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Nanoco Group

Interim results

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Tech hardware & equipment

During the first eight months of FY22, Nanoco has begun to scale-up its programme to deliver nanomaterials to its major European customer. It also made good progress in its legal action against Samsung for wilful infringement of its IP, with a positive sentiment from the oral hearing in the inter partes reviews (IPRs) of the five patents in the case. Importantly, revenues from customer projects combined with continued cost saving initiatives extend the cash runway for nanomaterial development and scale-up activities from calendar H222 into calendar H123, at which point there should be good visibility of both potential production orders and the outcome of the patent litigation.

Year end	Revenue (£m)	EBITDA (£m)	PBT* (£m)	EPS* (p)	DPS (p)	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)	(1.39)	0.00	N/A
07/21	2.1	(2.9)	(4.7)	(1.30)	0.00	N/A
07/22e	2.2	(3.0)	(4.8)	(1.37)	0.00	N/A

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

Cash runway extended into calendar H123

H122 revenue totalled £1.1m (£1.0m H121), of which £0.9m (£0.8m H121) was attributable to a major European customer who we have previously inferred is ST Microelectronics. EBITDA losses narrowed by £0.3m year-on-year to £1.2m reflecting cost-saving initiatives. Free cash outflow totalled £1.7m. Following receipt of an R&D tax credit and significant customer payment after the end of H122, net cash (excluding IFRS16 leases) at the end of February was £2.6m. Management has cut the average net monthly cash burn from £0.4m in H121 to £0.3m in H122.

Scaling up SWIR material production

Last month Nanoco signed an agreement for a fourth work package from ST relating to a longer wavelength material for enhancing the sensitivity of silicon sensors. Significantly, this package is for the delivery of an enhanced and scaled up version of the technology, indicating that the performance achieved so far merits scaling up the process and is consistent with management's goal of having visibility of production revenues during calendar H222

Valuation: dependent on patent litigation outcome

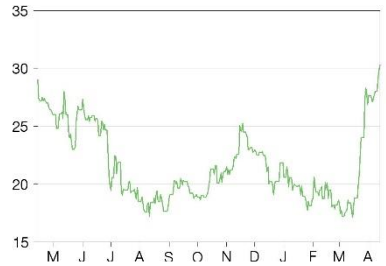
Ahead of the programme with ST definitely moving to commercial production, we believe that much of Nanoco's value still lies in a satisfactory resolution of the patent infringement dispute with Samsung. Although the value of a potential payout has not been disclosed, we calculate that lost revenue in the United States attributable to the patent infringement to date could be in the region of US$200–250m or more. Any damages awarded could also make an additional allowance for future sales of infringing TVs and a possible uplift for wilfulness. The decision on the validity of the patents by the Patent Trial and Appeal Board is scheduled for May 2022 and the trial in Texas is expected to be scheduled for calendar H222.

14 April 2022

Price	**30.3p**
Market cap	**£93m**

Net cash (£m) at end February 2022 (excluding lease liabilities)	£2.6m
Shares in issue	307.2m
Free float	75.9%
Code	NANO
Primary exchange	LSE
Secondary exchange	N/A

Share price performance



%	1m	3m	12m
Abs	65.1	52.3	1.5
Rel (local)	56.4	54.5	(5.1)
52-week high/low		30.3p	17.1p

Business description

Nanoco Group is a global leader in the development and manufacture of cadmium-free quantum dots (QD) and other nanomaterials with c 560 patents. Focus applications are advanced electronics, displays, bio-imaging and horticulture.

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H122 performance shaped by sensing activity

At £1.1m, H122 revenues were slightly higher than H121 and H222. £0.9m was attributable to services and materials supplied to ST. Adjusted EBITDA losses continued to narrow, from £1.5m in H121and £1.4m in H221 to £1.2m. This reflected a reduction in headcount compared with H121 as the business was restructured around its core competencies of R&D, scale up and production, lower patent maintenance costs as the group focused on protecting the IP most likely to generate a return in the short-to-medium term and general cost-control. The cost reduction programme, which includes consolidating all activities at the Runcorn site, has cut the average monthly cash burn from £0.4m in H121 to £0.3m in H122 (£0.7m in H120.)

Net cash (excluding £0.4m IFRS 16 lease liabilities) fell by £2.0m during the half-year to £1.8m at end January 2022. Following the delayed receipts of an R&D tax credit and a significant payment from ST, net cash increased to £2.6m at the end of February. There was no investment in tangible assets. Intangibles expenditure of £0.1m (£0.2m H121) related to patent costs. The revenues received from customer projects combined with the cost-savings have extended the cash runway for nanomaterial development and scale-up activities from calendar H222 into calendar H123, at which point there should be good visibility of both potential production orders and the outcome of the patent litigation. The cash runway could potentially be further extended by additional business wins in calendar H222 and H123. If none of the development programmes currently underway start to scale up during calendar 2022, management retains the option to remove the group's R&D, production and scale-up capabilities, in effect becoming an IP shell company focused on pursuing the lawsuit against Samsung.

Exhibit 1: H121, H221 and H122 P&L summary

£000s	H121	H221	H122	Notes
Revenue attributable to ST	771	819	899	
Total sales revenue	1,004	1,087	1,099	
Cost of sales	(104)	(105)	(109)	
Gross profit	900	982	990	
Other operating income	50	133	179	Grant income for Life Sciences activity
Normalised operating expenses	(2,437)	(2,472)	(2,355)	
EBITDA	(1,487)	(1,357)	(1,186)	
Share-based payments	(289)	(128)	(352)	
Depreciation and amortisation	(628)	(497)	(533)	
Exceptional items	(236)	(387)	(71)	Impairments of intangible assets
Reported operating loss	(2,640)	(2,369)	(2,142)	
Finance costs (net)	(36)	(35)	(205)	
Reported loss before tax	(2,676)	(2,404)	(2,347)	
Tax	407	278	286	R&D tax credits
Reported loss after tax	(2,269)	(2,126)	(2,061)	
Adjusted EPS	(0.65)		(0.56)	Adjusted for share-based payments only
Basic and diluted EPS (p)	(0.74)	-	(0.67)	

Source: Nanoco Group accounts

We made minor adjustments to our estimates in March following management's statement that the revenues from the fourth ST work package meant that FY22 revenues were likely to be higher than the £2.1m generated in FY21. We have not changed them subsequently.

Realising value from organic activities

While Nanoco is providing an expanding range of materials to a number of customers for multiple potential use cases, including sensing materials for an Asian chemicals customer (see Exhibit 2), the company's focus is on manufacturing scale-up for ST. Nanoco and ST have been working together for over three years. Originally this was as part of a supply chain for a major US customer, with Nanoco manufacturing nanomaterials that ST used to improve the sensitivity of its near-infrared (NIR) sensors. This programme was discontinued by the US customer in December 2019 for reasons wholly unconnected to the performance of Nanoco's materials and service delivery. By this point Nanoco had commissioned its production facility in Runcorn, conclusively demonstrating that it could manufacture NIR materials at volume. In May 2020 ST signed a framework agreement with Nanoco covering both development work and commercial supply of nanomaterials for use in multiple infrared sensing applications over a five-year period. The agreement covers the supply of small-scale volumes of nanomaterials for NIR sensors. It also covered a project to develop a new generation of nanomaterials which we have previously inferred are in the short-wave infrared (SWIR) range. In May 2021 Nanoco announced that it was working on the second phase of the project, which is the optimisation of the new materials. A third work-package demonstrating how to scale-up production of the SWIR material for enhancing the sensitivity of silicon sensors was announced in November 2021. Most recently, in March 2022, Nanoco announced it had signed an agreement for a fourth work package, which is for the delivery of an enhanced and scaled up version of the SWIR material, indicating that the performance achieved so far merits scaling up the process. This progress is consistent with management's goal of having visibility of production revenues during calendar H222.

Exhibit 2: Sensing portfolio development

January 2022	NIR			SWIR								
Wavelength	(<10 µm)			(10 – 13 µm)			(13 -15 µm)			(>15 µm)		
Material	A	B	C	A	B	C	A	B	C	A	B	C
Customer 1	V						S					
Customer 2		D						D				
Customer 3	D									D		
Customer 4		D			D			D				
Customer 5							D			D		

Legend
- D Development – material at R&D scale
- O Optimisation – optimisation for specific application
- S Scale Up – scaling up for Runcorn production
- V Validation – Runcorn material ready for validation
- P Production – ready for production: **ultimate goal**
- Change / progress in Period

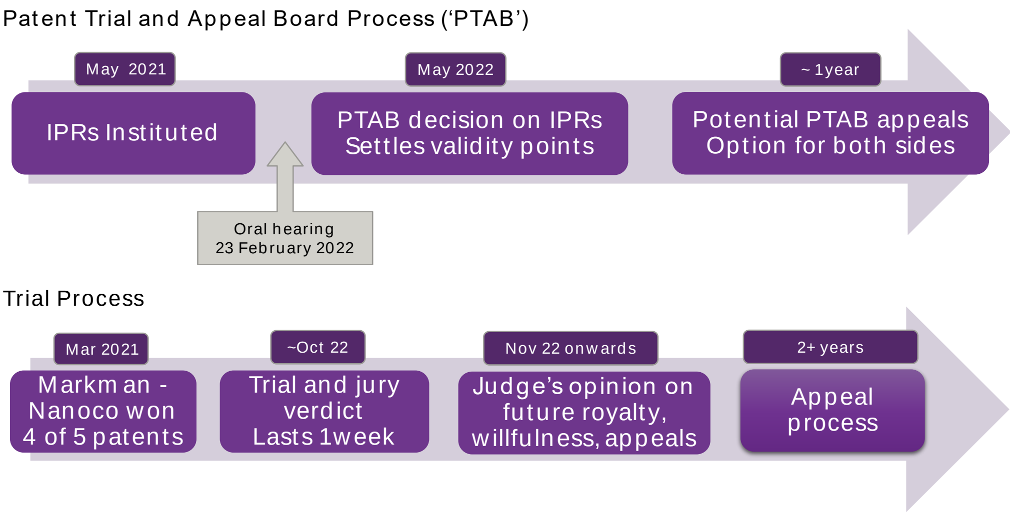
Source: Nanoco Group

The May 2020 agreement also committed ST to taking a specified minimum volume of nanomaterials from Nanoco if the enhanced sensors gain market traction and commercial volumes are required. These materials would be produced at the existing facility in Runcorn. The impact that a move to commercial production will have on revenues depends on what applications ST's sensors will be used for. ST is engaged with many customers that could potentially deploy sensing chips incorporating Nanoco's material. These potential applications are discussed in our August note. Deployment by a major mobile phone company in a key handset model could potentially generate c £15–20m annual revenues working a single five-day shift, while deployment in a more niche application, such as virtual reality (VR) glasses, would generate lower revenues, but is likely to catalyse take-up by other customers. Longer-term, should Nanoco's material be widely deployed in multiple handset models or other high volume devices, we note that the existing production capacity in Runcorn could generate sensing application revenues of £100m/year working 24/7.

Realising value from patent litigation

Until the development programmes with ST or other customers definitely move to commercial production, we believe that most of Nanoco's value lies in a satisfactory resolution of the patent infringement dispute with Samsung which Nanoco instigated in February 2020. The lawsuit alleges that Samsung 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. Although the outcome of this litigation is by no means certain, we note that the large US litigation finance specialist funding the costs of the litigation undertook detailed due diligence before agreeing to provide finance. The lawyers, who are working on the case on a discounted fee basis, also carried out significant due diligence.

Exhibit 3: Samsung litigation timeline



Source: Nanoco Group

Nanoco expects a final decision on the validity of the patents in May 2022. If this is favourable, Nanoco will have cleared the first of two major hurdles in proving validity. The court hearing, which is likely to take place in calendar H222, will then focus on infringement and damages, with validity effectively a settled matter by then. The transcript of the oral hearing in the inter partes reviews (IPRs) of the five patents in the case, which took place on 23 February 2022, was released on 17 March 2022. While the transcript of the oral hearing is subject to interpretation, Nanoco believes that the judges' lines of questioning appear, on balance, to favour Nanoco's position on the majority of points. In the interim statement, Nanoco notes that, if the trial verdict is favourable, it is likely to commence further litigation in territories where it has registered its patents and where the legal process is faster than the US and, importantly, where injunctions are more commonly granted. (Injunctions are rare in the US unless an infringer is a direct competitor). While this could potentially result in payouts to Nanoco while the outcome of the US trial is still being appealed, it is more likely in management's opinion to lead to additional pressure on Samsung to come to the negotiating table with a meaningful settlement offer covering all global markets.

Nanoco estimates that between April 2015 and the present Samsung has sold more than 14 million TVs deploying QDs based on Nanoco IP in the United States, which represents around one-third of its global sales. While Nanoco has not revealed its estimates of the potential payout if the litigation is successful, it has disclosed three possible damages models for calculating the value of the lost revenue to Nanoco:

- Top end: damages based on the premise that Samsung's QD TV market in the US is wholly enabled by Nanoco's QD technology, so the value of the lost revenue would be derived from the total value of that market.
- Mid: damages based on the premise that the QD-enabled display is a high proportion of the additional value of a QD-enhanced TV compared with a standard TV.
- Low end: damages based on the value only of the QD film in the displays.

There are further options as well. Applying the low-end valuation model, we assume the QD enhanced 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. Had the alleged patent infringement not taken place, we believe that the volumes of QDs Samsung required would have been higher than Nanoco could have produced in Runcorn, so it would have licensed its technology to partners, primarily Dow Chemical, and would have received significant royalties. 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 in the United States alone.

A damages award may also make an additional allowance for future sales of infringing TVs and a possible uplift of up to three times for wilfulness. While the ongoing litigation only covers the United States, we understand that Samsung would also be likely to seek a global negotiated settlement covering sales in other territories. Nanoco would retain 50–80% of the award, depending on its magnitude, and would have to pay UK corporation tax on the amount received, which could be offset against £36m losses.

Exhibit 4: Financial summary

£m	2019	2020	2021	2022e
Year end 31 July	IFRS	IFRS	IFRS	IFRS
INCOME STATEMENT	restated	restated		
Revenue	7.1	3.9	2.1	2.2
Cost of Sales	(0.7)	(0.3)	(0.2)	(0.2)
Gross Profit	6.5	3.5	1.9	2.0
EBITDA	(3.8)	(2.9)	(2.9)	(3.0)
Operating profit (before amort. and excepts).	(5.0)	(4.8)	(4.6)	(4.3)
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)	(0.4)	(0.7)
Reported operating profit	(5.5)	(5.9)	(5.0)	(5.0)
Net Interest	(0.0)	(0.1)	(0.1)	(0.5)
Profit Before Tax (norm)	(5.0)	(4.9)	(4.7)	(4.8)
Profit Before Tax (reported)	(5.5)	(6.0)	(5.1)	(5.5)
Reported tax	1.2	0.9	0.7	0.6
Profit After Tax (norm)	(3.9)	(4.0)	(4.0)	(4.2)
Profit After Tax (reported)	(4.4)	(5.1)	(4.4)	(4.9)
Minority interests	0.0	0.0	0.0	0.0
Net income (normalised)	(3.9)	(4.0)	(4.0)	(4.2)
Net income (reported)	(4.4)	(5.1)	(4.4)	(4.9)
Average Number of Shares Outstanding (m)	286	287	306	306
EPS - normalised (p)	(1.34)	(1.39)	(1.30)	(1.37)
EPS - normalised fully diluted (p)	(1.34)	(1.39)	(1.30)	(1.37)
EPS - basic reported (p)	(1.52)	(1.77)	(1.44)	(1.60)
Dividend per share (p)	0.00	0.00	0.00	0.00
BALANCE SHEET				
Fixed Assets	5.6	4.6	3.4	3.0
Intangible Assets	3.9	3.7	2.9	2.6
Tangible Assets	1.7	0.9	0.5	0.4
Investments & other	0.0	0.0	0.0	0.0
Current Assets	9.5	7.2	5.8	2.7
Stocks	0.2	0.1	0.1	0.1
Debtors	1.1	1.0	1.2	0.7
Cash & cash equivalents	7.0	5.2	3.8	1.2
Other	1.1	0.9	0.7	0.7
Current Liabilities	(5.0)	(3.6)	(2.4)	(2.2)
Creditors	(2.6)	(2.3)	(1.6)	(1.5)
Tax and social security	0.0	0.0	0.0	0.0
Short term financial leases	(0.7)	(0.6)	(0.5)	(0.5)
Short term bank debt	0.0	0.0	0.0	0.0
Other	(1.6)	(0.6)	(0.3)	(0.3)
Long Term Liabilities	(1.8)	(1.3)	(3.8)	(4.3)
Long term financial leases	(1.0)	(0.5)	(0.1)	(0.6)
Loan notes	(0.4)	(0.5)	(3.5)	(3.5)
Other long-term liabilities	(0.4)	(0.2)	(0.1)	(0.1)
Net Assets	8.3	7.0	3.1	(0.8)
Minority interests	0.0	0.0	0.0	0.0
Shareholders' equity	8.3	7.0	3.1	(0.8)
CASH FLOW				
Op Cash Flow before WC and tax	(3.8)	(3.0)	(2.8)	(3.0)
Working capital	1.8	(1.4)	(1.4)	0.3
Exceptional & other	(0.0)	(0.8)	(0.1)	0.0
Tax	1.4	1.1	0.9	0.7
Operating Cash Flow	(0.6)	(4.1)	(3.5)	(1.9)
Capex	(3.1)	(0.7)	(0.3)	(0.4)
Acquisitions/disposals	0.0	0.0	0.0	0.0
Net interest	0.0	0.0	(0.0)	(0.1)
Equity financing	0.0	3.2	0.0	0.0
Dividends	0.0	0.0	0.0	0.0
Other	0.0	(0.8)	2.3	0.0
Net Cash Flow	(3.7)	(2.4)	(1.5)	(2.4)
Opening net debt/(cash) - excluding finance leases	(10.3)	(6.6)	(4.7)	(0.3)
FX	0.0	0.0	0.0	0.0
Other non-cash movements	0.0	0.6	(3.0)	0.0
Closing net debt/(cash)	(6.6)	(4.7)	(0.3)	2.2

Source: Company data, Edison Investment Research

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