Nanoco

Interim results

Progressing sensing opportunity

Tech hardware & equipment

During H121 Nanoco successfully delivered on the technical and commercial milestones for its programme with a major customer to develop new nanomaterials for sensing applications. Management implemented further restructuring actions, cutting cash-burn to £0.4m/month and extending the cash runway to calendar H222.

Year end	Revenue (£m)	EBITDA (£m)	PBT* (£m)	EPS* (p)	DPS (x)	P/E (x)
07/19	7.1	(3.8)	(5.0)	(1.34)	0.00	N/A
07/20	3.9	(2.9)	(4.9)	(1.38)	0.00	N/A
07/21e	1.4	(3.0)	(4.4)	(1.13)	0.00	N/A
07/22e	2.0	(2.2)	(3.6)	(0.97)	0.00	N/A

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

Achieved milestones on sensing project

Nanoco's development activities have continued throughout the coronavirus-related restrictions. Revenues decreased by £1.9m year-on-year during H121 to £1.0m as revenues from the development work for the major customer, who we infer is ST Microelectronics (ST) based on previous announcements, were lower than those from the contract with the major US customer, which ended in December 2019. However, cost reductions meant that adjusted EBITDA losses only widened from £1.1m to £1.5m. Net cash (excluding the £0.5m convertible loan and £0.9m IFRS 16 lease liabilities) fell by £2.3m during the period to £2.9m at end-January 2021. We change our estimates to assume that Nanoco and ST move to commercial production in calendar H222, ie FY23 rather than calendar H122 (FY22), resulting in a £0.6m funding gap, which we model as satisfied through debt.

Near-term opportunities in sensing

Nanoco's nanomaterials represent a cost-effective, proven way of improving the sensitivity of sensors used for facial recognition and augmented reality (AR) applications in mobile phones, automotive applications and IoT (internet of things) applications. Either of the two ongoing development programmes in sensing could potentially scale up to the £6m revenues required for break-even and lead to volume production of materials using the existing nanomaterials facility in Runcorn which has capacity to output materials worth £100m per year.

Valuation: Resolution of patent infringement is key

The ongoing dialogue with ST confirms that there remains significant potential for generating revenues from the supply of quantum dots (QDs) for sensing applications. Ahead of development projects moving to commercial production we believe that at this point Nanoco's value lies in a satisfactory resolution of the patent infringement dispute with Samsung. Although the value of the potential payout has not been disclosed, we calculate that lost revenue in the US attributable to the patent infringement to date could be in the region of US$200–250m or more. Any damages award could also make an additional allowance for future sales of Samsung TVs using QDs and sales in other territories.

30 March 2021

Price	**23p**
Market cap	**£69m**

Net cash (£m) at end January 2021 (excluding £0.5m convertible loan and £0.9m IFRS 16 lease liabilities)	2.9
Shares in issue	305.7m
Free float	70.0%
Code	NANO
Primary exchange	LSE
Secondary exchange	N/A

Share price performance

%	1m	3m	12m
Abs	49.0	116.4	138.1
Rel (local)	43.7	111.4	87.4
52-week high/low		23p	9p

Business description

Nanoco is a global leader in the development and manufacture of cadmium-free quantum dots and other nanomaterials. Its platform includes c 740 patents and specialist manufacturing lines. Focus applications are advanced electronics sensing, displays, and bio-imaging.

Next event

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Edison profile page

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Financial performance

H121 performance shaped by sensing activity

During H121 Nanoco successfully delivered all of the technical and commercial milestones for its major sensing project, which contributed £0.8m of the total £1.0m revenues for the period. This contrasted with H120 when Nanoco successfully delivered the final milestones on its contract with its former US customer which contributed £2.5m of the total £2.9m for the period. Adjusted EBITDA losses widened from £1.1m to £1.5m year-on-year. The relatively modest worsening of losses compared with the reduction in revenues demonstrates the benefit of the restructuring programmes that took place in H220 and H121. R&D costs fell by £0.4m or 26% year-on-year and administrative costs (after stripping out share-based payments and exceptional items), fell by £1.3m or 38%. The cost reduction programme has cut the average monthly cash burn from £0.7m in H120 to £0.4m.

Net cash (excluding the £0.5m convertible loan and £0.9m IFRS 16 lease liabilities) fell by £2.3m during the period to £2.9m at end January 2021. Investment in tangible assets was minimal. Intangibles expenditure of £0.2m related to patent costs. The prior year tax credit of £0.9m was received in January 2021.

Outlook and estimates – cash runway extends to calendar H222

We leave our FY21 estimates broadly unchanged, adjusting indirect costs and share-based payments in line with H121 levels. We change our FY22 estimates to assume that Nanoco and ST move to commercial production in the calendar H222 ie FY23 rather than calendar H122 (FY22). This leaves a £0.6m financing gap, which we model as satisfied by debt, in line with our policy.

Exhibit 1: Changes to estimates

Y/E August	FY20		FY21			FY22	
£'m	Actual	New	Old	% change	New	Old	% change
Revenues	3.9	1.4	1.4	0.0%	2.0	3.2	-37.5%
Gross profit	3.5	1.2	1.3	-6.9%	1.7	2.7	-35.6%
EBITDA	(2.9)	(3.0)	(2.9)	3.7%	(2.2)	(1.3)	68.1%
Normalised PBT	(4.9)	(4.4)	(4.4)	-0.8%	(3.6)	(2.6)	36.9%
Normalised net income	(4.0)	(3.5)	(3.5)	-0.9%	(3.0)	(2.0)	48.0%
Normalised diluted EPS	(1.4)	(1.1)	(1.1)	-0.9%	(1.0)	(0.7)	48.0%
Net debt/(cash)	(5.2)	(2.1)	(2.2)	-5.0%	0.6	(0.5)	-225.5%

Source: Edison Investment Research

Management's target is to progress nanomaterial development and scale-up programmes so the company reaches break-even, which management estimates is achievable on annual revenues of c £6m, within three years. Management estimates that Nanoco has sufficient cash to continue its existing business activities until partway through FY22, so it is aiming to either generate additional organic revenues to resolve the cash deficit or to undertake a major restructuring exercise, removing the group's R&D, production and scale-up capabilities to focus on pursuing the lawsuit against Samsung. The cash runway extends to the middle of calendar 2022 in this scenario. If one or more of the programmes does start to scale up, which would be likely in itself to extend the cash runway, we believe Nanoco would be well-placed to raise further finance at that point.

Realising value through organic activities

Near-term opportunities in sensing

Although the major US customer decided in June 2019 not to progress to volume production of nanomaterials for use in infra-red (IR) sensors, successful commissioning of the nanomaterials production facility in Runcorn clearly demonstrates that Nanoco is able to deliver this material in commercial volumes. There is continued interest in using these nanomaterials to improve the sensitivity of silicon-based IR sensors. This is because nanomaterial-enhanced silicon sensors potentially provide a cost-effective route for improving the range and sensitivity of sensors currently used for facial recognition and AR applications in mobile phones and for IoT applications. Enhanced sensitivity results in lower power consumption, which for a mobile phone user means longer time between charges.

Nanoco and STMicroelectronics were part of a supply chain for the major US customer, with Nanoco manufacturing nanomaterials that ST used to improve the sensitivity of its silicon IR sensors. Now that the US customer has withdrawn from the scene, at least for the moment, and the exclusivity agreement with it has lapsed, we understand that ST is able to offer these enhanced, proven, near IR sensors across its extensive, global customer base. In May 2020, Nanoco signed a framework agreement with ST that covers both development work and the commercial supply of nanomaterials for use in multiple IR sensing applications over a five-year period. Subsequent purchase orders cover the supply of small-scale volumes of nanomaterials for the proven sensing application. The agreement also covered a project extending from April to December 2020 on a new generation of nanomaterials for potential use in other IR-sensing applications. Nanoco successfully delivered all the technical and commercial milestones on this project and is continuing to work with ST while the two parties negotiate the potential next phase of their work together. As the framework agreement commits ST to taking the majority of its nanomaterials from Nanoco if commercial volumes are required, the relationship gives a potential route for generating revenues from the existing nanomaterials facility in Runcorn, which has the capacity to manufacture c £100m of materials each year.

Nanoco has recently developed a new customer relationship for sensing applications with a significant participant in another major electronics supply chain. The relationship is generating modest R&D services. It involves different material sets from the ST programme and a range of functional wavelengths of material. The group continues to invest in R&D and can now offer materials that can absorb much longer wavelengths of IR light at specifically targeted bands such as 1,400nm, 1,550nm and 1,800nm. Longer wavelengths are eye-safe and so are preferable for applications such as world-facing cameras for AR functionality.

Display – small-scale activity at present

Display remains an important market for Nanoco. While its activities in this area have reduced following the end of the long-term collaboration with Merck in June 2020, the group has formed relationships with new customers, a number of whom are evaluating existing materials for use in TV displays. This activity is modest at present. Samsung currently dominates the market for TV displays containing cadmium-free QDs with, according to management estimates, around a 90% market share. If competitors such as Hisense, Huawei, TCL or Vizio were to capture material market share, this could represent an opportunity for Nanoco to reactivate its mothballed production facility dedicated to display applications which has the capacity to manufacture c £30m of materials each year.

Grant underpins the future of Nanoco’s life sciences activity

In November 2020 Nanoco secured just under £1m in grant funding for a life sciences project to develop a heavy metal-free QD testing kit to detect COVID-19. The project will last 18 months and represents a potential third segment for generating future revenues.

Patent infringement lawsuit against Samsung

Nanoco's other route for generating value for shareholders is the successful conclusion of its patent lawsuit against Samsung which it announced in February 2020. The lawsuit alleges that Samsung has wilfully infringed the patents relating to Nanoco's unique synthesis and resin capabilities for QDs. Nanoco is seeking a permanent injunction from further acts of infringement and unspecified but significant monetary damages. Nanoco and Samsung initially worked together to develop cadmium-free QDs based on Nanoco's IP. However, in 2015 Samsung ended the collaboration and launched its QD-based televisions without entering into a supply or licensing agreement with Nanoco.

Nanoco has engaged US-based international IP law firm Mintz, Levin, Cohn, Ferris, Glovsky and Popeo to represent it in patent enforcement and litigation and signed a litigation funding agreement with a very large, undisclosed US litigation finance specialist which means that Nanoco will be able to actively progress the lawsuit without adversely affecting its cash consumption. The jury trial is scheduled for October 2021. The claim construction (Markman) hearing preparatory to the trial was held on 26 March 2021. This hearing established the court's interpretation of certain words or phrases pertinent to the patents and the case which may be important to either side's arguments. Management expects to receive the judge's final written report on the Markman hearing before the end of May 2021.

In a parallel process to the litigation, Samsung has requested that the Patent Trial and Appeal Board (PTAB) institute a formal validity review of each patent asserted in the lawsuit via inter parties reviews (IPRs). Management expects that the PTAB will decide whether or not to institute IPRs in May 2021, a process which can then take up to 12 months. We note that it could take two or more years for any successful verdict or damages award to be enforced because of the appeals process applicable to both the judicial trial and PTAB processes.

Nanoco has not revealed its estimates of the potential payout if the litigation is successful but has stated that since April 2015 Samsung had sold 14 million TVs deploying QDs based on Nanoco IP in the US. These TVs had an average sales price of US$2,200–2,500 compared with the average price of a top of the range TV without QDs of c US$1,000. The value of the lost revenue to Nanoco this represents has not been disclosed. Had the alleged patent infringement not taken place, we believe Nanoco would have collected royalties from its partners, primarily Dow Chemical, which would potentially be supplying QDs to Samsung in volumes higher than Nanoco could produce itself in Runcorn. If we assume that the cost of the QDs in each TV is equivalent to 10% of the uplift in price between QD and non-QD TV displays, and that Nanoco would have received a 12% royalty (as per our May 2017 initiation note) on these QDs, this represents US$14.4–18.0 in lost revenue per TV display or US$200–250m between April 2015 and the present. This value excludes QDs in any future TV displays Samsung makes or TVs sold in other territories. We note that around one-third of Samsung's TV sales are attributable to the US market.

Exhibit 2: Financial summary

£m	2019	2020	2021e	2022e
31-July	IFRS	IFRS	IFRS	IFRS
INCOME STATEMENT				
Revenue	7.1	3.9	1.4	2.0
Cost of Sales	(0.7)	(0.3)	(0.2)	(0.3)
Gross Profit	6.5	3.5	1.2	1.7
EBITDA	(3.8)	(2.9)	(3.0)	(2.2)
Operating profit (before amort. and except).	(5.0)	(4.8)	(4.3)	(3.5)
Amortisation of acquired intangibles	0.0	0.0	0.0	0.0
Exceptionals	(0.3)	(0.7)	0.0	0.0
Share-based payments	(0.2)	(0.4)	(0.6)	(0.6)
Reported operating profit	(5.5)	(5.9)	(4.9)	(4.1)
Net Interest	(0.0)	(0.1)	(0.1)	(0.1)
Joint ventures & associates (post tax)	0.0	0.0	0.0	0.0
Exceptionals	0.0	0.0	0.0	0.0
Profit Before Tax (norm)	(5.0)	(4.9)	(4.4)	(3.6)
Profit Before Tax (reported)	(5.5)	(6.0)	(4.9)	(4.1)
Reported tax	1.2	0.9	0.9	0.6
Profit After Tax (norm)	(3.9)	(4.0)	(3.5)	(3.0)
Profit After Tax (reported)	(4.4)	(5.1)	(4.0)	(3.5)
Minority interests	0.0	0.0	0.0	0.0
Net income (normalised)	(3.9)	(4.0)	(3.5)	(3.0)
Net income (reported)	(4.4)	(5.1)	(4.0)	(3.5)
Average Number of Shares Outstanding (m)	286	287	306	306
EPS - normalised (p)	(1.34)	(1.38)	(1.13)	(0.97)
EPS - diluted normalised (p)	(1.34)	(1.38)	(1.13)	(0.97)
EPS - basic reported (p)	(1.52)	(1.76)	(1.32)	(1.16)
Dividend per share (p)	0.00	0.00	0.00	0.00
BALANCE SHEET				
Fixed Assets	4.6	4.6	4.1	3.6
Intangible Assets	3.9	3.7	3.5	3.3
Tangible Assets	0.7	0.9	0.5	0.3
Investments & other	0.0	0.0	0.0	0.0
Current Assets	9.5	7.2	4.1	2.2
Stocks	0.2	0.1	0.1	0.2
Debtors	1.1	1.0	1.0	1.1
Cash & cash equivalents	7.0	5.2	2.1	(0.0)
Other	1.1	0.9	0.9	0.9
Current Liabilities	(4.8)	(3.4)	(3.4)	(4.0)
Creditors	(2.6)	(2.1)	(2.1)	(2.2)
Tax and social security	0.0	0.0	0.0	0.0
Short term financial leases	0.0	(0.6)	(0.6)	(0.6)
Short term bank debt	0.0	0.0	0.0	(0.6)
Other	(2.3)	(0.6)	(0.6)	(0.6)
Long Term Liabilities	(0.8)	(1.3)	(1.1)	(1.0)
Long term financial leases	0.0	(0.5)	(0.3)	(0.2)
Long term bank debt	0.0	0.0	0.0	0.0
Other long term liabilities	(0.8)	(0.7)	(0.7)	(0.7)
Net Assets	8.5	7.2	3.8	0.8
Minority interests	0.0	0.0	0.0	0.0
Shareholders' equity	8.5	7.2	3.8	0.8
CASH FLOW				
Op Cash Flow before WC and tax	(3.8)	(2.9)	(3.0)	(2.2)
Working capital	1.8	(1.5)	0.0	(0.1)
Exceptional & other	0.0	(0.2)	0.0	0.0
Tax	1.4	1.1	0.9	0.6
Net operating cash flow	(0.6)	(3.5)	(2.1)	(1.7)
Capex	(3.1)	(0.7)	(0.7)	(0.8)
Acquisitions/disposals	0.0	0.0	0.0	0.0
Net interest	(0.0)	(0.1)	(0.1)	(0.1)
Equity financing	0.0	3.2	0.0	0.0
Dividends	0.0	0.0	0.0	0.0
Other	0.0	0.0	(0.2)	(0.1)
Net Cash Flow	(3.7)	(1.1)	(3.1)	(2.7)
Opening net debt/(cash (excluding finance leases)	(10.7)	(7.0)	(5.2)	(2.1)
FX	0.0	0.0	0.0	0.0
Other non-cash movements	0.0	(0.8)	0.0	0.0
Closing net debt/(cash) (excluding finance leases)	(7.0)	(5.2)	(2.1)	0.6

Source: Company data, Edison Investment Research

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