IQE

Prelims

Getting ready for more VCSEL ramp-ups

Tech hardware & equipment

As flagged in its post-close trading update, IQE's FY18 performance was severely affected by a short-term dip in production for one of its volume VCSEL programmes. While this does not affect the medium-term prospects for photonics growth, which are based on multiple VCSEL opportunities, management has downgraded FY19 guidance, primarily reflecting short-term softness in the handset market, which it expects will recover during H219. We cut our FY19 EPS estimate by 40%.

Year end	Revenue (£m)	PBT* (£m)	EPS* (p)	DPS (p)	P/E (x)	Yield (%)
12/17**	154.5	24.5	3.38	0.0	19.6	N/A
12/18	156.3	14.0	1.38	0.0	48.0	N/A
12/19e	169.9	20.4	2.04	0.0	32.5	N/A
12/20e	204.3	37.4	3.74	0.0	17.7	N/A

Note: *PBT and EPS are normalised, excluding amortisation of acquired intangibles, exceptional items and share-based payments. **Restated.

Short-term VCSEL slowdown hits profits

Total FY18 revenues grew by 1% year-on-year to £156.3m, in line with our estimate. Wireless revenues rose by 7% to 63% of the total as inventory channels were replenished and customers made last-time buys ahead of the closure of the New Jersey facility. Photonics revenues dipped by 8% to 28% of the total because of inventory overhang in H118, followed by supply chain disruption caused by OEM product sales softness in Q418. Adjusted profit before tax was depressed by several factors, almost halving to £14.0m (also in line with our expectations). These include currency headwind, production inefficiencies arising from lower VCSEL volumes, the cost of multiple low-margin VCSEL qualification programmes, the cost of staffing the new Newport facility prior to commencing production and a higher proportion of wireless products. Net cash fell by £24.8m to £20.8m at the year-end, reflecting continued investment (£12.0m) in multiple innovative technologies and £30.4m in property, plant and equipment, primarily for the new Newport foundry.

FY19 recovery second-half weighted

We adjust our FY19 estimates downwards in line with management guidance, which notes softness in the global handset market and adopts a more prudent stance regarding the ramp-up rate of new VCSEL programmes. Volume production on some of these, including shipments to companies in the Android supply chain, has already started. Further VCSEL ramp-ups, combined with a return to growth in the wireless segment, underpin FY20 growth with upside from 5G investment.

Valuation: Waiting for investor confidence to return

Using our revised estimates and management medium-term guidance as the basis for a DCF analysis gives an indicative valuation range of 91–99p/share. The share price has dropped by more than 10% since the results. We see potential for share price recovery on positive newsflow regarding both the initial volume VCSEL programme and newer ones that are commencing production.

27 March 2019

Price	**66.3p**
Market cap	**£516m**

Net cash (£m) at end December 2018	20.8
Shares in issue	777.9m
Free float	83.6%
Code	IQE
Primary exchange	AIM
Secondary exchange	N/A

Share price performance

%	1m	3m	12m
Abs	(21.1)	2.5	(50.7)
Rel (local)	(21.2)	(4.9)	(52.2)
52-week high/low		133.5p	56.2p

Business description

IQE is the leading supplier of epitaxial compound semiconductor wafers globally. The principal applications include radio frequency semiconductors, devices for optical networks, vertical cavity lasers, infrared semiconductors and power electronics.

Next events

AGM	4 June 2019

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Edison profile page

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Investment in future growth extra drag on FY18 profit

Inventory corrections affect FY18 revenues

As flagged in the pre-close trading update, total FY18 revenues grew by 1% year-on-year to £156.3m, in line with our revised estimate. Wafer revenues at constant currency grew by 5%, but there was no licence income (£1.9m in FY17). The segmental split was distorted by inventory management factors. During H217, significant production capacity was allocated to the initial VCSEL ramp-up, which we have previously inferred was for Face ID in new iPhones. IQE pulled back VCSEL output during the first three quarters of FY18 as an inventory overbuild was worked through. IQE began to build up VCSEL inventory again for the application during Q418, but shortly afterwards it was obliged to cut back production. Photonics revenues therefore dipped by 8%. Wireless revenues rose by 7%, boosted by £5m last-time buys ahead of the closure of the New Jersey facility. Infrared revenues grew by 10%, but are only 8% of the total, so the strong performance here was not sufficient to drive meaningful growth at group level.

Profits adversely affected by programmes to support future growth

Adjusted profit before tax was depressed by several factors, almost halving to £14.0m, also in line with our estimate. These factors included a currency headwind, production inefficiencies resulting from lower VCSEL production volumes and a higher proportion of wireless products, which typically command a lower margin than photonics materials. In addition, management continued to invest in activities essential for securing future growth, so profits were adversely affected by the cost of multiple low-margin VCSEL qualification programmes and the cost of staffing the new Newport facility prior to commencing production.

Cash from operations reinvested in R&D and capacity

Net cash fell by £24.8m during the year to £20.8m at the year-end. Working capital increased by £8.7m compared with end FY17 because of the timing of payments for equipment and invoicing of large shipments. Capitalised development expenditure totalled £12.0m as the group continued work on multiple innovative technologies, and investment in property, plant and equipment totalled £30.4m, primarily for the new Newport foundry.

Outlook and estimate changes

Management guidance

Exhibit 1: Management revenue guidance

	Old FY19 guidance*	New FY19 guidance*	FY19e Edison**	FY20 guidance*	FY20e Edison	Old 3-5 year guidance*	New 3-5 year guidance
Wireless growth	0-5%	~-15%	-15%	Return to growth	5%	0-10%	0-20%
Photonics growth	40-60%	>50%	60%	Continued high growth	40%	40-60%	40%
Infrared growth	5-15%	~+15%	15%	Consistent growth	15%	5-15%	5-15%

Source: Edison Investment Research, company statements. Note: *Constant currency. **Revised.

Management has updated its guidance for FY19 and over a three- to five-year time horizon, adding guidance for FY20 as well. This guidance is summarised in Exhibit 1. The main changes to guidance are: (1) a reduction in wireless revenues during FY19 to reflect first-half weakness in the smartphone market and the beneficial impact of last-time buys during FY18; (2) putting FY19 infrared guidance at the top end of the previous range to reflect current levels of customer interest, potential for outperformance longer term if R&D programmes on consumer applications convert to volume shipments; (3) a recovery in the handset market from H219 onwards with potential for stronger growth as 5G networks start to roll out and IQE begins to take share in the filter category; and (4) taking a more prudent view of photonics growth, at least until the timing of some of the VCSEL ramp-ups in H219 is more certain.

Revisions to estimates

Following the changes to management guidance, we adjust our estimates as follows:

- **Revenues:** we cut our FY19 wireless revenue estimate from £100.5m to £83.1m in line with guidance. We also cut our FY19 photonics revenue estimate from £77.9m to £70.1m. This gives group revenue growth of 9% year-on-year, in line with management guidance. Management expects revenues to be strongly weighted to the second half, when around 60% of revenues may be delivered. This will include a full six months of deliveries under the initial VCSEL programme together with volume ramp-ups on other VCSEL programmes. Management sees upside to this, depending on the rate of photonics growth. We note potential for low single-digit segmental growth during FY20 from an improvement in the handset market, although overall market recovery is likely to be modest because smartphone ownership has reached saturation point and customer replacement cycles have lengthened, possibly because of the lack of compelling new features encouraging people to upgrade. Noting the requirement for GaN epitaxy for 5G network infrastructure, we model segmental growth that is stronger than the handset market recovery.
- **Operating margin:** noting the reduction in volumes for both segments, we reduce the operating margins for both wireless and photonics activities, resulting in a group adjusted operating margin of 13%. Management guidance is for 'over 10%'. We model a higher rate than this, noting that the group achieved 10% in FY18 when there was no production at the Newport facility and the New Jersey site was still operational.
- **JVs:** the share of losses attributable to JVs was £2.0m in FY18. The Singapore JV is currently operating at a loss because of the level of R&D and pre-qualification work being undertaken in support of China market penetration, which is in effect a business development activity. We model JV losses at a similar level in FY19 and assume some of the qualifications will move to volume production in FY20 giving a neutral result.
- **Capex:** we raise our FY19 capitalised equipment estimate from £25.0m to £40.0m in line with guidance. This assumes that management has sufficient visibility of strong photonics growth from FY20 onwards to purchase additional reactors for the Newport facility at c £3m each. This high level of investment in property, plant and equipment, combined with the second half revenue weighting, means that IQE will need some of the £35m revolving credit facility agreed in January 2019, although we model the group as marginally net cash positive at the year end.

Exhibit 2: Changes to estimates

	FY18			FY19e			FY20e
	Old	Actual	% change	Old	New	% change	New
Revenue (£m)	157.0	156.3	-0.4%	194.8	169.9	-12.8%	204.3
EBITDA* (£m)	27.6	28.4	2.8%	50.0	37.5	-25.0%	55.7
Adjusted PBT (£m)	13.2	14.0	5.7%	34.1	20.4	-40.1%	37.4
Adjusted EPS (p)	1.62	1.38	-15.0%	3.48	2.04	-41.4%	3.74
Capitalised R&D	13.0	12.0	-7.8%	13.0	13.0	0.0%	13.0
PPE	33.0	30.4	-8.0%	25.0	40.0	60.0%	15.0
Net cash	20.8	20.8	0.2%	18.2	0.1	-99.2%	13.9

Source: Edison Investment Research. Note: *Excluding share of losses from JVs.

Positioning for operational execution at scale

Capacity expansion

The new foundry in Newport, Wales, which is dedicated to photonics activity, has opened. Ten reactors have been delivered and installed. Five of these have already been released for product qualification, while the remainder are undergoing final commissioning. By applying process and operating knowledge gained during the H217 VCSEL ramp-up IQE has achieved a 50% increase in contribution/reactor compared with the original business case for the new foundry. The factory already has dedicated bays built for 20 reactors and space for a total of 100 reactors, which is around the same number as IQE has across its facilities at present. Expansion of the Taiwan facility, which is the focus of the group's wireless activity, will increase wireless capacity at the site by 40% by the end of Q119. Smaller capacity expansions in Massachusetts, which is IQE's main GaN production site, and Milton Keynes, which is the main IR (infrared) production site, are scheduled for completion by the end of H119. Production at the smaller GaN facility in New Jersey was transferred to Massachusetts and the site closed at the end of FY18, generating annual savings of US$4m.

Broadening customer engagement in photonics

Once the pressure of the VCSEL volume ramp in H217 was over, IQE focused on product qualifications on other VCSEL programmes, engaging with over 25 companies. Twelve customers are in the process of qualifying or have qualified the new facility. The first and largest has passed the site for mass production, while several others are in the final stages of production releases. Applications include facial recognition for Android mobile phones, short-distance data communications, camera autofocus, proximity sensing and industrial heating. This reduces IQE's exposure to a single handset manufacturer or use case. Adoption of facial recognition technology, which uses arrays of VCSELs, by Android users is likely to be driven by use of the technology for authorising mobile phone payments, promoting adoption in mid- and low-tier phones rather than just high-end models.

Extending IP portfolio

IQE continues to invest heavily in product development, shifting from a turnkey manufacturer to a provider of innovative technologies that customers can integrate into their chip designs. This capability means that IQE is ready for changes in the market. For example, it provides high power density material (GaN) for antennae in 5G base stations. It has developed a low-cost, high-volume nanoimprint lithography (NIL) technique for manufacturing the DFB (distributed feedback) lasers used in 5G hyperscale data centres and 5G fibre front haul, backhaul and fibre-to-premises. In July 2018, it announced that this technology had been production qualified by a leading supplier of DFB lasers to the telecoms and data centre markets, and that work on the first production order (for US$0.25m) had commenced. The ability to offer unique process technologies also means that it is extremely difficult for customers to move to competitors. During FY18 IQE exercised its option to acquire the key cREO technology and IP portfolio from Translucent for US$5m, satisfied though the issue of shares.

Valuation: Waiting for investor confidence to return

As the share prices of stocks in this sector can be highly volatile, we base our valuation on a DCF analysis rather than a peer multiples approach. Moreover, we believe that the reduction in VCSEL shipments during FY18 is temporary and that photonics will continue to grow strongly over the next three to five years, as per management guidance, and a DCF methodology captures the impact of this medium-term growth. We present three scenarios. The base case adopts the rate of revenue and EBIT growth used in our estimates, then growth for each segment from FY21 onwards towards the middle of management's recent guidance. The low case adopts segmental growth from FY20 onwards at the lower end of management's guidance, and the high case the higher bound. Our analysis gives an indicative valuation of 91–99p/share.

The share price hit 98p earlier in March, regaining the ground lost since the sell-off in November following the first news of the dip in VCSEL production. It has fallen by more than 20% since that peak, over 10% since the results were announced, and is now below our indicative valuation range. This suggests that investors need to know that deliveries under the initial volume VCSEL programme have resumed and are being sustained at meaningful volumes, as well as evidence that the additional VCSEL programmes collectively have the capability to deliver strong growth incremental to the Apple-related programmes. Given the expected second-half weighting in FY19, the first-half results may provide confirmation of the former, but not the latter. Positive newsflow related to these issues should move the share price back within our indicative valuation range.

Exhibit 3: DCF analysis

	FY19e	FY20e	FY21e	FY22e	FY23e
Base case					
Wireless growth	-15.0%	5.0%	10.0%	10.0%	10.0%
Photonics growth	60.0%	40.0%	40.0%	40.0%	40.0%
IR growth	15.0%	15.0%	10.0%	10.0%	10.0%
Licence revenues (£m)	0.0	0.0	0.0	0.0	0.0
Group revenues (£m)	169.9	204.3	254.1	320.5	410.1
EBIT (£m)	20.4*	37.4	58.4	80.3	110.8
Indicative valuation (WACC 10% Terminal growth 2.0%) 94p/share					
Low case					
Wireless growth	-15.0%	5.0%	0.0%	0.0%	0.0%
Photonics growth	60.0%	40.0%	40.0%	40.0%	40.0%
IR growth	15.0%	15.0%	5.0%	5.0%	5.0%
Licence revenues (£m)	0.0	0.0	0.0	0.0	0.0
Group revenues (£m)	169.9	204.3	244.5	300.3	378.3
EBIT (£m)	20.4*	37.4	57.1	77.5	107.5
Indicative valuation (WACC 10% Terminal growth 2.0%) 91p/share					
High case					
Wireless growth	-15.0%	5.0%	20.0%	20.0%	20.0%
Photonics growth	60.0%	40.0%	40.0%	40.0%	40.0%
IR growth	15.0%	15.0%	15.0%	15.0%	15.0%
Licence revenues (£m)	0.0	0.0	0.0	0.0	0.0
Group revenues (£m)	169.9	204.3	263.7	342.5	448.1
EBIT (£m)	20.4*	37.4	59.8	83.3	117.2
Indicative valuation (WACC 10% Terminal growth 2.0%) 99p/share					

Source: Edison Investment Research. Note: *After deducting £2.0m share of JV losses.

Exhibit 4: Financial summary

£'000s	2017	2018	2019e	2020e
Year End 31 December	IFRS	IFRS	IFRS	IFRS
PROFIT & LOSS	**restated**			
Revenue	154,553	156,291	169,881	204,338
Cost of Sales (Inc D&A + SBP)	(115,857)	(111,748)	(119,766)	(144,059)
Gross Profit	38,696	44,543	50,115	60,280
EBITDA	37,130	28,404*	37,506*	55,741*
Depreciation and Amortisation	(10,596)	(12,364)	(15,081)	(18,381)
Operating Profit (before amort. and except.)	26,534	16,040	22,424	37,360
Acquired Intangible Amortisation	(1,429)	(518)	(518)	(518)
Exceptionals	(385)	(7,906)	0	0
Share based payments	(7,526)	1,044	0	0
Operating Profit	17,194	8,660	21,906	36,842
Underlying interest	(2,019)	(66)	0	0
Exceptionals and losses from JVs	80	(1,847)	(2,000)	0
Profit Before Tax (norm)	24,515	13,974	20,424	37,360
Profit Before Tax (FRS 3)	15,095	6,747	19,906	36,842
Reported tax	(435)	(5,558)	(3,583)	(6,632)
Profit After Tax (norm)	24,998	11,229	16,841	30,728
Profit After Tax (FRS 3)	14,660	1,189	16,323	30,210
Average Number of Shares Outstanding (m)	689.5	761.8	777.7	777.9
EPS - normalised (p)	3.38	1.38	2.04	3.74
EPS - (IFRS) (p)	2.11	0.13	2.07	3.86
Dividend per share (p)	0.0	0.0	0.0	0.0
BALANCE SHEET				
Fixed Assets	224,836	267,476	304,877	313,977
Intangible Assets	108,513	121,775	127,467	131,860
Tangible Assets	90,875	124,520	156,228	160,937
Other	25,448	21,181	21,181	21,181
Current Assets	111,925	94,531	76,937	110,163
Stocks	33,044	35,709	37,234	46,466
Debtors	33,269	38,015	39,561	49,825
Cash	45,612	20,807	141	13,872
Other	0	0	0	0
Current Liabilities	(44,916)	(48,893)	(49,993)	(56,878)
Creditors	(44,916)	(48,893)	(49,993)	(56,878)
Short term borrowings	0	0	0	0
Long Term Liabilities	(666)	(3,836)	(3,836)	(3,836)
Long term borrowings	0	0	0	0
Other long term liabilities	(666)	(3,836)	(3,836)	(3,836)
Net Assets	291,179	309,278	327,984	363,426
CASH FLOW				
Operating Cash Flow	29,717	16,988	33,534	43,130
Net Interest	(2,125)	(66)	0	0
Tax	(5,844)	(665)	(1,200)	(1,400)
Capex	(28,190)	(42,362)	(53,000)	(28,000)
Acquisitions/disposals	0	0	0	0
Financing	94,912	813	0	0
Dividends	0	0	0	0
Net Cash Flow	88,470	(25,292)	(20,666)	13,730
Opening net debt/(cash)	39,549	(45,612)	(20,807)	(141)
HP finance leases initiated	0	0	0	0
Other	(3,309)	487	0	0
Closing net debt/(cash)	(45,612)	(20,807)	(141)	(13,872)

Source: Company accounts, Edison Investment Research. Note: *Excluding share of JV losses.

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