the group's objective is to support the success of its new product, the FD-SOI.

Simplified Profit & Loss Account (EURm)	**31/03/14**	**31/03/15**	**31/03/16**	**31/03/17e**	**31/03/18e**	**31/03/19e**
Revenues	247	223	233	254	272	360
Change (%)	*-6.0%*	*-9.8%*	*4.6%*	*8.8%*	*7.1%*	*32.5%*
Adjusted EBITDA	-%	-%	-%	-%	-%	-%
Depreciation & amortisation	141	209	13.9	15.0	20.0	27.0
Adjusted EBIT	(137)	(126)	22.4	26.6	31.5	36.5
EBIT	(220)	(277)	(7.0)	26.6	31.5	36.5
Change (%)	*-%*	*-%*	*-%*	*-%*	*18.3%*	*15.9%*
Financial results	(16.7)	19.7	(22.5)	(6.3)	(6.8)	(9.0)
Pre-Tax profits	(236)	(258)	(29.6)	20.3	24.7	27.5
Exceptionals	NM	NM	NM	NM	NM	NM
Tax	0.06	(0.22)	(3.5)	0.0	0.0	0.0
Profits from associates	(0.64)	(1.4)	(0.20)	(0.20)	(0.20)	(0.20)
Minority interests	0.33	0.0	0.0	0.0	0.0	0.0
Net profit	(237)	(258)	(71.7)	20.1	24.5	27.3
Restated net profit	(186)	(108)	(3.9)	20.1	24.5	27.3
Change (%)	*%*	*-%*	*-%*	*-%*	*22.1%*	*11.4%*
Cash Flow Statement (EURm)						
Operating cash flows	(39.1)	(0.05)	(12.5)	32.7	42.5	43.6
Change in working capital	(99.8)	67.9	40.8	(2.5)	(2.2)	(10.9)
Capex, net	(44.8)	(3.1)	14.8	(40.0)	(5.0)	(5.0)
Financial investments, net	(37.8)	(15.5)	0.0	0.0	0.0	0.0
Dividends	0.0	0.0	0.0	0.0	0.0	0.0
Issuance of shares	67.9	83.7	0.0	152	0.0	0.0
Issuance of debt	131	23.7	64.7	(61.0)	0.0	0.0
Other	(21.4)	(102)	(37.8)	(50.0)	0.0	0.0
Net debt	212	150	170	25.3	(12.2)	(50.9)
Free Cash flow	(184)	(3.2)	2.3	(7.3)	37.5	38.6
Balance Sheet (€m)						
Tangible fixed assets	281	157	121	146	131	109
Intangibles assets & goodwill	35.1	47.4	39.3	39.3	39.3	39.3
Investments	8.9	1.3	1.4	1.4	1.4	1.4
Deferred tax assets	0.0	0.0	0.0	0.0	0.0	0.0
Current assets	186	0.0	0.0	0.0	0.0	0.0
Cash & equivalents	44.7	22.9	49.1	82.7	120	159
Total assets	585	228	210	269	292	308
Shareholders' equity	221	50.0	(7.1)	165	190	217
Provisions	18.4	17.5	30.5	30.5	30.5	30.5
Deferred tax liabilities	0.0	0.0	0.0	0.0	0.0	0.0
L & ST Debt	257	173	219	108	98.6	115
Current liabilities	88.9	153	82.7	86.5	89.7	106
Total Liabilities	585	394	325	390	409	468
Capital employed	433	200	163	190	168	173
Ratios						
Operating margin	NM	NM	9.59	10.49	11.59	10.14
Tax rate	0.03	(0.08)	(11.83)	0.0	0.0	0.0
Net margin	NM	NM	NM	6.62	9.02	7.58
ROE (after tax)	(107)	(516)	1,009	12.16	12.91	12.56
ROCE (after tax)	(31.71)	(62.97)	15.36	13.98	18.73	21.07
Gearing	96.21	300	NM	NM	(6.45)	(23.41)
Pay out ratio	NM	NM	NM	0.0	NM	0.0
Number of shares, diluted	149	211	240	419	419	419
Data per Share (EUR)						
EPS	(1.45)	(1.23)	(0.29)	0.08	0.10	0.11
Restated EPS	(1.25)	(0.51)	(0.02)	0.05	0.04	0.05
% change	*12.6%*	*-61.7%*	*-104%*	*202%*	*-15.6%*	*11.5%*
EPS bef. GDW	(1.25)	(0.51)	(0.02)	0.05	0.04	0.05
BVPS	1.48	0.24	(0.03)	0.39	0.45	0.52
Operating cash flows	(0.26)	(0.00)	(0.05)	0.08	0.10	0.10
FCF	(1.23)	(0.02)	0.01	(0.02)	0.09	0.09
Net dividend	0.0	0.0	0.0	0.0	0.0	0.0

Source: Company Data; Bryan, Garnier & Co ests.

BRYAN, GARNIER & CO

INDEPENDENT RESEARCH UPDATE

21st July 2016

STMicroelectronics

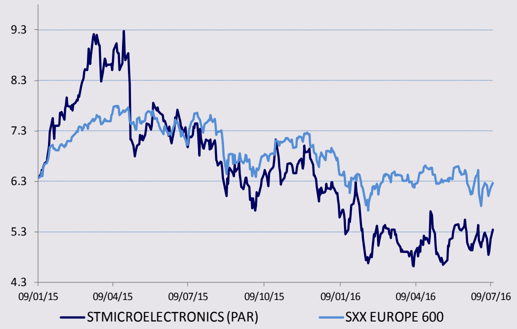
The future remains blurred

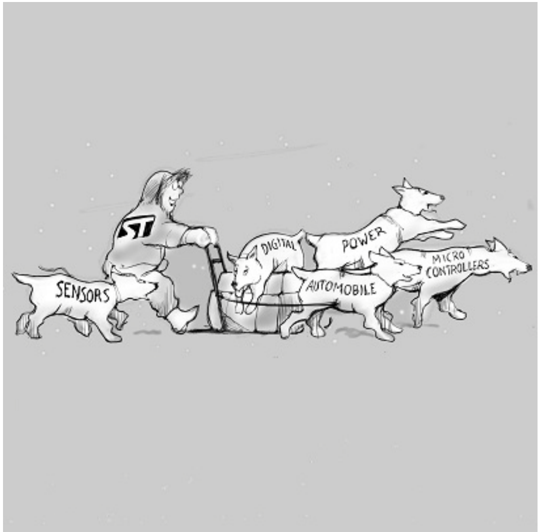
TMT

Fair Value EUR6.5 vs. EUR6.3 (price EUR5.55) **NEUTRAL**

Bloomberg	STM FP
Reuters	STM.FR
12-month High / Low (EUR)	7.4 / 4.6
Market capitalisation (EURm)	5,058
Enterprise Value (BG estimates EURm)	4,376
Avg. 6m daily volume ('000 shares)	2,560
Free Float	70.3%
3y EPS CAGR	31.7%
Gearing (12/15)	-11%
Dividend yield (12/16e)	4.35%

YE December	12/15	12/16e	12/17e	12/18e
Revenue (USDm)	6,897	6,882	6,998	7,151
EBITA USDm)	174.0	264.1	405.2	513.3
Op.Margin (%)	2.5	3.8	5.8	7.2
Diluted EPS (USD)	0.20	0.21	0.35	0.45
EV/Sales	0.66x	0.64x	0.59x	0.55x
EV/EBITDA	5.0x	4.5x	3.7x	3.1x
EV/EBITA	26.2x	16.6x	10.3x	7.7x
P/E	27.9x	26.5x	16.1x	12.2x
ROCE	5.1	4.9	8.3	11.2





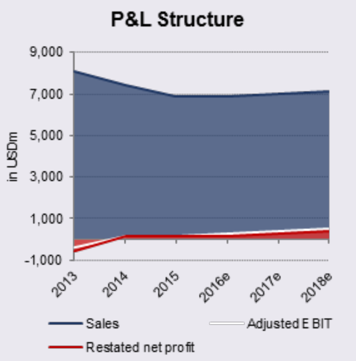
STMicroelectronics has been in decline for five years and many now believe that the share has reached a low point. At the end of January, the group announced a strategic plan, the most striking initiative of which was to halt production of processors for set-top boxes, a business that had until now been considered as the group's technological standard bearer. Further out, this decision should help the group improve margins in order to move towards a 10% EBIT margin. In this transition period, we have adopted a Neutral recommendation on the share which reflects our appreciation of the initiatives undertaken, but also the lack of tangible proof of how efficient this plan is and an ultimately not very attractive valuation (2016e P/E of 26.5x). We update our model to integrate changes in FX, hence our FV is up from EUR6.3 to EUR6.5.

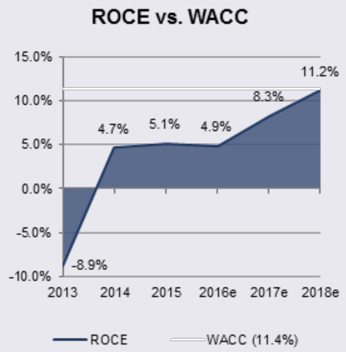
- **A strategic refocus on two market segments: automotive and the internet of things (IoT).** Concerning IoT, ST has a portfolio of products fully adapted to this new wave. The group would especially like to lever its microcontrollers offer (currently the market benchmark) in order to sell sensors, connectivity chips and power management chips. This strategy looks interesting to us although its success is entirely based on MCU sales momentum. In the automotive segment, ST has a strong position (no. 4 in the world, 9% market share) and growth in this market should naturally carry the group.

- **In terms of margins, the group is maintaining its target for EBIT margin of 10% over the medium term, but with no precise timing, investors remain somewhat in limbo.** At the last analysts' conference in May, management stated that this target was still intact. Although the group shared the target for the first time in 2013, it has never been reached, either due to external factors or due to unfortunate strategic decisions. With this plan, the group is clearly providing itself the means to deliver, only history has not played in ST's favour in terms of executing strategic plans. We believe that investors are currently sanctioning ST for its lack of precision whereas a large number would also like some clarification concerning the forthcoming change in CEO. ST now seems to have all the right ingredients to reach its EBIT margin target of 10% but this is likely to take some time. Pending more tangible factors on this point, we are maintaining our Neutral recommendation.

Analyst:
Dorian Terral
33(0) 1.56.68.75.92
dterral@bryangarnier.com

Sector Analyst Team:
Richard-Maxime Beaudoux
Thomas Coudry
Gregory Ramirez





Company description

STMicroelectronics is a Franco-Italian manufacturer of semiconductors. The group has a broad product portfolio that spans from power management components to integrated circuits for industrial sector, automotive and consumer applications. Declining for several years, the group currently executes a transformation plan to restore growth and positive margins.

Simplified Profit & Loss Account (USDm)	**31/12/13**	**31/12/14**	**31/12/15**	**31/12/16e**	**31/12/17e**	**31/12/18e**
Revenues	8,082	7,404	6,897	6,882	6,998	7,151
Change (%)	*-4.8%*	*-8.4%*	*-6.8%*	*-0.2%*	*1.7%*	*2.2%*
EBITDA	-%	-%	-%	-%	-%	-%
Depreciation & amortisation	910	812	736	716	728	744
Adjusted EBIT	(409)	182	174	264	405	513
EBIT	(465)	168	109	264	405	513
Change (%)	*-%*	*-%*	*-4.2%*	*51.7%*	*53.6%*	*26.7%*
Financial results	(5.0)	(19.2)	(22.0)	(16.5)	(16.8)	(17.2)
Pre-Tax profits	(470)	149	87.0	248	388	496
Tax	(37.0)	23.0	21.0	(66.3)	(86.7)	(103)
Profits from associates	(122)	(43.0)	2.0	3.1	3.2	3.2
Minority interests	129	(0.60)	(6.0)	0.0	0.0	0.0
Net profit	(500)	128	104	184	305	397
Restated net profit	(573)	143	175	184	305	397
Change (%)	*-%*	*-%*	*22.4%*	*5.4%*	*65.3%*	*30.1%*
Cash Flow Statement (USDm)						
Operating cash flows	333	791	846	900	1,033	1,140
Change in working capital	33.0	(76.0)	(122)	12.8	(30.1)	(39.4)
Capex, net	(531)	(505)	(467)	(516)	(525)	(536)
Financial investments, net	96.0	(341)	0.0	0.0	0.0	0.0
Dividends	(350)	(357)	(350)	(211)	(265)	(349)
Issuance of shares	0.0	1.0	0.0	0.0	0.0	0.0
Issuance (repayment) of debt	(34.0)	774	0.0	0.0	0.0	0.0
Other	(17.0)	(168)	(13.0)	2.0	0.0	0.0
Net debt	(741)	(546)	(494)	(682)	(895)	(1,110)
Free Cash flow	(165)	210	257	397	478	564
Balance Sheet (USDm)						
Tangible fixed assets	3,156	2,647	2,321	2,121	1,918	1,711
Intangibles assets & goodwill	307	275	242	242	242	242
Investments	676	649	516	516	516	516
Deferred tax assets	227	386	436	436	436	436
Current assets	2,913	2,700	2,570	2,565	2,606	2,661
Cash & equivalents	1,894	2,351	2,106	2,294	2,507	2,722
Total assets	9,173	9,008	8,191	8,174	8,225	8,288
Shareholders' equity	5,717	5,055	4,693	4,667	4,706	4,754
Provisions	524	574	509	509	509	509
Deferred tax liabilities	11.0	10.0	12.0	12.0	12.0	12.0
L & ST Debt	1,153	1,805	1,612	1,612	1,612	1,612
Current liabilities	1,768	1,564	1,365	1,372	1,384	1,400
Total Liabilities	9,173	9,008	8,191	8,174	8,225	8,288
Capital employed	4,976	4,509	4,199	3,985	3,812	3,644
Ratios						
Operating margin	(5.06)	2.45	2.52	3.84	5.79	7.18
Tax rate	6.25	21.80	0.30	(26.45)	(22.15)	(20.61)
Net margin	(7.09)	1.92	2.54	2.68	4.36	5.54
ROE (after tax)	(8.75)	2.54	2.22	3.95	6.48	8.34
ROCE (after tax)	(8.87)	4.65	5.14	4.85	8.26	11.17
Gearing	(12.96)	(10.80)	(10.53)	(14.61)	(19.01)	(23.35)
Pay out ratio	NM	287	336	115	87.47	86.98
Number of shares, diluted	890	882	873	879	884	884
Data per Share (USD)						
EPS	(0.56)	0.14	0.12	0.21	0.35	0.45
Restated EPS	(0.64)	0.16	0.20	0.21	0.35	0.45
% change	*-%*	*-%*	*23.7%*	*5.6%*	*64.4%*	*31.6%*
EPS bef. GDW	(0.64)	0.16	0.20	0.21	0.35	0.45
BVPS	6.43	5.73	5.37	5.31	5.33	5.38
Operating cash flows	0.37	0.90	0.97	1.02	1.17	1.29
FCF	(0.19)	0.24	0.29	0.45	0.54	0.64
Net dividend	0.40	0.40	0.40	0.24	0.30	0.39

Source: Company Data; Bryan, Garnier & Co ests.

BRYAN, GARNIER & CO

INDEPENDENT RESEARCH

21st July 2016

TMT

u-blox

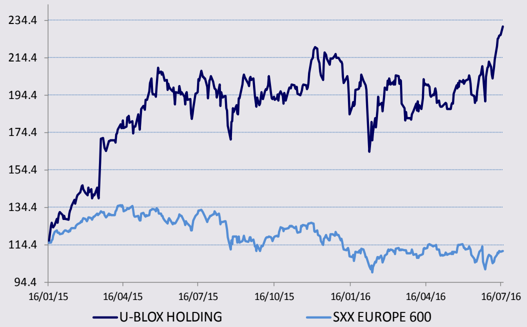
Not to miss the eCall

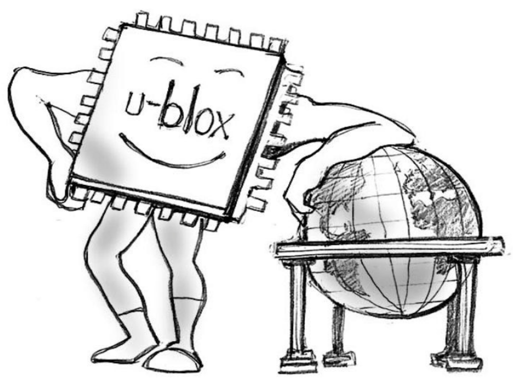
Fair Value CHF265 (price CHF228.50)

BUY
Coverage initiated

Bloomberg	UBXN SW
Reuters	UBXN.S
12-month High / Low (CHF)	231.1 / 164.0
Market capitalisation (CHFm)	1,555
Enterprise Value (BG estimates CHFm)	1,485
Avg. 6m daily volume ('000 shares)	22.50
Free Float	68.6%
3y EPS CAGR	29.5%
Gearing (12/15)	-26%
Dividend yields (12/16e)	0.75%

YE December	12/15	12/16e	12/17e	12/18e
Revenue (CHFm)	338.34	404.54	500.64	635.15
EBITA CHFm)	51.3	59.9	73.1	98.4
Op.Margin (%)	15.2	14.8	14.6	15.5
Diluted EPS (CHF)	5.45	6.86	8.60	11.82
EV/Sales	4.40x	3.67x	2.95x	2.33x
EV/EBITDA	19.6x	16.7x	13.5x	10.7x
EV/EBITA	29.1x	24.8x	20.2x	15.0x
P/E	41.9x	33.3x	26.6x	19.3x
ROCE	21.8	21.8	23.0	25.3





u-blox is a Swiss company specialised in signal receivers for global navigation satellite systems and wireless connectivity chips for the automotive and industrial sectors. This niche market positioning enables the group to maintain a technological edge, market share gains and a robust growth. In view of management's execution history and the group's buoyant positioning, we are forecasting average EPS growth of 30% over the next three years, pointing to a PEG of 1.1x. Our valuation of CHF265 per share yields an upside potential of 16% and therefore we adopted a Buy recommendation.

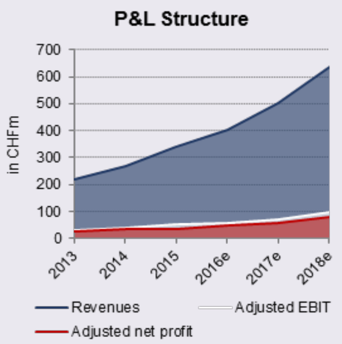
- **A technological lead of more than one year over rivals.** The group has been specialised niche segment of positioning and communication chips for automotive for more than a decade and maintains a technological lead of more than a year relative to its rivals. This is reflected in both constant innovations within the product portfolio and advanced integration of the various chips within modules, as well as faultless execution in production, enabling the group to benefit from an excellent reputation in the automotive sector, which is one of the hardest to penetrate.

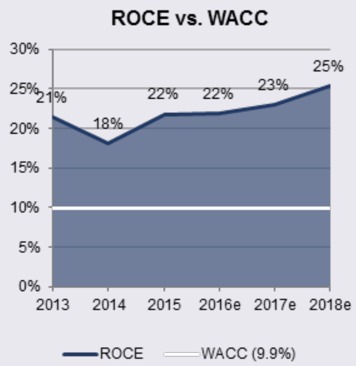
- **Robust growth on the cards and high quality accounts.** Thanks to its specialisation and the quality of its products, u-blox is continuing to win market share. As such, we expect sales growth of 23% on average over the next three years, in line with the group's historical growth (2012-15 CAGR of +23%). In addition, the fabless model adopted by the group enables it to benefit from good control on operating expenses and optimise its cash generation profile with FCF equivalent to 9.4% of sales and 85.6% of net profit. In all, the balance sheet is also solid with a net cash position of EUR70m.

- **Still attractively valued.** The share is currently trading at 33.3x prospective 2016e earnings, which should be seen in the light of average EPS growth of 30% over the next three years, or PEG of 1.1x. In addition, our DCF-derived FV of CHF265 points to upside potential of 16%. In this context, we have adopted a Buy recommendation on u-blox.

Analyst:
Dorian Terral
33(0) 1.56.68.75.92
dterral@bryangarnier.com

Sector Analyst Team:
Richard-Maxime Beaudoux
Thomas Coudry
Gregory Ramirez





Company description

u-blox is a swiss company, provider of wireless and positioning semiconductors and modules for the automotive, industrial and consumer markets. The group holds a strong position in the positioning market, alongside with big names such as Qualcomm and Broadcomm and continues to gain market shares. The strong momentum allowed to group to generate an average EPS growth of 22% over the 5 last years.

Simplified Profit & Loss Account (CHFm)	**31/12/13**	**31/12/14**	**31/12/15**	**31/12/16e**	**31/12/17e**	**31/12/18e**
Revenues	220	270	338	405	501	635
Change (%)	*27.0%*	*22.9%*	*25.3%*	*19.6%*	*23.8%*	*26.9%*
Adjusted EBITDA	46.2	58.6	76.0	89.0	110	138
Adjusted EBIT	30.1	39.1	51.3	59.9	73.1	98.4
EBIT	30.1	39.1	51.3	59.9	73.1	98.4
Change (%)	*30.4%*	*30.0%*	*31.3%*	*16.7%*	*22.1%*	*34.7%*
Financial results	(1.2)	3.9	(3.7)	0.40	1.5	4.1
Pre-Tax profits	28.9	43.0	47.6	60.3	74.6	103
Tax	(4.2)	(8.6)	(10.5)	(13.6)	(16.0)	(22.1)
Net profit	24.6	34.4	37.1	46.7	58.6	80.5
Adjusted net profit	24.6	34.4	37.1	46.7	58.6	80.5
Change (%)	*43.2%*	*39.6%*	*7.9%*	*25.9%*	*25.4%*	*37.5%*
Cash Flow Statement (CHFm)						
Depreciation & amortisation	16.1	19.5	24.7	29.1	36.5	39.4
Change in working capital	(6.6)	(2.1)	(4.9)	(7.6)	(11.1)	(15.5)
Operating cash flows	38.5	53.7	74.7	67.8	82.5	100
Capex, net	(33.7)	(33.6)	(42.9)	(50.6)	(62.6)	(79.4)
Free Cash flow	4.8	20.1	31.7	17.2	20.0	20.9
Acquisition, net	0.0	(37.6)	(0.36)	0.0	0.0	0.0
Financial investments, net	0.05	5.8	9.9	0.0	0.0	0.0
Dividends	(6.4)	(8.5)	(10.7)	(11.7)	(14.6)	(20.1)
Issuance (repurchase) of own shares	4.9	3.6	5.3	0.0	0.0	0.0
Issuance (repayment) of debt	(3.3)	19.9	40.0	0.0	0.0	0.0
Other	2.7	(24.4)	(50.5)	0.0	0.0	0.0
Net debt	(60.6)	(39.4)	(64.8)	(70.3)	(75.6)	(76.4)
Balance Sheet (CHFm)						
Tangible fixed assets	13.8	14.8	14.7	(4.3)	(28.3)	(51.8)
Intangibles assets & goodwill	82.4	128	145	185	235	299
Investments	1.2	0.58	0.68	0.68	0.68	0.68
Deferred tax assets	6.8	4.8	6.9	6.9	6.9	6.9
Other non-current assets	0.0	0.0	0.0	0.0	0.0	0.0
Cash & equivalents	60.6	59.4	124	130	135	136
Inventories	22.7	33.3	37.4	44.7	55.3	70.1
Current assets	39.1	60.4	58.4	68.7	83.7	105
Total assets	227	302	387	431	488	565
Shareholders' equity	180	213	248	283	325	382
Provisions	6.1	13.4	17.9	21.4	26.5	33.7
Deferred tax liabilities	4.6	5.8	6.1	6.1	6.1	6.1
Current liabilities	35.4	49.7	55.2	61.7	71.1	84.3
L & ST Debt	0.0	20.0	59.3	59.3	59.3	59.3
Total Liabilities	227	302	387	431	488	565
Capital employed	120	173	184	213	250	305
Ratios						
Gross margin	46.02	45.45	45.82	44.80	44.60	44.50
Adjusted operating margin	13.67	14.47	15.16	14.80	14.60	15.50
Tax rate	14.64	19.94	22.08	22.50	21.50	21.50
Adjusted Net margin	11.21	12.74	10.96	11.55	11.70	12.68
ROE (after tax)	13.66	16.16	14.94	16.51	18.00	21.10
ROCE (after tax)	21.40	18.03	21.77	21.82	22.98	25.32
Gearing	(33.56)	(18.50)	(26.08)	(24.85)	(23.25)	(20.02)
Pay out ratio	25.15	23.65	27.61	23.97	23.97	23.97
Number of shares, diluted	6.57	6.81	6.81	6.81	6.81	6.81
Data per Share (CHF)						
EPS	3.86	5.27	5.68	7.15	8.97	12.33
Restated EPS	3.75	5.05	5.45	6.86	8.60	11.82
% change	*37.9%*	*34.6%*	*7.9%*	*25.9%*	*25.4%*	*37.5%*
BVPS	27.48	31.26	36.46	41.55	47.78	56.04
Operating cash flows	5.86	7.88	10.96	9.96	12.12	14.73
FCF	0.73	2.95	4.66	2.53	2.93	3.07
Net dividend	0.97	1.25	1.57	1.71	2.15	2.96

Source: Company Data; Bryan, Garnier & Co ests.

Table of contents

1. Investment Case

Why the interest now?

The reason for writing now

u-blox is little known to investors although it is a very interesting player in our view. We believe that 1/ **consensus expectations are overly cautious** in view of market prospects and the group's historical performances and 2/ **its still-attractive valuation is an opportunity to grasp (our FV points to an upside potential of 16%). We are initiating u-blox with a Buy recommendation**

Cheap or Expensive?

Valuation

Our Fair Value of CHF265 stems from a DCF valuation (WACC of 10.0%). Based on our estimates, **the share is trading on 2016e EV/EBIT of 24.8x and 2016e P/E of 33.3x. These are ratios that must be put in relation to a strong growth in EPS (CAGR 2015/2018e on EPS of 30%) externalizing a PEG of 1.1x.**

When will I start making money?

Catalysts

u-blox is active in a rapidly expanding niche market. Growth is driven by changes in vehicle production volumes and the constantly rising adoption of communication and positioning systems (CAGR 2015/2018e de 9.4%). It also benefits from **opportunities created by regulations** obliging carmakers to equip their models with **eCall** systems as of 2018, volumes of which are estimated at 20m units out to 2020, or a 2015/2018e CAGR of 55% in these products.

What's the value added?

Difference from consensus

At present, **the consensus has factored in average sales growth of 19.6%** over 2015/2018e **showing a slowdown relative to the performance of +22.5%** reached over the past three years. We believe the group is capable of fully benefiting from market opportunities (see Catalysts) and its positioning to **generate growth equivalent to its historical levels at least. As such, our EPS estimates are on average 7.9% ahead of the consensus figures.**

Could I lose money?

Risks to our investment case

Despite u-blox business being particularly robust thanks to a high diversification (customer base + geography), the group is active in a market that is particularly sensitive to **macro-economic momentum** and this could have a positive or negative impact on our estimates. Given the attractive growth levels boasted by the group's market, **other players with larger R&D capabilities could destabilise u-blox' dominant position** and take a negative toll on 1/ volumes and 2/ prices.

2. Group snapshot

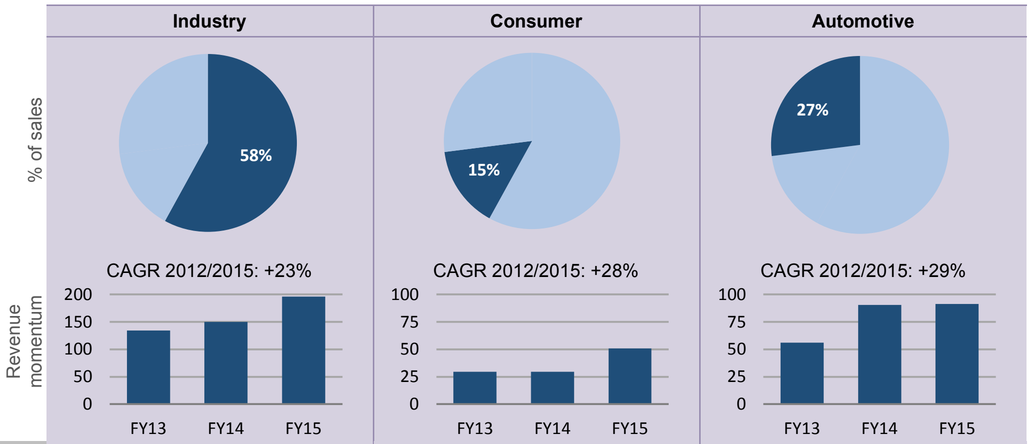
2.1. A niche player: positioning & wireless

The group was created at the end of the 1990s, with the aim of capturing the emerging opportunity in the global navigation satellite system (GNSS) signal receivers market.

u-blox is a Swiss group that primarily manufactures chips and modules for connectivity and satellite positioning. **The group was created at the end of the 1990s, with the aim of capturing the emerging opportunity in the global navigation satellite system (GNSS) signal receivers market.** During the 2000s, the group therefore managed to benefit from its advantage as the first-entrant to become the market leader whereas this type of chip consumption was in full swing. **Strengthened by this success, the group then developed a 2G/3G connectivity module business functioning alongside positioning chips.** Today, the flagship application of u-blox modules is management of company vehicle fleets and the black boxes distributed by insurance companies in a number of countries.

The company's sales are divided into two segments: Positioning & Wireless Modules and Wireless Services, although virtually all sales in the Wireless Services segment are booked as intra-group transactions and its weight in consolidated sales stands at only 0.1%. **By market, u-blox is primarily exposed to the industrial segment (58% of 2015 sales), the automotive sector (27% of sales) and to a lesser extent the consumer electronics market (15% of sales).**

Fig. 1: The automotive market is more dominant than it looks in figures



	Industry	Consumer	Automotive
Key products	- GNSS and wireless modules for vehicle tracking (fleet management) - GNSS chips for Marine - GNSS and wireless modules for Agriculture	- GNSS chips for cameras - GNSS and wireless module for people tracking - GNSS chips for personal nav devices	- GNSS modules for navigation systems - GNSS and wireless modules for anti-theft systems - Wireless chips for safety features
Key customers (examples)	- CalAmp - Huawei - Raymarine - Ingenico	- Samsung - Fujitsu - Sony - TomTom	- Bosch - Harman Becker - Coagent
Key catalysts	- Macroeconomic environment - Automobile sales - Industrial momentum	- Consumer market momentum - Design win in flagship products	- Macroeconomic environment - Automobile production - Design win in high volume models
Competitors	- IP: Qualcomm (incl. CSR), Broadcom - Chips: Qualcomm (incl. CSR), Broadcom, MediaTek, STMicroelectronics - Modules: Trimble and Asian local assemblers for GNSS ; Telit, Cinterion, Sierra, SIM and Asian assemblers for Wireless		

Source: Bryan, Garnier & Co.

If we include sales of vehicle positioning modules in the automotive sector, we estimate that more than 75% of the group's sales are exposed to the automotive market.

However, in addition to these official figures, we would add that sales of electronic modules for vehicle positioning are recorded in the Industry category. **If we include sales of vehicle positioning modules in the automotive sector, we estimate that more than 75% of the group's sales are exposed to the automotive market.**

Like Melexis and Dialog in Europe, nVidia and Qualcomm in the US, u-blox operates a fabless model (i.e. with no plant) outsourcing its production and focusing on developing chips and modules. Front-end manufacturing (wafer-level production) is outsourced to GlobalFoundries and TSMC, while the back end (IC packaging and testing) is operated by Amkor and assembly of the end modules is undertaken by Flextronics and Inventec.

In view of its niche market positioning, u-blox is fairly well protected from price wars and hence the price pressure generally noted in the semi-conductors industry. According to the latest market survey by ABI Research in December 2015, **Qualcomm is still the dominant player in positioning with its IZat platform, while Broadcom, recently acquired by Avago, is the market no. 2 with its HULA technology. u-blox took the no. 3 spot in 2015 thanks to its technological lead,** leaving MediaTek in fourth place. The Asian group suffered from an ageing product catalogue although the group enjoyed significant design wins, especially with Fitbit. STMicroelectronics and its TESEO platform completes this Top 5.

2.2. An M&A culture

- **Cellular expertise built on M&A activity.** Since the company was created in 1997, the group has built its expertise organically. However, following its flotation on the Swiss SIX stockmarket in 2007, the group has made a series of small acquisitions in order to step up its expansion. The first acquisition was made in 2009 and concerned Italian group NeonSeven (for CHF28.6m). The acquisition helped provide the group cellular expertise, especially in 2G/3G modules. In 2011, the group strengthened this know-how by acquiring Fusion Wireless (CHF1m) specialised in CDMA modules. The following year, Cognovo (CHF15.8m) and 4M Wireless (CHF8.6m) were targeted by the group thereby further rounding out the group's cellular know-how, but this time in 4G/LTE. In 2014, M&A activity resumed with the acquisition of connectBlue (CHF25m) and antcor (CHF6.3m), specialised respectively in Bluetooth/Wi-Fi and Wi-Fi intellectual property, providing the group short-range radio link technologies. These acquisitions were then bolstered in 2015 by the addition of Lesswire.

- **Historical know-how also strengthened by strategic acquisitions.** In order to ensure that innovation is maintained at a buoyant pace, the group has also been quick to acquire small players established in its historical core business of positioning. In 2009, the group acquired Geotate (CHF8.3m), specialised in GPS technology software, and then in 2010, Air Semi assets were purchased for an undisclosed amount. Finally, in 2012, u-blox bought Finnish group Fastrax (CHF15.7m), whose know-how in antennas rounded out the group's expertise in modules.

For of all of these acquisitions, **the group's track record in terms of integration has been particularly good. So far, u-blox has not needed to book impairment charges** and the few adjustments the group has had to make to goodwill have always been due to forex.

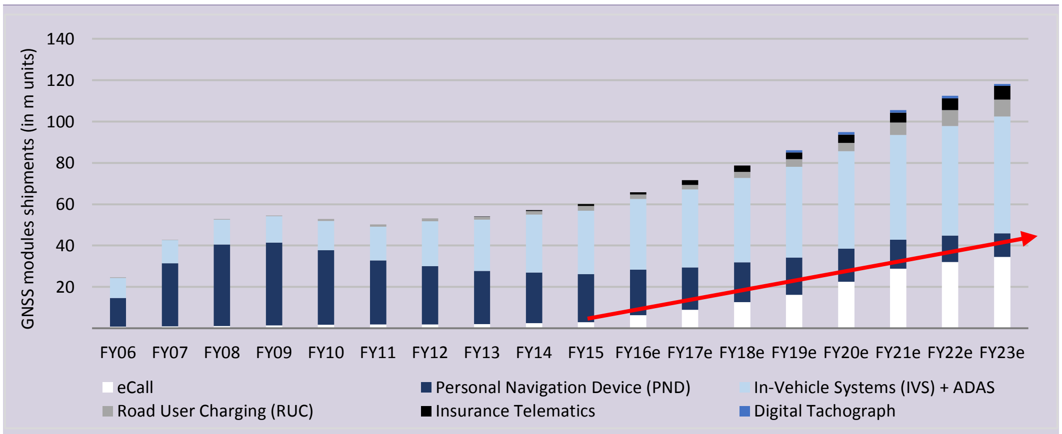
3. No slowdown in sight

Over the past five years, the group has managed to generate average growth of almost 25% whereas its core market, satellite signal receivers, only grew by 3%. In this respect, we believe that u-blox has the means to maintain market share gains over the next three years as the underlying market is set to accelerate and grow by 9% a year. Indeed, u-blox should benefit from 1/ its technological leadership position enabling it to maintain higher momentum than the market and 2/ the arrival of a new catalyst, eCall.

u-blox particularly well placed player to meet rising demand for connectivity and intelligence in vehicles.

u-blox is specialised in two types of chips, GNSS signal receivers and cellular modems. This makes it a **particularly well placed player to meet rising demand for connectivity and intelligence in vehicles**. Advanced Driver Assistance Systems (ADAS) naturally seem to be the main catalyst although we believe that while ADAS is set to play a significant role, the main source of dynamism is in an associated system, eCall (Emergency Call).

Fig. 2: eCall should be a strong catalyst for coming years



Sources: European Global Navigation Satellite Systems Agency; Bryan, Garnier & Co ests.

3.1. eCall, an underestimated catalyst

In the bid to reduce road deaths as far as possible, governments in numerous countries are extremely interested in pro-active technologies such as ADAS systems, **but also in so-called reactive systems,** especially those capable of triggering an emergency rescue plan following an accident. These systems are known as eCall and aim to notify local authorities as soon as possible after an accident in order to 1/ increase survival chances for those injured and 2/ ward off risks of additional accidents. These systems automatically communicate the exact position of the vehicle to the emergency services, the time of the incident and the vehicle's direction (useful for motorway accidents). The system is not a real-time monitoring system for all vehicles and the information is only transmitted in the event of a serious accident. eCall systems need to be autonomous and must be independent from the vehicle's electronics system, which could be damaged during an accident.

At end-April 2015, the European Union voted in favour of adopting an eCall regulation aimed at making this type of equipment obligatory in new cars as of April 2018.

At end-April 2015, the European Union voted in favour of adopting an eCall regulation aimed at making this type of equipment obligatory in new cars as of April 2018. This is not an isolated initiative and other similar decisions have been noted throughout the world like the ERA-GLONASS initiative in Russia.

Fig. 3: Average growth in demand of 9% in coming years in the automotive segment thanks to ADAS systems (+10%) and eCall (+62%)

Application	CAGR 2012/2015	CAGR 2015/2018e
Personal Navigation Device (PND)	-6.4%	-6.1%
In-Vehicle Systems (IVS) + ADAS	+12.1%	**+9.9%**
Road User Charging (RUC)	+20.9%	+9.3%
Insurance Telematics	n.s.	n.s.
eCall	+18.6%	**+61.8%**
Digital Tachograph	n.s.	n.s.
Total shipments	**+4.2%**	**+9.4%**

Sources: European Global Navigation Satellite Systems Agency; Bryan, Garnier & Co ests.

As such, while growth in volumes of GNSS signal receivers is only estimated at 9% on average, segments in which u-blox is positioned offer particularly encouraging prospects. According to the European Global Navigation Satellite Systems Agency (EGNSSA), the global market in eCall equipment represented around EUR0.7bn in 2015 and the agency is expecting it to multiply in size by 8.6x by 2020 to EUR6bn, with average growth of 43% over the period. We would nevertheless note that these value estimates are based on estimated selling prices of eCall devices (and not those of the chips used). The devices could embed other components and have a different price trend to the components they include.

Another way of estimating more precisely the opportunity created by eCall systems is to focus on estimated volumes of vehicle sales in Europe, or around 18m by 2020. By this date, all vehicles on the market should have an embedded eCall system and the EGNSSA anticipates eCall system volumes of 23m units (vs. around 3m units in 2015). Bearing in mind that Europe is not the only region to put this type of initiative in place, the EGNSSA forecast seems coherent (18m units for Europe and 5m units for the rest of the world).

We forecast an incremental market opportunity of around USD190m out to 2020.

As such, based on average selling prices for an u-blox GNSS+LTE module of just above CHF10 in 2015, to which we have applied a 4% annual decline out to 2020e (bearing in mind that ASPs have remained virtually stable at u-blox for the past five years), we forecast **an incremental market opportunity of around USD190m out to 2020.**

Fig. 4: An incremental opportunity of around USD190m out to 2020e

	2014	2015	2016e	2017e	2018e	2019e	2020e
Volumes of eCall Systems	2.5	3.0	6.3	9.0	12.7	16.2	22.5
ASP (in USD)	10.94	10.40	9.98	9.53	9.15	8.79	8.43
Market size	**27.4**	**31.2**	**62.9**	**85.8**	**116.2**	**142.3**	**189.8**
u-blox market share	30%	30%	30%	30%	30%	30%	30%
u-blox opportunity	**8.2**	**9.4**	**18.9**	**25.7**	**34.9**	**42.7**	**56.9**
yoy change		14.1%	101.5%	36.4%	35.5%	22.5%	33.3%

Sources: European Global Navigation Satellite Systems Agency; Bryan, Garnier & Co ests.

We estimate that the group currently generates less than CHF10m in eCall system modules and are forecasting sales of around CHF35m out to 2018, or 6.5% of total group sales (around 30% market share).

3.2. The group is also providing itself the means to grow

Beyond eCall systems, we believe the group is capable of maintaining strong growth in other segments in which it is positioned, in particular thanks to market share gains. Indeed, while u-blox has managed to win market share in the past, this success has stemmed from both its R&D and its proximity with clients. Since it is a specialist and precursor in the niche market of GNSS and wireless modules for the automotive sector, the group has managed to create solid positions up against major names such as Qualcomm, Broadcom, MediaTek and STMicroelectronics and we believe that it is capable of maintaining this momentum.

In terms of R&D, CHF65m was invested in new system development in 2015, or 19% of sales (vs 18% on average between 2010 and 2014). This is a high proportion for the industry and is a reminder of the R&D investment levels seen at STMicroelectronics (as a percentage of sales), but the group makes up for this by:

- 1/ very well controlled general, sales and marketing expenses (sales & marketing: 8% of sales, general & administrative expenses: 4%)
- 2/ a high gross margin since u-blox benefits from high entry barriers in the automotive market (and hence constant pressure on prices) and outsources production to major foundries enabling it to pool fixed costs for fabs as far as possible while maintaining significant room to manoeuvre in volumes.

A technological lead is found in u-blox's product portfolio.

This technological lead is found in u-blox's product portfolio. A recent example is the new NEO-M8U positioning model, which is an untethered dead reckoning navigation system. The module works by using data generated by a positioning chip and an inertial sensor (gyro/accelerometer) enabling it to 1/ improve positioning accuracy, 2/ position objects in dense areas, tunnels or other environments that deteriorate satellite signals and 3/ significantly improve positioning reactivity (especially during clear accelerations). The innovation in this model lies above all in its ability to function autonomously, thereby enabling a fully independent positioning (vs. a positioning that requires and uses information stemming from other car components in order to gather speed data supplied by the car itself).

For clients, another major advantage of u-blox systems is that they are interoperable between generations.

For clients, another major advantage of u-blox systems is that they are interoperable between generations. As such, a motherboard compatible with a 2G/3G & GPS u-blox module in generation N will also be compatible with a 3G/4G & GPS/GLONASS u-blox module in generation N+1. This is a significant competitive advantage since it enables systems engineers not to have to rethink and redesign the electronics cards in order to evolve their systems but to just change the wireless and GNSS module.

Finally, the group's proximity with its clients is also a clear commercial asset.

Finally, the group's proximity with its clients is also a clear commercial asset. In an environment where only major clients count, u-blox is a supplier, which in view of its size, cannot allow itself to categorise its clients. As such, if clients such as CalAmp, Raymarine, Ingenico and Coagent can be categorised as small for a player such as Qualcomm (relative to Apple for example), they ultimately have access to more sales and technical resources at u-blox.

4. Our scenario

4.1. P&L: 30% average growth in 2015/18e EPS

In view of its practices, u-blox has built up genuine recognition within the industry. With high-quality products, client-focused sales practices and a spotlight on technological innovation**, we believe the group has all the keys necessary for continuing to grow above its market. Our model points to average 2015/18e sales growth of 23%** based on stable ASP thanks to favourable mix effect (like change in ASP over the past five years at u-blox).

We are also forecasting a slight margin widening (16% EBIT margin in 2018e vs. 15% in 2015). Indeed, we believe that the group should be capable of making the most of additional volumes, especially in terms of operating expenses, to gradually improve its margin rate.

Fig. 5: Forecast for average growth in 2015/18e EPS of 30%

[in CHFm]	2015	1H16e	2H16e	2016e	2017e	2018e	CAGR 15/18e
Sales	**338**	**194**	**210**	**405**	**501**	**635**	**23.4%**
Seq. growth	25%	10%	8%	20%	24%	27%	
Gross profit	**155**	**87**	**94**	**181**	**223**	**283**	
Gross margin	46%	45%	45%	45%	45%	45%	
R&D	-65	-36	-43	-75	-91	-111	
% of sales	-19%	-19%	-21%	-19%	-18%	-18%	
G&A	-14	-8	-10	-17	-21	-26	
% of sales	-4%	-4%	-5%	-4%	-4%	-4%	
S&M	-28	-16	-17	-33	-43	-52	
% of sales	-8%	-8%	-8%	-8%	-9%	-8%	
EBIT	**51**	**29**	**35**	**60**	**73**	**98**	**24.3%**
Operating margin	15%	15%	15%	15%	15%	16%	
Financial result	-4	0	1	0	2	4	
% of sales	-1%	0%	0%	0%	0%	1%	
Income Tax	-11	-7	-8	-14	-16	-22	
Income tax rate	-22%	-23%	-23%	-23%	-22%	-22%	
Net Profit	**37**	**22**	**24**	**47**	**59**	**81**	**29.5%**
Net margin	11%	12%	12%	12%	12%	13%	
Dil. EPS	**5.45**	**3.29**	**3.57**	**6.86**	**8.60**	**11.82**	**29.5%**
EPS seq. growth	8%	1%	8%	26%	25%	38%	

Source: Bryan, Garnier & Co ests.

4.2. The group aims to maintain a positive FCF

While the group aims to maximize R&D efforts, we note that u-blox focuses on maintaining a positive FCF. In our model, the cash generation is limited (FCF Yield 2016th 1.2%) but the group keeps a comfortable net cash position of EUR76m estimated for 2018e (2018e gearing of -20%).

Note that u-blox goal is to maximize R&D but always to maintain a positive FCF.

Fig. 6: Fragile cash generation…

[in CHFm]	2015	1H16e	2H16e	2016e	2017e	2018e	CAGR 15/18e
EBITDA	**76**	**43**	**46**	**89**	**110**	**138**	
Change in WCR	-5	-4	-4	-8	-11	-15	
Other	4	-7	-7	-14	-16	-22	
Cash flow from operating activities	75	32	36	68	83	100	
Capex	-43	-24	-26	-51	-63	-79	
Free Cash Flow	**32**	**8**	**9**	**17**	**20**	**21**	**-13.0%**
Acquisitions	0	0	0	0	0	0	
Other	10	0	0	0	0	0	
Cash flow used for investing activities	-33	-24	-26	-51	-63	-79	
Proceeds of LT & ST debt	60	0	0	0	0	0	
Repayment of LT & ST debt	-20	0	0	0	0	0	
Dividend payment	-11	-6	-6	-12	-15	-20	
Other	-16	0	0	0	0	0	
Cash flow from financing activities	34	-6	-6	-12	-15	-20	
Total Cash flow	75	2	3	6	5	1	
CTA (Cumulative translation adj.)	0	0	0	0	0	0	
Net increase in cash	75	2	3	6	5	1	
Cash at beginning of period	38	112	115	112	118	123	
Cash at end of period	**112**	**115**	**118**	**118**	**123**	**124**	**3.3%**

Source: Bryan, Garnier & Co ests.

Fig. 7: … but the group keeps a net cash position over the next three years

[in CHFm]	2015	1H16e	2H16e	2016e	2017e	2018e
Cash and cash equivalents	112	115	118	118	123	124
Trade accounts receivables	44	48	52	52	65	82
Inventories	37	41	45	45	55	70
Other	26	27	28	28	31	34
Total current assets	220	231	243	243	274	310
Property, plant and equipment	15	6	-4	-4	-28	-52
Goodwill	57	57	57	57	57	57
Other intangible assets	88	107	128	128	179	242
Other	8	8	8	8	8	8
Total non-current assets	167	177	189	189	215	255
Total assets	**387**	**409**	**431**	**431**	**488**	**565**
Trade accounts payables	24	27	29	29	36	45
Current borrowings	0	0	0	0	0	0
Provisions	0	0	0	0	0	0
Other	31	32	33	33	35	38
Current liabilities	55	59	62	62	71	83
Borrowings	59	59	59	59	59	59
Provisions	6	6	7	7	9	11
Net pension liability	12	13	15	15	18	23
Other	6	6	6	6	7	7
Non-current liabilities	83	85	87	87	92	100
Total equity	248	265	283	283	325	382
Total liabilities and Shareholders' equity	**387**	**409**	**431**	**431**	**488**	**565**

Source: Bryan, Garnier & Co ests.

5. Upside potential of 16%

We generally use at least two valuation methods. However, like Melexis, the specific profile of u-blox (midcap and fabless with outstanding growth) makes the composition of a representative sample irrelevant. As such, a peer comparison does not seem relevant.

Our Fair Value of CHF265 therefore stems from a DCF valuation and shows upside potential of 16% relative to the current share price. In view of 1/ the upside potential shown in our valuation and 2/ positive momentum that we expect for the share, we are adopting a Buy recommendation.

Our DCF valuation is based on the following assumptions:

- **Our base scenario, which includes estimates out to 2018e.** Like other semiconductors players that we cover, we have applied a cyclical growth scheme over the normalised period (from 2019e to 2024e). However, given u-blox' outstanding growth profile in recent years, we have not applied our usual method of reproducing the characteristics of the previous cycle in the normalised period. We have assumed a growth rate of 25.0% (equivalent to the average growth rate over the past five years) at the beginning of the normalised period, or 2019e, which seems more representative of coming years. We have then applied a linear reduction to this rate out to 2024e in order to reach our terminal growth rate of 3.0%. For the 2016/25e period, this scenario points to average growth of 17.5%.

- **We have assumed average underlying EBIT margin of 15.3% over 2016/25e**, i.e. the margin in our 2016/18e scenario and then a linear reduction in this margin in order to reach our long term margin of 14.7% (i.e. average EBIT margin of the past five years).

- **WCR moving in line with sales growth and maintained at a level of close to 7.5% of sales over the entire period,** i.e. equivalent to the historical five-year average at u-blox.

- **Capex equivalent to 11.5% of sales over the entire period,** i.e. equivalent to the historical five-year average at u-blox.

- **A corporate tax rate close to 23% corresponding to u-blox' normalised tax rate** given that the group's head offices are located in Thalwil in the canton of Zurich in Switzerland (or 8.5% of federal tax to which communal tax of 14.5% is added).

- **WACC of 10.0%**. We have applied beta of 1.2x, or similar to the level used in the valuation of ASML, Infineon and Melexis, a risk-free rate of 1.6% and a market risk premium of 7%. On closing in 2015, the group had net cash of CHF65m. Interest rates on borrowing are therefore not part of the WACC calculation.

Fig. 8: WACC of 10.0%

WACC	
European risk-free interest rate	1.6%
Equity risk premium	7.0%
Beta	1.2
Return expected on equity	**10.0%**
Interest rate on debt	2.5%
Market Capitalization (CHFm)	1,478
Net debt on 31/12/15 (CHFm)	**-65**
Entreprise value (CHFm)	1,413
WACC	**10.0%**

Source: Bryan, Garnier & Co. ests.

Fig. 9: DCF, FV of CHF265 or upside potential of 16%

in CHFm (FYE 31/12)	2016e	2017e	2018e	2019	2020	2021	2022	2023	2024	2025
Revenues	**405**	**501**	**635**	**794**	**968**	**1,149**	**1,328**	**1,493**	**1,632**	**1,733**
Change (%)	*19.6%*	*23.8%*	*26.9%*	*25.0%*	*21.9%*	*18.7%*	*15.6%*	*12.4%*	*9.3%*	*6.1%*
Adjusted EBIT	**60**	**73**	**98**	**127**	**154**	**181**	**208**	**231**	**251**	**264**
Adjusted operating margin	*14.8%*	*14.6%*	*15.5%*	*16.0%*	*15.9%*	*15.7%*	*15.6%*	*15.5%*	*15.4%*	*15.2%*
Tax	-14	-16	-22	-29	-35	-41	-47	-52	-56	-59
Tax rate	*22.5%*	*21.5%*	*21.5%*	*22.5%*	*22.5%*	*22.5%*	*22.5%*	*22.5%*	*22.5%*	*22.5%*
Net Operating income after tax	**46**	**57**	**76**	**98**	**119**	**140**	**161**	**179**	**194**	**205**
Capex, net	-51	-63	-79	-91	-111	-132	-153	-172	-188	-199
As a % of sales	*12.5%*	*12.5%*	*12.5%*	*11.5%*	*11.5%*	*11.5%*	*11.5%*	*11.5%*	*11.5%*	*11.5%*
Depreciation & amortisation	29	37	39	91	111	132	153	172	188	199
As a % of sales	*7.2%*	*7.3%*	*6.2%*	*11.5%*	*11.5%*	*11.5%*	*11.5%*	*11.5%*	*11.5%*	*11.5%*
WCR	24	35	51	60	73	86	100	112	122	130
As a % of sales	*6.0%*	*7.0%*	*8.0%*	*7.5%*	*7.5%*	*7.5%*	*7.5%*	*7.5%*	*7.5%*	*7.5%*
Change in working capital	-8	-11	-15	-9	-13	-14	-13	-12	-10	-8
Free cash flows	**17**	**20**	**21**	**90**	**106**	**127**	**147**	**167**	**184**	**197**
Discounted free cash flows	**17**	**17**	**17**	**65**	**70**	**76**	**80**	**83**	**83**	**81**

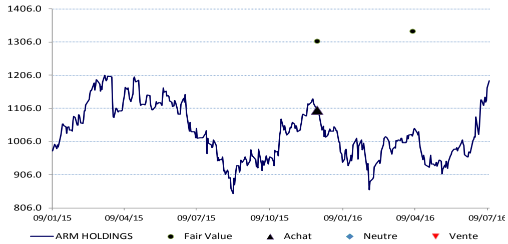
Total discounted FCF - 2016e-2025e	588
Discounted Terminal value - 2026e+	1,149
Enterprise value	**1,737**
- Net debt on 31/12/2016e	-70
Equity value	**1,808**
Nbr of diluted shares (m)	6.810
Valuation per share (CHF)	**265**
Upside vs. current share price	16%

		WACC				
	[in CHF]	9.0%	9.5%	10.0%	10.5%	11.0%
Op. margin	13%	283	259	238	220	204
	14%	301	274	252	232	215
	15%	318	289	**265**	245	227
	16%	335	305	279	257	238
	17%	352	320	293	270	249

Source: Bryan, Garnier & Co.

Price Chart and Rating History

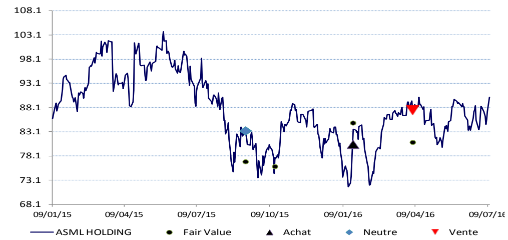
ARM Holdings



Ratings Date	Ratings	Price
18/07/16	Tender to the offer	1189p
07/12/15	BUY	1310p

Target Price Date	Target price
05/04/16	1340p
07/12/15	1310p

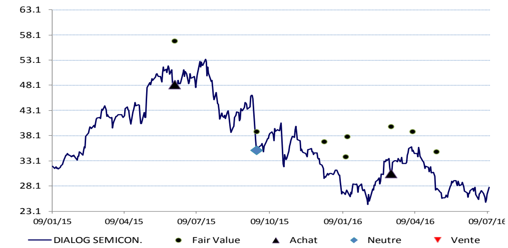
ASML



Ratings Date	Ratings	Price
05/04/16	SELL	EUR9.49
21/01/16	BUY	EUR73.8
08/09/15	NEUTRAL	EUR82.88

Target Price Date	Target price
05/04/16	EUR81
21/01/16	EUR85
15/10/15	EUR76
08/09/15	EUR77

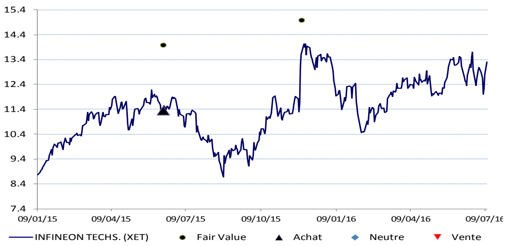
DIALOG SEMICONDUCTORS



Ratings Date	Ratings	Price
09/03/16	BUY	EUR31.93
22/09/15	NEUTRAL	EUR37.38
11/06/15	BUY	EUR48598

Target Price Date	Target price
05/05/16	EUR35
05/04/16	EUR39
09/03/16	EUR40
14/01/16	EUR38
12/01/16	EUR34
16/12/15	EUR37
15/12/15	Under review
22/09/15	EUR39
11/06/15	EUR57

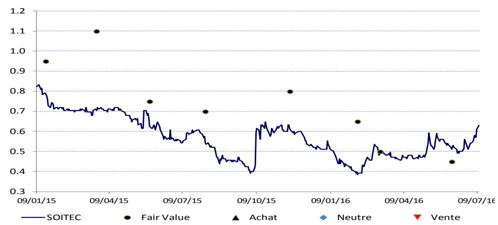
INFINEON



Ratings Date	Ratings	Price
11/06/15	BUY	EUR48.598

Target Price Date	Target price
27/11/15	EUR15
11/06/15	EUR14

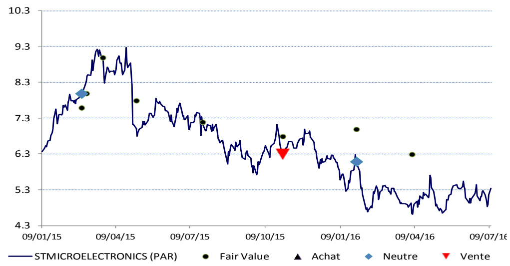
SOITEC



Ratings Date	Ratings	Price
23/12/14	NEUTRAL	EUR0.96
22/12/14	Under review	EUR2.11
12/11/14	BUY	EUR1.93

Target Price Date	Target price
07/06/16	EUR0.45
10/03/16	EUR0.5
11/02/16	EUR0.65
19/11/15	EUR0.8
06/08/15	EUR0.7
29/05/15	EUR0.75
24/03/15	EUR1.1
20/01/15	EUR0.95
23/12/14	EUR0.85
22/12/14	Under review
12/11/14	EUR2.6

STMicroelectronics



Ratings Date	Ratings	Price
28/01/16	NEUTRAL	EUR6.28
30/10/15	SELL	EUR6.2
26/02/15	NEUTRAL	EUR7.86

Target Price Date	Target price
05/04/16	EUR6.3
28/01/16	EUR7
30/10/15	EUR6.8
24/07/15	EUR7.2
04/05/15	EUR7.8
24/03/15	EUR9
04/03/15	EUR8
26/02/15	EUR7.6

Please see the section headed "Important information" on the back page of this report.

Bryan Garnier stock rating system

For the purposes of this Report, the Bryan Garnier stock rating system is defined as follows:

Stock rating

BUY Positive opinion for a stock where we expect a favourable performance in absolute terms over a period of 6 months from the publication of a recommendation. This opinion is based not only on the FV (the potential upside based on valuation), but also takes into account a number of elements that could include a SWOT analysis, momentum, technical aspects or the sector backdrop. Every subsequent published update on the stock will feature an introduction outlining the key reasons behind the opinion.

NEUTRAL Opinion recommending not to trade in a stock short-term, neither as a BUYER or a SELLER, due to a specific set of factors. This view is intended to be temporary. It may reflect different situations, but in particular those where a fair value shows no significant potential or where an upcoming binary event constitutes a high-risk that is difficult to quantify. Every subsequent published update on the stock will feature an introduction outlining the key reasons behind the opinion.

SELL Negative opinion for a stock where we expect an unfavourable performance in absolute terms over a period of 6 months from the publication of a recommendation. This opinion is based not only on the FV (the potential downside based on valuation), but also takes into account a number of elements that could include a SWOT analysis, momentum, technical aspects or the sector backdrop. Every subsequent published update on the stock will feature an introduction outlining the key reasons behind the opinion.

Distribution of stock ratings

BUY ratings 55.8% NEUTRAL ratings 34% SELL ratings 10.2%

Research Disclosure Legend

1	Bryan Garnier shareholding in Issuer	Bryan Garnier & Co Limited or another company in its group (together, the "Bryan Garnier Group") has a shareholding that, individually or combined, exceeds 5% of the paid up and issued share capital of a company that is the subject of this Report (the "Issuer").	No
2	Issuer shareholding in Bryan Garnier	The Issuer has a shareholding that exceeds 5% of the paid up and issued share capital of one or more members of the Bryan Garnier Group.	No
3	Financial interest	A member of the Bryan Garnier Group holds one or more financial interests in relation to the Issuer which are significant in relation to this report	No
4	Market maker or liquidity provider	A member of the Bryan Garnier Group is a market maker or liquidity provider in the securities of the Issuer or in any related derivatives.	No
5	Lead/co-lead manager	In the past twelve months, a member of the Bryan Garnier Group has been lead manager or co-lead manager of one or more publicly disclosed offers of securities of the Issuer or in any related derivatives.	No
6	Investment banking agreement	A member of the Bryan Garnier Group is or has in the past twelve months been party to an agreement with the Issuer relating to the provision of investment banking services, or has in that period received payment or been promised payment in respect of such services.	No
7	Research agreement	A member of the Bryan Garnier Group is party to an agreement with the Issuer relating to the production of this Report.	No
8	Analyst receipt or purchase of shares in Issuer	The investment analyst or another person involved in the preparation of this Report has received or purchased shares of the Issuer prior to a public offering of those shares.	No
9	Remuneration of analyst	The remuneration of the investment analyst or other persons involved in the preparation of this Report is tied to investment banking transactions performed by the Bryan Garnier Group.	No
10	Corporate finance client	In the past twelve months a member of the Bryan Garnier Group has been remunerated for providing corporate finance services to the issuer or may expect to receive or intend to seek remuneration for corporate finance services from the Issuer in the next six months.	No
11	Analyst has short position	The investment analyst or another person involved in the preparation of this Report has a short position in the securities or derivatives of the Issuer.	No
12	Analyst has long position	The investment analyst or another person involved in the preparation of this Report has a long position in the securities or derivatives of the Issuer.	No
13	Bryan Garnier executive is an officer	A partner, director, officer, employee or agent of the Bryan Garnier Group, or a member of such person's household, is a partner, director, officer or an employee of, or adviser to, the Issuer or one of its parents or subsidiaries. The name of such person or persons is disclosed above.	No
14	Analyst disclosure	The analyst hereby certifies that neither the views expressed in the research, nor the timing of the publication of the research has been influenced by any knowledge of clients positions and that the views expressed in the report accurately reflect his/her personal views about the investment and issuer to which the report relates and that no part of his/her remuneration was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in the report.	Yes
15	Other disclosures	Other specific disclosures: Report sent to Issuer to verify factual accuracy (with the recommendation/rating, price target/spread and summary of conclusions removed).	No

A copy of the Bryan Garnier & Co Limited conflicts policy in relation to the production of research is available at www.bryangarnier.com

BRYAN, GARNIER & CO

London
Beaufort House
15 St. Botolph Street
London EC3A 7BB
Tel: +44 (0) 207 332 2500
Fax: +44 (0) 207 332 2559
Authorised and regulated by the Financial Conduct Authority (FCA)

Paris
26 Avenue des Champs Elysées
75008 Paris
Tel: +33 (0) 1 56 68 75 00
Fax: +33 (0) 1 56 68 75 01
Regulated by the Financial Conduct Authority (FCA) and the Autorité de Contrôle prudential et de resolution (ACPR)

New York
750 Lexington Avenue
New York, NY 10022
Tel: +1 (0) 212 337 7000
Fax: +1 (0) 212 337 7002
FINRA and SIPC member

Munich
Widenmayerstrasse 29
80538 Munich
Germany
+49 89 2422 62 11

New Delhi
The Imperial Hotel Janpath
New Delhi 110 001
Tel +91 11 4132 6062
+91 98 1111 5119
Fax +91 11 2621 9062

Geneva
rue de Grenus 7
CP 2113
Genève 1, CH 1211
Tel +4122 731 3263
Fax+4122731 3243
Regulated by the FINMA

INDEPENDENT RESEARCH

24th August 2016

ams

Catching the ball when it bounces - all a question of timing

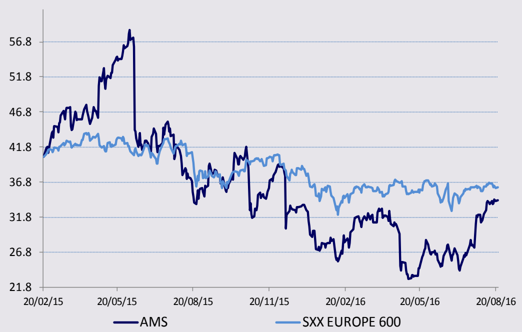
TMT

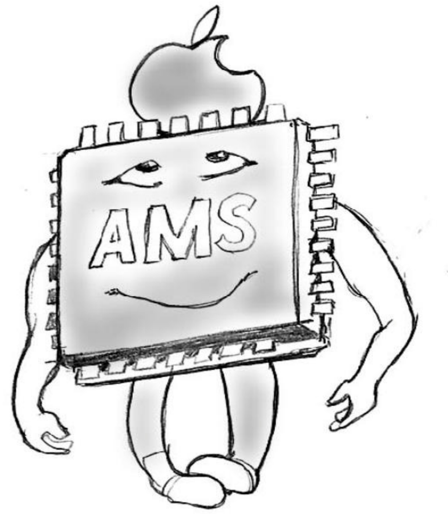
Fair Value CHF29 (price CHF34.20) **NEUTRAL**

Coverage initiated

Bloomberg	AMS SW
Reuters	AMS.S
12-month High / Low (CHF)	41.9 / 23.0
Market capitalisation (CHFm)	2,511
Enterprise Value (BG estimates CHFm)	2,711
Avg. 6m daily volume ('000 shares)	427.8
Free Float	68.6%
3y EPS CAGR	9.4%
Gearing (12/15)	19%
Dividend yields (12/16e)	1.50%

YE December	12/15	12/16e	12/17e	12/18e
Revenue (EURm)	623.10	582.48	688.19	826.67
EBITA EURm)	147.3	86.9	154.8	219.1
Op.Margin (%)	23.6	14.9	22.5	26.5
Diluted EPS (EUR)	2.08	1.14	1.94	2.73
EV/Sales	3.91x	4.27x	3.37x	2.62x
EV/EBITDA	12.5x	17.0x	10.9x	7.9x
EV/EBITA	16.5x	28.6x	15.0x	9.9x
P/E	15.1x	27.6x	16.2x	11.5x
ROCE	17.0	9.4	16.1	21.5





For ams, 2016 is likely to see a positive upswing in growth momentum. After a difficult H1 (sales down 17.5% yoy), the group is set to restore growth as of H2 while innovation should lead to high growth potential (>15-20%) as of 2017. However, this improvement in momentum already looks fully valued. We advise waiting for a more attractive entry point and are adopting a Neutral recommendation on the share.

- **Return to growth as of H2 2016.** For Q3, the group is forecasting sales of between EUR146 and 153m, or sequential growth of 10-16%, which looks feasible to us (we are forecasting Q3 2016e sales of EUR153m). In addition, we remain confident in the group's ability to generate growth in H2 2016 sales relative to H1 and the previous year (our forecast is for +5.4% yoy). Indeed, ams should benefit from both advantageous comparison with the year-earlier period and positive seasonal factors with the usual recovery in momentum at the end of the year.

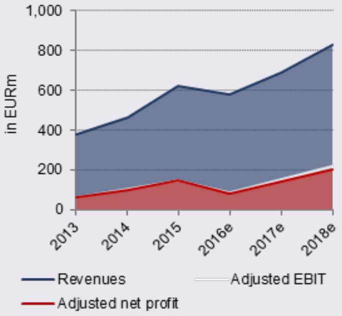
- **Environmental, colour and optical sensors to drive growth as of 2017.** In the product portfolio, three components should restore healthy momentum at ams as of 2017: 1/ True Tone sensors (improvement in autonomy and reading comfort for smartphone screens, 2/ optical sensors (enabling connected bracelets/watches to read heart-beats, blood pressure, cholesterol levels and alcohol levels) and 3/ environmental sensors (temperature, humidity, pressure and quality of air, for the automotive, industry and consumer sectors). In all, we believe that these three components should represent additional sales of almost EUR131m by 2018, bringing the group closer to its target for EUR1bn in sales by 2019e.

- **Fully valued.** The share is currently trading on a 2016e P/E multiple of 27.5x (vs peers of 23.5x), and PEG of 2.9x. As such, despite we anticipate a positive change in the group's momentum, we do not consider the current share price a particularly attractive entry point. In view of the share's high volatility, we advise waiting for a better opportunity.

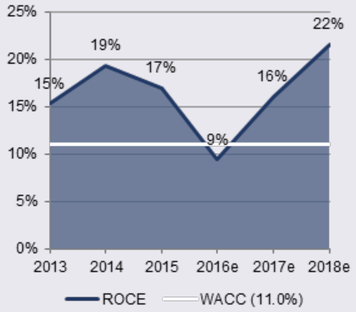
Analyst:
Dorian Terral
33(0) 1.56.68.75.92
dterral@bryangarnier.com

Sector Analyst Team:
Richard-Maxime Beaudoux
Thomas Coudry
Gregory Ramirez

P&L structure



ROCE vs. WACC



Company description

ams AG is an Austrian manufacturer of semiconductors for consumer, medical, industrial and automotive applications. The group is specialized in the production of sensors (light, microphone, ...) as well as more specific components such as integrated NFC solutions or ICs dedicated to noise reduction.

Simplified Profit & Loss Account (EURm)	**31/12/13**	**31/12/14**	**31/12/15**	**31/12/16e**	**31/12/17e**	**31/12/18e**
Revenues	378	464	623	582	688	827
Change (%)	*-2.5%*	*22.9%*	*34.2%*	*-6.5%*	*18.1%*	*20.1%*
Adjusted EBITDA	99.0	143	195	146	213	276
Adjusted EBIT	63.9	105	147	86.9	155	219
EBIT	63.9	105	147	86.9	155	219
Change (%)	*-24.7%*	*65.0%*	*39.8%*	*-41.0%*	*78.2%*	*41.5%*
Financial results	(0.47)	(1.2)	11.7	1.9	6.9	8.3
Pre-Tax profits	63.4	104	159	88.8	162	227
Tax	(2.6)	(6.6)	(10.3)	(5.2)	(19.4)	(27.3)
Net profit	60.8	97.5	149	83.6	142	200
Adjusted net profit	60.8	97.5	149	83.6	142	200
Change (%)	*-25.6%*	*60.4%*	*52.4%*	*-43.8%*	*70.2%*	*40.6%*
Cash Flow Statement (EURm)						
Depreciation & amortisation	35.2	37.3	47.9	59.2	58.2	56.6
Change in working capital	0.04	(11.0)	(22.0)	(66.9)	(5.8)	(28.6)
Operating cash flows	100	130	153	75.4	217	258
Capex, net	(46.5)	(70.1)	(79.8)	(79.2)	(61.9)	(74.4)
Free Cash flow	53.7	60.1	73.1	(3.9)	155	184
Acquisition, net	0.0	0.0	(202)	32.2	32.7	0.0
Financial investments, net	(0.35)	(38.8)	(5.9)	5.6	0.0	0.0
Dividends	(19.4)	(14.1)	(22.8)	(34.6)	(18.9)	(32.2)
Issuance (repurchase) of own shares	4.8	(6.3)	(15.5)	(42.9)	0.0	0.0
Issuance (repayment) of debt	(23.3)	120	62.6	68.4	0.0	0.0
Other	22.8	(120)	(66.4)	(77.6)	0.0	0.0
Net debt	(44.2)	(45.0)	131	184	15.1	(137)
Balance Sheet (EURm)						
Tangible fixed assets	145	204	257	280	284	302
Intangibles assets & goodwill	243	316	582	575	542	542
Investments	5.1	6.5	1.9	2.0	2.0	2.0
Deferred tax assets	33.3	34.1	34.8	34.8	34.8	34.8
Other non-current assets	7.1	7.7	7.0	7.6	7.6	7.6
Cash & equivalents	104	230	144	162	330	482
Inventories	40.5	59.9	79.8	99.3	105	127
Current assets	74.3	97.3	117	155	162	188
Total assets	653	955	1,223	1,315	1,469	1,685
Shareholders' equity	445	556	681	688	833	1,031
Provisions	69.6	91.8	67.2	69.3	71.8	80.5
Deferred tax liabilities	13.6	20.8	104	102	102	102
Current liabilities	65.0	102	95.6	111	116	125
L & ST Debt	60.1	185	275	346	346	346
Total Liabilities	653	955	1,223	1,315	1,469	1,685
Capital employed	400	511	812	872	848	895
Ratios						
Gross margin	52.41	54.53	54.44	53.40	55.50	57.00
Adjusted operating margin	16.90	22.69	23.63	14.91	22.50	26.50
Tax rate	4.06	6.31	6.45	5.85	12.00	12.00
Adjusted Net margin	16.10	21.00	23.86	14.36	20.68	24.20
ROE (after tax)	13.67	17.55	21.82	12.16	17.08	19.40
ROCE (after tax)	15.30	19.33	16.96	9.38	16.06	21.55
Gearing	(9.95)	(8.10)	19.27	26.76	1.81	(13.25)
Pay out ratio	6.13	13.89	14.38	41.35	13.31	16.11
Number of shares, diluted	69.96	71.01	73.41	73.41	73.41	73.41
Data per Share (EUR)						
EPS	4.52	1.43	2.16	1.14	1.94	2.73
Restated EPS	4.35	1.37	2.08	1.14	1.94	2.73
% change	*-28.2%*	*-68.5%*	*51.8%*	*-45.2%*	*70.2%*	*40.6%*
BVPS	6.36	7.83	9.28	9.37	11.35	14.05
Operating cash flows	1.43	1.83	2.08	1.03	2.96	3.52
FCF	0.77	0.85	1.00	(0.05)	2.11	2.51
Net dividend	0.28	0.20	0.31	0.47	0.26	0.44

Source: Company Data; Bryan, Garnier & Co ests.

Table of contents

1. Investment Case

Why the interest now?

The reason for writing now

During the first half of 2016, ams suffered from demanding comparison with H1 2015, which was boosted by Apple. **Comparison is set to become more advantageous as of H2 2016 and momentum should genuinely pick up as of 2017, thanks in particular to new products including colour and environmental sensors and more marginally, optical sensors. However, we believe that the share's current valuation is not an attractive entry point** (our CHF30 FV shows 12% downside risk) and advise waiting for a temporary downturn in the share price.

Cheap or Expensive?

Valuation

Our CHF29 Fair Value stems from the average between a peer comparison (FV CHF29) and a DCF valuation (FV CHF29 with WACC of 11.0%). On the basis of our estimates, **the share is trading on 2016 P/E of 27.5x and PEG of 2.9x.**

When will I start making money?

Catalysts

Like Dialog, **ams is highly exposed to the consumer electronics sector** (generally around 65% of sales) and especially smartphones. Although the segment is currently suffering a slowdown in growth, we expect momentum to pick up on a qoq basis primarily in view of the production start for the next iPhone and the increase in production volumes for the year-end festivities for all OEMs. Over the medium term, the group's strengthened portfolio should provide a source of growth, visible as of 2017e.

What's the value added?

Difference from consensus

The consensus is factoring in average sales growth of 8.4% over 2016/2018e (vs. a 2013-15 CAGR of +17%). We are forecasting better top-line momentum, or average growth of 9.9% over the next three years. This is also found in our EPS growth estimates which work out to 9.4% (CS ests. +5.0%).

Could I lose money?

Risks to our investment case

ams is active in a market environment particularly sensitive to **macro-economic momentum**, and this could have a negative or positive impact on our estimates. Furthermore, the group is highly exposed to the consumer segment (around 65% of sales), which is **particularly volatile and competitive** such that our estimates can be positively or negatively affected by factors independent of the group's performances.

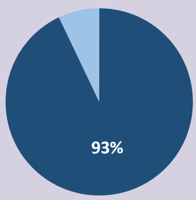
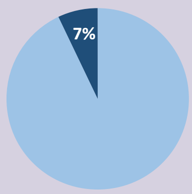
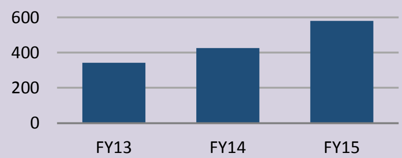
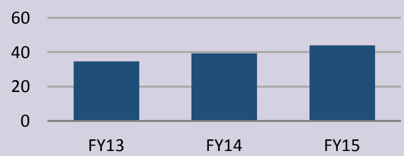
2. Snapshot of the group

ams AG is an Austrian group specialised in analogue sensor production.

The group is particularly well known for its light sensors used in smartphones or its very upscale photographic sensors.

ams AG is an Austrian group specialised in analogue sensor production. The group targets a wide range of applications including **consumer** electronic devices (Internet of Things, smartphones and IT), which usually represent around **65% of sales** (BG ests.), the **industrial (BG ests. ~15% of sales)**, **medical (BG ests. ~10% of sales)** and **automotive sectors (BG ests. ~10% of sales)**. The group focuses primarily on production of CMOS-style sensors (around 75% of sales), namely those using design/manufacturing procedures similar to those used for digital chips. ams is particularly well known for its light sensors used in smartphones or its very upscale photographic sensors. The remaining sales are generated by other components such as connectivity chips. Finally, ams also has a foundry services business. Since the group is an IDM, it makes available its unused capacity and its expertise for other industry players. This activity remains a minority for the group representing around 7% of 2015 sales.

Fig. 1: A specialist in CMOS sensors

	Products	Foundry services
% of sales		
Revenue momentum	CAGR 2012/2015: +17% 	CAGR 2012/2015: +16% 
Key products	- Ambient Light sensors - Environmental sensors - NFC Booster - Wireless connectivity	- Specialty analog foundry services - Focus on "More than Silicon" production - Medical and Automotive certified production
Key customers (examples)	- Apple - Samsung - Huawei - Lenovo	- Sarda Technologies - Other fabless companies
Key catalysts	- New design win in high volume device - Technology innovations	- New contract with Fabless - High volume manufacturing
Strong sensitivity to	- Macro economic conditions - Main customer traction - Customer's product success	- Macro economic conditions - Fabless demand - Technology portfolio and innovations
Competitors	- STMicroelectronics - NXP - Broadcom - ROHM Semiconductor - Intersil	- X-Fab - Qorvo (TriQuint) - TowerJazz - VIS

Source: Bryan, Garnier & Co ests.

3. Improving fundamentals

ams has long managed to make the most of the impressive growth enjoyed in the smartphones market but the group has suffered recently from the slowdown in smartphone sales and the share has been harshly penalised by the market

ams has long managed to make the most of the impressive growth enjoyed in the smartphones market. The group has managed to innovate and offer components that are now indispensable for these devices, especially light sensors. Thanks to its expertise in the design of CMOS sensors, ams has developed sensors that are reliable, energy saving, small (very important given that a large number of sensors need to be included in ever-slimmer phones) and affordable (average price of USD0.50 for light sensors for example).

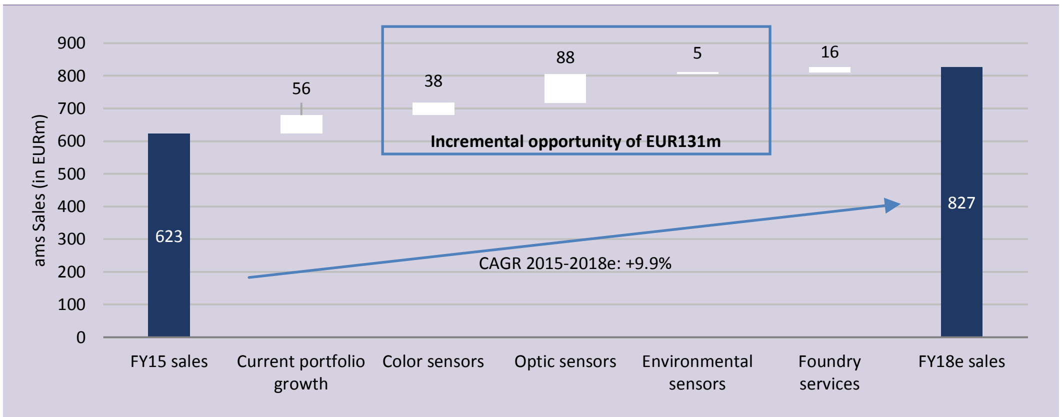
Like Dialog (Buy, FV EUR37), ams has suffered recently from the slowdown in smartphone sales and the share has been harshly penalised by the market (-41% since peak level of CHF58.45 reached in June 2015). The market is now waiting for new catalysts and we believe that ams has all the right ingredients in place for a rebound.

- **The smartphone sensors market is not dead:** on the basis of average growth of 0.6% in the mobiles market (including Feature-Phones and smartphones excluding tablets) between 2015 and 2018e, Yole Développement is forecasting **average growth in the sensors market of 10.3%, driven by 1/ an increase in the number of sensors per device** (volumes up 7.4% over 2015-2018e) and **2/ a higher average unit price prompted by sensors** (ASP up 2.7% over 2015-2018e on the back of a mix effect, with an average unit decline in sensor prices of 4%). We believe that ams is capable of generating average growth of 3% a year in its current product portfolio (including innovations in development for existing products).

- **ams should benefit from the extension in its product portfolio:** in our view, the group's current R&D programmes and the acquisition in June 2016 of CCMOSS (Cambridge CMOS Sensors) offer attractive prospects that are not currently reflected group's momentum. We also expect a year of transition in 2016, but believe that these new products could create additional opportunities visible in the group's sales as of 2017.

Nevertheless, the smartphone sensors market is not dead and ams should benefit from the extension in its product portfolio.

Fig. 2: Growth boosted by new applications



Source: Bryan, Garnier & Co. ests.

In all, our scenario shows average sales growth of 9.9% over 2015-2018e.

3.1. New opportunities to activate as of 2017

The group currently boasts a comfortable positioning in large volume devices. For example, ams' light sensors are found in smartphones, tablets and Apple and Samsung smartwatches. For these two players, we estimate the group delivers premium products with an ASP of around USD0.60. For these components, the group bills its "through-silicon-via" technology, which helps reduce the thickness of the component and ease its integration, especially for devices such as the smartwatch. In 2015, we estimate that revenues derived from sales to Apple were close to EUR125m (around 230m units at an average selling price of USD0.60), or around 20% of the group's total sales. Concerning Samsung, we believe that sales are close to EUR60m (around 110m units at an SAP of USD0.60).

Beyond these two tier 1 players, the group's other clients remain diversified since the aggregate of the top 10 group clients represents around 50% of sales. As an example, ams has been selected by other Asian players such as Huawei and Lenovo. However, we estimate the products delivered to these Asian OEMs have a lower ASP of closer to USD0.50.

Since the disappearance of ams' NFC booster in iPhones (iPhone 6 and 6 Plus), ams is only present in large volume devices via its light sensors. However, we have identified in its product portfolio and R&D programmes, technologies which have a high chance of being adopted almost systematically in consumer equipment.

Fig. 3: **New ams products: EUR134m in sales out to 2018e**

[in EURm]		2018e
Color (RGB) sensors	Volumes (in million)	123
	ASP (in USD)	0.78
	Market share	45%
	Incremental revenues (in EURm)	**38**
Optical (Bio) sensors	Volumes (in million)	115
	ASP (in USD)	1.24
	Market share	70%
	Incremental revenues (in EURm)	**88**
Environmental sensors	Volumes (in million)	79
	ASP (in USD)	0.20
	Market share	35%
	Incremental revenues (in EURm)	**5**
Total of incremental opportunities		**131**

Sources: Yole Développement ; Bryan, Garnier & Co ests.

- **Among the technologies we have identified are colour sensors (RGB/True Color)**, which help improve consumption and comfort of smartphone screens. These components fit perfectly with the technological development of smartphones and tablets. **Indeed, it is this type of component that is currently embedded on the iPad Pro for its True Tone function.** According to Apple, "[…] the new iPad Pro 9.7-inch screen is equipped with True Tone technology. Thanks to four channel ambient light sensors, it automatically adapts the screen's colour and intensity to the surrounding level of clarity". Since iPads generally integrate iPhone functionalities upstream, it is highly likely that this technology will be adopted by at least one high volume device in the near future. As such, on the basis of a 2018e ASP of USD0.78 for this type of sensor and volumes of slightly more than 120m units (source Yole Développement), 45% of which captured by ams (bearing in mind that the main rivals are Intesil and Maxim), **we value the opportunity at almost EUR38m for ams**.

- **Beyond improved light sensors, the group is currently extending its portfolio with new optical sensors.** ams currently offers a module (AS7000) capable of measuring precisely certain variables such as heart beat, body temperature and electrodermal activity (stress, intense effort etc.). Whereas fitness bands are continuing to penetrate the market, their usage and reliability remains limited by the number and type of sensor available. By extending its portfolio of sensors, ams is providing itself the means to 1/ strengthen its positions in this high-growth segment (78m units, +172% in 2015 according to ICD), 2/ distance its rivals in technological terms, and 3/ increase its revenues by extending its total addressable market (TAM). Based on ASP of USD1.24 and volumes close to 60m units by 2018 (source Yole Développement), 70% of which captured by ams (the only competitor currently on this type of sensor is Maxim), **we estimate that these new sensors should provide an additional EUR88m for the group by 2018.**

- **Finally, we believe the group should soon benefit from its environmental sensors, especially gas sensors.** By associating metallic oxide gas sensors already present in ams' portfolio and the recently acquired technologies of Cambridge CMOS Sensors, the group has all the elements necessary to create a new type of gas sensor capable of detecting carbon monoxide, nitrogen oxide and the quantity of volatile organic components in the air. This environmental sensor market is virtually non-existent today, although we have identified high demand for this type of component especially from the auto sector where the sensors could provide very precise and real-time readings of vehicle pollution. In the industrial sector, applications are also numerous, from measuring the quality of air in a white room to control and safety devices in plants using toxic gases. In the consumer segment, these sensors could also find a place in specific equipment (domestic weather stations, connected thermostats etc.) or in mobile devices, especially connected bracelets and watches in order to add additional information to health data collected by this equipment. **Note nevertheless that these sensors are sold at far lower prices than the group's two other sensors, since their ASP is likely to be close to USD0.20 in 2018e, or an incremental opportunity of EUR5m for ams based on 79m units sold in 2018 (source Yole Développement) with 35% captured by ams.**

3.2. CMOSIS, a long-term future growth source

CMOSIS has developed very high quality sensors enabling it to win markets with the largest names in the image industry, in particular the prestigious group Leica.

Nevertheless, in our view, this acquisition should pay off, but only over the medium term.

ams acquired CMOSIS in 2015 in an operation aimed primarily at stepping up the acquisition of expertise in the image sensors field. **This small Belgian company with 40 employees has developed very high quality sensors enabling it to win markets with the largest names in the image industry, in particular the prestigious group Leica.** In our view, this acquisition should pay off, but only over the medium term.

Image sensors are a fairly dense market, so much so that it needs to be segmented itself in terms of sensor quality and complexity. In all, the market is worth USD10.35bn (source Yole Développement, May 2016), bearing in mind that smartphones account for two-thirds of the market (USD6.7bn for four billion units) and that growth in the segment should remain significant.

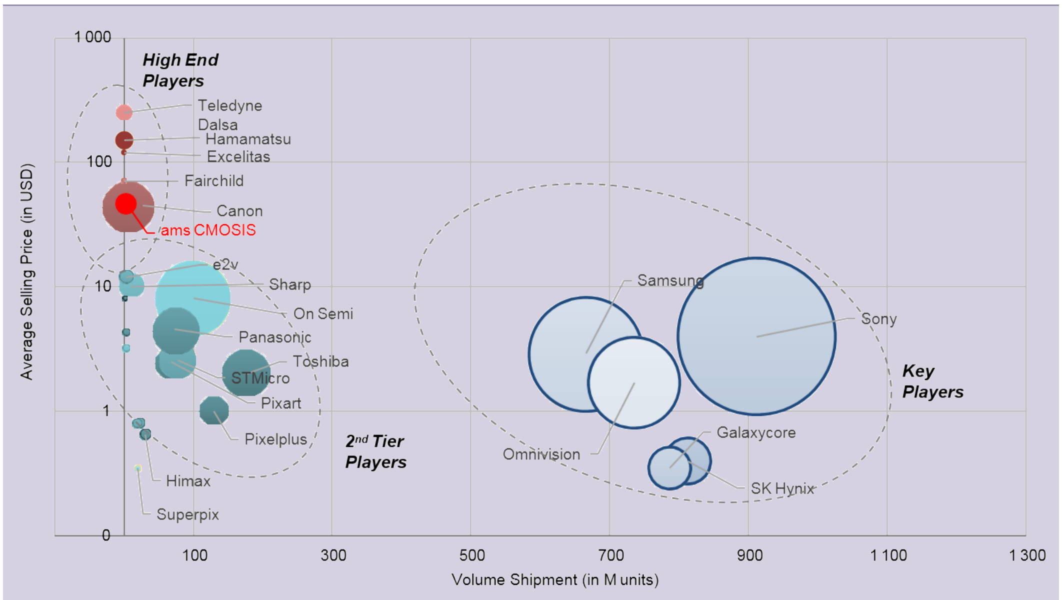
Fig. 4: Growth of 10% in the image sensors market

[in USDm]	2014	2015	CAGR 2015-2021
Mobile	5,908	6,665	+12%
Consumer	1,611	1,401	+1%
Computing	1,187	1,052	-3%
Automotive	279	537	+23%
Medical	29	34	+15%
Security	140	388	+11%
Industrial / Space / Defense	146	271	+10%
Total	**9,300**	**10,348**	**+10.4%**

Sources: Yole Développement; Bryan, Garnier & Co ests.

The acquisition of CMOSIS means ams can focus solely on niche markets and especially very upscale sensors. **It does not compete with high volume manufacturers such as Sony and Samsung but with specialists such as Canon, Fairchild and Teledyne in niche markets.** CMOSIS' sensors are therefore not found in smartphones but more in very high-end cameras or professional equipment. For example, CMOSIS sensors are used for medical research and endoscopic cameras.

Fig. 5: ams focuses on sensors sold for more than USD50



Sources: Yole Développement; Bryan, Garnier & Co ests.

With the acquisition of CMOSIS, we believe ams' strategy is to associate the two groups' expertise and to create new generations of image sensors.

With the acquisition of CMOSIS, we believe ams' strategy is to associate the two groups' expertise and to create new generations of image sensors. In particular, we expect the emergence of very small and very high speed sensors (>50 images a second) destined to equip autonomous vehicles, industrial robots and medical devices. Market analysis company Yole Développement estimates the auto segment could become the second-largest image sensor consumer after smartphones, as of 2017. This represents high growth that would lead to all vehicles embedding USD100-200 worth of image sensors by 2020 (up to four per vehicle).

If the group manages to 1/ merge the two groups' R&D expertise in CMOS sensors and 2/ leverage its know-how in terms of production, **we believe ams will have all the right ingredients at hand to develop image sensors that are specific to the auto, industrial and medical sectors.**

Logic is high for these products to become a core part of ADAS systems. The technologies developed for CMOSIS sensors could significantly improve the performance of driver assistance systems (better reactivity) whereas the group's expertise in miniaturisation could also provide a considerable advantage in terms of integrating these models into the vehicle or industrial robots design. In addition, with a small form factor, these sensors should also see a strong momentum for medical applications such as devices such as endoscopes.

So far no announcements have been made concerning these products and although their existence makes sense, we have included no revenues from these sensors in our estimates. However, they provide a fairly clear idea of the group's potential beyond the prospects identified for 2017/2018e (see previous section) and provide the group an attractive source of diversification within the auto, industrial and medial sectors which is currently driving growth in the industry.

4. Our scenario

4.1. P&L: 9% average EPS growth over 2015/18e

Our model shows a change in growth in 2016. We believe the group is going through a year of transition before restoring better momentum as of 2017. As such, despite the decline expected during 2016, we estimate average sales growth over 2015/18e of 9%.

Our model shows a change in growth in 2016. In addition, we expect margins to improve after hitting a low point in 2016e

In addition, we expect margins to improve after hitting a low point in 2016e (15% EBIT margin in 2016e vs. 24% in 2015), primarily on the back of higher volumes as of 2017 while 2016 remains penalized by low volumes. Indeed, since ams is not a fabless player, it needs to fill its plants in order to enable them to generate comfortable margins, without which the group suffers from high fixed costs.

We would also point out that among the three IDMs we cover (ams, Infineon and STMicroelectronics), ams is the one that manages to generate the highest EBIT margin, ahead of Infineon (around 15%).

Fig. 6: ams generates the highest EBIT margin among IDM in our coverage

Operating margin per company	2013	2014	2015	2016e	2017e	2018e
Infineon	9.8%	14.4%	15.5%	15.9%	17.1%	18.0%
STMicroelectronics	-5.1%	-5.1%	-5.1%	-5.1%	-5.1%	-5.1%
ams	**16.9%**	**22.7%**	**23.6%**	**14.9%**	**22.5%**	**26.5%**

Source: Bryan, Garnier & Co ests.

In the shorter term, we expect a return to growth as of H2 2016. The group should benefit from market share gains with the start of a new growth cycle and therefore develop positively in a difficult environment. For Q3, we expect sequential growth at the high end of the group's guidance namely of 15.3% and a gross margin of 53.1%, which is 30bp lower than the margin gross reached in Q2 2016. Overall, our sales estimates for 2016 (-7% sales growth) and BPA (BPA 2016e BG ests. EUR1.14) are lower than consensus (CS ests 2016e sales -4.6%, 2016e EPS: EUR1.36).

Fig. 7: Average EPS growth estimate for 2015/18e of 9%

[in EURm]	2015	1Q16	2Q16	3Q16e	4Q16e	2016e	2017e	2018e	CAGR 15/18e
Sales	**623**	**137**	**132**	**153**	**160**	**582**	**688**	**827**	**9.9%**
Seq. growth	34%	-7%	-4%	15%	5%	-7%	18%	20%	
Gross profit	**339**	**74**	**71**	**81**	**85**	**311**	**382**	**471**	
Gross margin	54%	54%	53%	53%	53%	53%	56%	57%	
R&D	-108	-33	-32	-37	-37	-139	-134	-145	
% of sales	-17%	-24%	-24%	-24%	-23%	-24%	-20%	-18%	
G&A	-94	-24	-25	-23	-24	-96	-100	-116	
% of sales	-15%	-17%	-19%	-15%	-15%	-16%	-15%	-14%	
Other op. income	8	2	2	2	2	8	7	8	
% of sales	1%	2%	2%	1%	1%	1%	1%	1%	
EBIT	**147**	**20**	**17**	**23**	**27**	**87**	**155**	**219**	**14.2%**
Operating margin	24%	14%	13%	15%	17%	15%	23%	27%	
Financial result	12	-5	4	2	2	2	7	8	
% of sales	2%	-4%	3%	1%	1%	0%	1%	1%	
Income Tax	-10	-1	-1	-1	-2	-5	-19	-27	
Income tax rate	-6%	-5%	-6%	-6%	-6%	-6%	-12%	-12%	
Net Profit	**149**	**14**	**20**	**23**	**27**	**84**	**142**	**200**	
Net margin	24%	10%	15%	15%	17%	14%	21%	24%	
Dil. EPS	**2.08**	**0.21**	**0.28**	**0.32**	**0.37**	**1.14**	**1.94**	**2.73**	**9.4%**
EPS seq. growth	52%	-51%	33%	14%	15%	-45%	70%	41%	

Source: Bryan, Garnier & Co ests.

4.2. Balance sheet set to improve in H2 2016e

Fig. 8: FCF generation equivalent to around 50% of NP or 10% of sales

[in EURm]	2015	1Q16	2Q16	3Q16e	4Q16e	2016e	2017e	2018e	CAGR 15/18e
EBITDA	**195**	**35**	**32**	**38**	**41**	**146**	**213**	**276**	
Change in WCR	-22	-22	-22	-17	-6	-67	-6	-29	
Other	-20	-6	-3	2	2	-4	10	11	
Cash flow from operating activities	153	7	7	23	37	75	217	258	
Capex	-80	-22	-23	-17	-18	-79	-62	-74	
Free Cash Flow	**73**	**-14**	**-16**	**6**	**20**	**-4**	**155**	**184**	**36.0%**
Acquisitions	-202	0	-38	70	0	32	33	0	
Other	-6	5	0	0	0	6	0	0	
Cash flow used for investing activities	-287	-16	-60	53	-18	-41	-29	-74	
Proceeds of LT & ST debt	209	46	29	0	0	75	0	0	
Dividend payment	-23	0	-35	0	0	-35	-19	-32	
Other	-162	-17	-33	0	0	-50	0	0	
Cash flow from financing activities	24	29	-38	0	0	-9	-19	-32	
Total Cash flow	-110	20	-91	76	20	25	169	152	
CTA (Cumulative translation adj.)	10	-5	2	0	0	-3	0	0	
Net increase in cash	-100	16	-89	76	20	22	169	152	
Cash at beginning of period	204	104	119	30	106	104	126	295	
Cash at end of period	**104**	**119**	**30**	**106**	**126**	**126**	**295**	**446**	**62.7%**

Source: Bryan, Garnier & Co ests.

In 2015, the group generated FCF of EUR73m, the equivalent of 50% of its net profit or slightly more than 10% of sales. This cash generation profile should change in 2016.

Concerning 2016e capex, we are forecasting close to EUR80m. We expect an improvement in cash as of H2, with H1 remaining penalised by the dividend payment (EUR0.51 per share) and higher capex in H1 compared with the rest of the year.

At the end of Q2 2016, the group had net debt of EUR280m, pointing to gearing of 44% bearing in mind the group's recent acquisition of MAZeT (a company specialised in colorimetric and spectometric sensors) and the disposal of its NFC and RFID businesses to STMicroelectronics. The latest operation should help ams to improve its cash position by about EUR70m in Q3 leading us to expect net debt of EUR204m by the end of Q3. In view of prospective cash generation over full year in 2016, we are forecasting a decline in net debt to stand at EUR184m at end-2016e or gearing of 27%, and a net debt/EBITDA ratio of 1.3x (vs. 0.7x en FY15).

5. Potential already fully valued

5.1. We have a Neutral recommendation

Our Fair Value of CHF29 stems from an equi-weighted average between a DCF valuation and peer comparison and points to a downside potential of 15%

Our Fair Value of CHF29 stems from an equi-weighted average between a DCF valuation and peer comparison. In view of the share's low upside, we have adopted a Neutral recommendation on the share.

Fig. 9: **Overview of our valuation methods**

Method	Weight	FV (in CHF)	Upside
Peer group	50%	29	-15%
DCF	50%	29	-16%
Average valuation	**100%**	**29**	**-15%**

Source: Bryan, Garnier & Co.

5.2. DCF valuation of CHF29

Our DCF valuation is based on the following assumptions:

- **Our base scenario, set out in section 4, including estimates out to 2018e.** As for the majority of semiconductors players that we cover, we have applied a cyclical growth scheme over the normalised period from 2019e to 2024e, with the same characteristics as the previous cycle. As such, for 2019e, we have applied a growth rate of 20% (equivalent to a peak cycle growth rate over the past five years) followed by a linear reduction in this rate over the period, in order to move towards our terminal growth rate of 3%. Over 2016-25e, this scenario shows average growth of 12% with a usual cyclical growth scheme for the sector (vs. a CAGR of 17.1% over 2012-15). Note that this scenario does not include eventual positive effects triggered by the acquisition of CMOSIS.

- **We have assumed average underlying EBIT margin of 21% over 2016/25e**, which is the margin in our 2015/18e scenario, followed by a linear decrease as of 2020e towards our long-term underlying EBIT margin of 16%. This is the also the minimum margin level noted over the past five years.

- **WCR in line with sales growth and remaining at a level close to 12.4% of sales over the entire period.**

- **Investment spending equivalent to 9% of sales over the entire period.**

- **A corporate tax rate close to 12% corresponding to ams' normal average tax rate, which is low in view of** 1/ tax-loss carry-forwards (around EUR32m at end-2015), 2/ low tax rates unlocked by the group's international activities and 3/ tax credits (primarily for R&D).

- **WACC of 11.0%**. We have applied a beta of 1.4x (which compares with a beta of 1.6x used in Dialog's valuation), a risk-free rate of 1.6% and a market risk premium of 7.0%. At the end of 2015, the group had net debt of EUR131m (4% net interest rate).

Fig. 10: WACC of 11.0%

WACC	
European risk-free interest rate	1.6%
Equity risk premium	7.0%
Beta	1.4
Return expected on equity	**11.4%**
Interest rate on debt	4.0%
Market Capitalization (EURm)	2,303
Net debt on 31/12/15 (EURm)	**131**
Entreprise value (EURm)	2,435
WACC	**11.0%**

Source: Bryan, Garnier & Co. ests.

Fig. 11: DCF, a FV of CHF29, or downside potential of 16%

in EURm (FYE 31/12)	2016e	2017e	2018e	2019e	2020e	2021e	2022e	2023e	2024e	2025e
Revenues	**582**	**688**	**827**	**994**	**1,172**	**1,352**	**1,526**	**1,685**	**1,819**	**1,918**
Change (%)	*-6.5%*	*18.1%*	*20.1%*	*20.3%*	*17.8%*	*15.4%*	*12.9%*	*10.4%*	*7.9%*	*5.5%*
Adjusted EBIT	**87**	**155**	**219**	**264**	**290**	**310**	**323**	**326**	**320**	**303**
Adjusted operating margin	*14.9%*	*22.5%*	*26.5%*	*26.5%*	*24.7%*	*22.9%*	*21.1%*	*19.4%*	*17.6%*	*15.8%*
Tax	-5	-19	-27	-32	-35	-37	-39	-39	-38	-36
Tax rate	*5.8%*	*12.0%*	*12.0%*	*12.0%*	*12.0%*	*12.0%*	*12.0%*	*12.0%*	*12.0%*	*12.0%*
Net Operating income after tax	**82**	**135**	**192**	**232**	**255**	**273**	**284**	**287**	**281**	**266**
Capex, net	-79	-62	-74	-90	-105	-122	-137	-152	-164	-173
As a % of sales	*13.6%*	*9.0%*	*9.0%*	*9.0%*	*9.0%*	*9.0%*	*9.0%*	*9.0%*	*9.0%*	*9.0%*
Depreciation & amortisation	59	58	57	90	105	122	137	152	164	173
As a % of sales	*10.2%*	*8.5%*	*6.9%*	*9.0%*	*9.0%*	*9.0%*	*9.0%*	*9.0%*	*9.0%*	*9.0%*
WCR	68	74	102	123	145	167	189	208	225	237
As a % of sales	*11.6%*	*10.7%*	*12.4%*	*12.4%*	*12.4%*	*12.4%*	*12.4%*	*12.4%*	*12.4%*	*12.4%*
Change in working capital	-67	-6	-29	-21	-22	-22	-22	-20	-17	-12
Free cash flows	**-5**	**126**	**145**	**211**	**233**	**250**	**262**	**267**	**265**	**254**
Discounted free cash flows	**-5**	**109**	**114**	**149**	**148**	**144**	**135**	**124**	**111**	**96**

Total discounted FCF - 2016e-2025e	1,126
Discounted Terminal value - 2026e	1,040
Enterprise value	**2,166**
- Provision (incl. pension plan)	41
- Net debt on 31/12/2016e	184
Equity value	**1,941**
Nbr of diluted shares (m)	73.409
Valuation per share (EUR)	**26**
Valuation per share (CHF)	**29**
Upside vs. current share price	-16%

		WACC				
	[in CHF]	10.0%	10.5%	11.0%	11.5%	12.0%
Op. margin	12%	29	27	26	24	23
	13%	31	29	27	25	24
	14%	33	30	**28**	26	25
	15%	34	32	30	28	26
	16%	36	33	31	29	27

Source: Bryan, Garnier & Co.

5.3. Peer comparison of CHF29

For our peer comparison of ams, we have created a sample including only integrated manufacturers (IDM), namely groups operating a similar business model (production carried out internally). We have taken the average of three multiples: 12m forward EV/Sales, 12m forward EV/EBIT and 12m forward P/E.

Fig. 12: Breakdown of our sample of peers

Company	Business model	EV/Sales 12m fwd	EV/EBIT 12m fwd	P/E 12m fwd
ams	IDM	**3.0x**	**14.6x**	**17.6x**
ANALOG DEVICES	IDM	4.9x	14.4x	19.8x
CYPRESS SEMICON.	IDM	2.2x	15.2x	16.8x
INFINEON TECHS. (XET)	IDM	2.2x	14.6x	18.8x
INTERSIL 'A'	IDM	3.1x	13.8x	20.8x
MAXIM INTEGRATED PRDS.	IDM	4.2x	13.2x	20.3x
MICROCHIP TECH.	IDM	4.1x	14.2x	17.2x
NXP SEMICONDUCTORS	IDM	3.3x	11.7x	12.8x
STMICROELECTRONICS (PAR)	IDM	0.8x	14.8x	22.4x
TEXAS INSTRUMENTS	IDM	5.0x	14.1x	21.6x
Group average	-	**3.3x**	**14.0x**	**18.9x**
ams premium(discount)	-	**-9%**	**4%**	**-7%**

Sources: Thomson Reuters I.B.E.S.; Bryan, Garnier & Co. ests.

Comparison of peer multiples points to a valuation for ams of CHF29, or downside of 15%.

Fig. 13: Peer comparison: FV of CH29 or downside potential of 15%

Multiple	Peer average	Implied ams valuation (in CHF)
EV/Sales 12m fwd	3.3x	29
EV/EBIT 12m fwd	14.0x	24
P/E 12m fwd	18.9x	34
Average		**29**
Upside vs. current share price		-15.0%

Source: Bryan, Garnier & Co. ests.

Page left blank intentionally

Page left blank intentionally

Bryan Garnier stock rating system

For the purposes of this Report, the Bryan Garnier stock rating system is defined as follows:

Stock rating

BUY	Positive opinion for a stock where we expect a favourable performance in absolute terms over a period of 6 months from the publication of a recommendation. This opinion is based not only on the FV (the potential upside based on valuation), but also takes into account a number of elements that could include a SWOT analysis, momentum, technical aspects or the sector backdrop. Every subsequent published update on the stock will feature an introduction outlining the key reasons behind the opinion.
NEUTRAL	Opinion recommending not to trade in a stock short-term, neither as a BUYER or a SELLER, due to a specific set of factors. This view is intended to be temporary. It may reflect different situations, but in particular those where a fair value shows no significant potential or where an upcoming binary event constitutes a high-risk that is difficult to quantify. Every subsequent published update on the stock will feature an introduction outlining the key reasons behind the opinion.
SELL	Negative opinion for a stock where we expect an unfavourable performance in absolute terms over a period of 6 months from the publication of a recommendation. This opinion is based not only on the FV (the potential downside based on valuation), but also takes into account a number of elements that could include a SWOT analysis, momentum, technical aspects or the sector backdrop. Every subsequent published update on the stock will feature an introduction outlining the key reasons behind the opinion.

Distribution of stock ratings

BUY ratings 00%   NEUTRAL ratings 0%   SELL ratings 00%

Research Disclosure Legend

1	Bryan Garnier shareholding in Issuer	Bryan Garnier & Co Limited or another company in its group (together, the "Bryan Garnier Group") has a shareholding that, individually or combined, exceeds 5% of the paid up and issued share capital of a company that is the subject of this Report (the "Issuer").	No
2	Issuer shareholding in Bryan Garnier	The Issuer has a shareholding that exceeds 5% of the paid up and issued share capital of one or more members of the Bryan Garnier Group.	No
3	Financial interest	A member of the Bryan Garnier Group holds one or more financial interests in relation to the Issuer which are significant in relation to this report	No
4	Market maker or liquidity provider	A member of the Bryan Garnier Group is a market maker or liquidity provider in the securities of the Issuer or in any related derivatives.	No
5	Lead/co-lead manager	In the past twelve months, a member of the Bryan Garnier Group has been lead manager or co-lead manager of one or more publicly disclosed offers of securities of the Issuer or in any related derivatives.	No
6	Investment banking agreement	A member of the Bryan Garnier Group is or has in the past twelve months been party to an agreement with the Issuer relating to the provision of investment banking services, or has in that period received payment or been promised payment in respect of such services.	No
7	Research agreement	A member of the Bryan Garnier Group is party to an agreement with the Issuer relating to the production of this Report.	No
8	Analyst receipt or purchase of shares in Issuer	The investment analyst or another person involved in the preparation of this Report has received or purchased shares of the Issuer prior to a public offering of those shares.	No
9	Remuneration of analyst	The remuneration of the investment analyst or other persons involved in the preparation of this Report is tied to investment banking transactions performed by the Bryan Garnier Group.	No
10	Corporate finance client	In the past twelve months a member of the Bryan Garnier Group has been remunerated for providing corporate finance services to the issuer or may expect to receive or intend to seek remuneration for corporate finance services from the Issuer in the next six months.	No
11	Analyst has short position	The investment analyst or another person involved in the preparation of this Report has a short position in the securities or derivatives of the Issuer.	No
12	Analyst has long position	The investment analyst or another person involved in the preparation of this Report has a long position in the securities or derivatives of the Issuer.	No
13	Bryan Garnier executive is an officer	A partner, director, officer, employee or agent of the Bryan Garnier Group, or a member of such person's household, is a partner, director, officer or an employee of, or adviser to, the Issuer or one of its parents or subsidiaries. The name of such person or persons is disclosed above.	No
14	Analyst disclosure	The analyst hereby certifies that neither the views expressed in the research, nor the timing of the publication of the research has been influenced by any knowledge of clients positions and that the views expressed in the report accurately reflect his/her personal views about the investment and issuer to which the report relates and that no part of his/her remuneration was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in the report.	Yes
15	Other disclosures	Other specific disclosures: Report sent to Issuer to verify factual accuracy (with the recommendation/rating, price target/spread and summary of conclusions removed).	No

A copy of the Bryan Garnier & Co Limited conflicts policy in relation to the production of research is available at www.bryangarnier.com

BRYAN, GARNIER & CO

London
Beaufort House
15 St. Botolph Street
London EC3A 7BB
Tel: +44 (0) 207 332 2500
Fax: +44 (0) 207 332 2559
Authorised and regulated by the Financial Conduct Authority (FCA)

Paris
26 Avenue des Champs Elysées
75008 Paris
Tel: +33 (0) 1 56 68 75 00
Fax: +33 (0) 1 56 68 75 01
Regulated by the Financial Conduct Authority (FCA) and the Autorité de Contrôle prudential et de resolution (ACPR)

New York
750 Lexington Avenue
New York, NY 10022
Tel: +1 (0) 212 337 7000
Fax: +1 (0) 212 337 7002
FINRA and SIPC member

Munich
Widenmayerstrasse 29
80538 Munich
Germany
+49 89 2422 62 11

New Delhi
The Imperial Hotel Janpath
New Delhi 110 001
Tel +91 11 4132 6062
+91 98 1111 5119
Fax +91 11 2621 9062

Geneva
rue de Grenus 7
CP 2113
Genève 1, CH 1211
Tel +4122 731 3263
Fax+4122731 3243
Regulated by the FINMA