

# Rakon Limited

## Sector and 5G Market Update

**JAMES LINDSAY**

James.Lindsay@forsythbarr.co.nz  
 +64 9 368 0145

For investors it has been a rough start to 2022. Global markets and the technology sector specifically have fallen, reacting to changes in inflation expectations and the change in the stance of several central banks. Global supply chain disruptions continue. Despite this, the underlying markets for Rakon's (RAK's) growth profile, 5G mobile, Low-Earth-Orbit (LEO) and industrial positioning markets, remain solid. Given this underlying strength, we haven't changed our FY22 forecasts even with the risks present. We also consider it unlikely that the concerns raised about spectrum interference for aircraft from 5G mobile networks will prove material.

NZX Code	RAK	Financials: Sep/	21A	22E	23E	24E	Valuation (x)	21A	22E	23E	24E
Share price	NZ\$1.89	NPAT* (NZ\$m)	9.6	31.2	19.5	23.2	PE	44.9	13.9	22.2	18.7
Spot Valuation	NZ\$2.26	EPS* (NZc)	4.2	13.6	8.5	10.1	EV/EBIT	38.9	12.2	18.8	15.7
Risk rating	Medium	EPS growth* (%)	n/a	n/a	-37.4	18.9	EV/EBITDA	18.8	8.6	11.2	9.5
Issued shares	229.1m	DPS (NZc)	0.0	0.0	0.0	5.1	Price / NTA	4.5	3.4	2.9	2.7
Market cap	NZ\$433m	Imputation (%)	0	0	0	100	Cash div yld (%)	0.0	0.0	0.0	2.7
Avg daily turnover	284.0k (NZ\$343k)	*Based on normalised profits					Gross div yld (%)	0.0	0.0	0.0	3.7

### Tech sector performance and interest rates

Financial markets, especially the technology sector, have fallen heavily at the start of 2022, following central banks' announcements of higher interest rates to address rising inflation. Accordingly, we surmise this year's sell-off in RAK as broadly interest rate and sector-related rather than any company-specific factor(s).

### 5G Market demand dynamics and supply chain disruptions

The 5G market remains strong despite capacity and supply chain disruptions, the latter of which may be exacerbated in the short-term by Chinese New Year celebrations. Global chip manufacturers continue to respond to the current chip shortage and many have announced new plants in the last six to twelve months. To date, we haven't seen the need to change our FY22 forecasts but note a complex balance of four critical factors:

- Supply chain issues and the sourcing of adequate inputs.
- The ability of RAK to source skilled labour.
- Risk of an Omicron disruption to RAK's manufacturing capability.
- Underlying solid demand in core markets, especially in 5G and LEO.

### 5G at airports a non-issue for RAK

In the US, there have been concerns about whether 5G mobile communications could interfere with aircraft's radio altimeters given the closeness of the frequencies used. We don't consider the issue material or likely to slow the growth in 5G markets. The US Federal Aviation Administration (FAA) has recently moved to approve an estimated 90% of the US commercial fleet to perform low-visibility landings at airports where wireless companies have deployed 5G on C-band. The FAA is collaborating with telecommunications companies, such as AT&T, and the aviation community to ensure safe operations at airports and allow planned 5G deployments. This is very unlikely to be an issue for RAK given the rollout of most 5G towers will be in metropolitan areas, away from airports, and we consider it highly likely the industry will find compromises or solutions. In the future we'd expect regular noise around spectrum interference as the number of 5G connections rises globally and other industries increase their usage of new technologies.

**Rakon Limited (RAK)**
**Market Data (NZ\$)**

Priced as at 02 Feb 2022	<b>1.89</b>
52 week high / low	1.88 / 0.54
Market capitalisation (NZ\$m)	432.9

**Key WACC assumptions**

Risk free rate	2.30%
Equity beta	1.15
WACC	8.9%
Terminal growth	2.5%

<b>Profit and Loss Account (NZ\$m)</b>	2020A	2021A	2022E	2023E	2024E
Sales revenue	119.0	130.9	173.3	171.1	188.2
<b>Normalised EBITDA</b>	<b>14.5</b>	<b>23.5</b>	<b>49.4</b>	<b>37.5</b>	<b>44.2</b>
Depreciation and amortisation	(13.7)	(13.4)	(13.4)	(8.6)	(9.2)
<b>Normalised EBIT</b>	<b>3.5</b>	<b>11.3</b>	<b>35.0</b>	<b>22.4</b>	<b>26.9</b>
Net interest	(1.1)	(1.6)	(1.6)	(0.4)	(0.0)
Associate income	0.8	1.4	3.3	3.4	3.4
Tax	0.7	(1.5)	(5.5)	(5.8)	(7.1)
Minority interests	0	0	0	0	0
<b>Normalised NPAT</b>	<b>4.0</b>	<b>9.6</b>	<b>31.2</b>	<b>19.5</b>	<b>23.2</b>
Abnormals/other	0	0	0	0	0
<b>Reported NPAT</b>	<b>4.0</b>	<b>9.6</b>	<b>31.2</b>	<b>19.5</b>	<b>23.2</b>
Normalised EPS (cps)	1.7	4.2	13.6	8.5	10.1
DPS (cps)	0	0	0	0	5.1

<b>Growth Rates</b>	2020A	2021A	2022E	2023E	2024E
Revenue (%)	4.3	10.0	32.4	-1.3	10.0
EBITDA (%)	9.2	62.1	>100	-24.1	17.9
EBIT (%)	-31.5	>100	>100	-36.1	20.3
Normalised NPAT (%)	18.3	>100	>100	-37.4	18.9
Normalised EPS (%)	18.3	>100	>100	-37.4	18.9
Ordinary DPS (%)	n/a	n/a	n/a	n/a	n/a

<b>Cash Flow (NZ\$m)</b>	2020A	2021A	2022E	2023E	2024E
<b>EBITDA</b>	<b>14.5</b>	<b>23.5</b>	<b>49.4</b>	<b>37.5</b>	<b>44.2</b>
Working capital change	(6.6)	7.2	(19.4)	1.5	(3.4)
Interest & tax paid	(1.4)	(1.8)	(7.1)	(6.2)	(7.1)
Other	2.9	(8.8)	(2.5)	(2.6)	(2.7)
<b>Operating cash flow</b>	<b>9.4</b>	<b>20.1</b>	<b>20.5</b>	<b>30.2</b>	<b>31.0</b>
Capital expenditure	(4.5)	(5.1)	(8.5)	(15.2)	(6.4)
(Acquisitions)/divestments	0.0	0	0	0	0
Other	(4.9)	(2.0)	(3.1)	(3.2)	(2.8)
<b>Funding available/(required)</b>	<b>0</b>	<b>12.9</b>	<b>8.9</b>	<b>11.8</b>	<b>21.8</b>
Dividends paid	0	0	0	0	(4.6)
Equity raised/(returned)	0	0	0	0	0
<b>(Increase)/decrease in net debt</b>	<b>0</b>	<b>12.9</b>	<b>8.9</b>	<b>11.8</b>	<b>17.2</b>

<b>Balance Sheet (NZ\$m)</b>	2020A	2021A	2022E	2023E	2024E
Working capital	57.8	50.6	70.0	68.5	71.9
Fixed assets	18.9	18.3	21.2	30.3	28.5
Intangibles	9.0	7.6	7.1	6.7	6.6
Right of use asset	9.7	7.2	4.5	1.8	13.2
Other assets	27.5	29.6	29.6	29.6	29.6
<b>Total funds employed</b>	<b>122.9</b>	<b>113.3</b>	<b>132.4</b>	<b>137.0</b>	<b>149.7</b>
Net debt/(cash)	7.9	(5.0)	(14.0)	(25.8)	(43.0)
Lease liability	6.7	5.4	2.3	(0.8)	10.5
Other liabilities	16.4	9.0	9.0	9.0	15.9
Shareholder's funds	91.9	103.9	135.1	154.6	166.2
Minority interests	0	0	0	0	0
<b>Total funding sources</b>	<b>122.9</b>	<b>113.3</b>	<b>132.4</b>	<b>137.0</b>	<b>149.7</b>

\* Forsyth Barr target prices reflect valuation rolled forward at cost of equity less the next 12-months dividend

**Spot valuation (NZ\$)**

1. DCF	2.26
--------	------

**DCF valuation summary (NZ\$m)**

Total firm value	519
(Net debt)/cash	(5)
Less: Capitalised operating leases	
Value of equity	524

<b>Valuation Ratios</b>	2020A	2021A	2022E	2023E	2024E
EV/EBITDA (x)	30.7	18.8	8.6	11.2	9.5
EV/EBIT (x)	>100x	38.9	12.2	18.8	15.7
PE (x)	>100x	44.9	13.9	22.2	18.7
Price/NTA (x)	5.2	4.5	3.4	2.9	2.7
Free cash flow yield (%)	3.2	5.8	6.7	10.5	8.6
Net dividend yield (%)	0.0	0.0	0.0	0.0	2.7
Gross dividend yield (%)	0.0	0.0	0.0	0.0	3.7

<b>Capital Structure</b>	2020A	2021A	2022E	2023E	2024E
Interest cover EBIT (x)	3.4	7.1	22.0	59.4	>100x
Interest cover EBITDA (x)	13.7	14.7	31.1	99.5	>100x
Net debt/ND+E (%)	7.9	-5.1	-11.5	-20.0	-34.9
Net debt/EBITDA (x)	0.5	n/a	n/a	n/a	n/a

<b>Key Ratios</b>	2020A	2021A	2022E	2023E	2024E
Return on assets (%)	2.4	7.3	18.0	11.2	11.6
Return on equity (%)	4.3	9.3	23.1	12.6	14.0
Return on funds employed (%)	0.0	0.0	0.0	0.0	0.0
EBITDA margin (%)	12.2	17.9	28.5	21.9	23.5
EBIT margin (%)	3.0	8.6	20.2	13.1	14.3
Capex to sales (%)	-3.8	-3.9	-4.9	-8.9	-3.4
Capex to depreciation (%)	-39	-45	-74	-229	-86
Imputation (%)	0	0	0	0	100
Pay-out ratio (%)	0	0	0	0	50

<b>Segment Revenue (NZ\$m)</b>	2020A	2021A	2022E	2023E	2024E
Telecommunications	65.2	77.1	79.8	102.1	117.5
Positioning	18.9	14.0	27.1	29.0	26.5
Space and Defence	28.2	30.2	30.5	32.3	36.4
IoT, Emerging and Other	6.7	7.0	35.2	7.4	7.6
Other revenues	0.0	2.6	0.7	0.2	0.2
<b>Total Revenue</b>	<b>119.0</b>	<b>130.9</b>	<b>173.3</b>	<b>171.1</b>	<b>188.2</b>

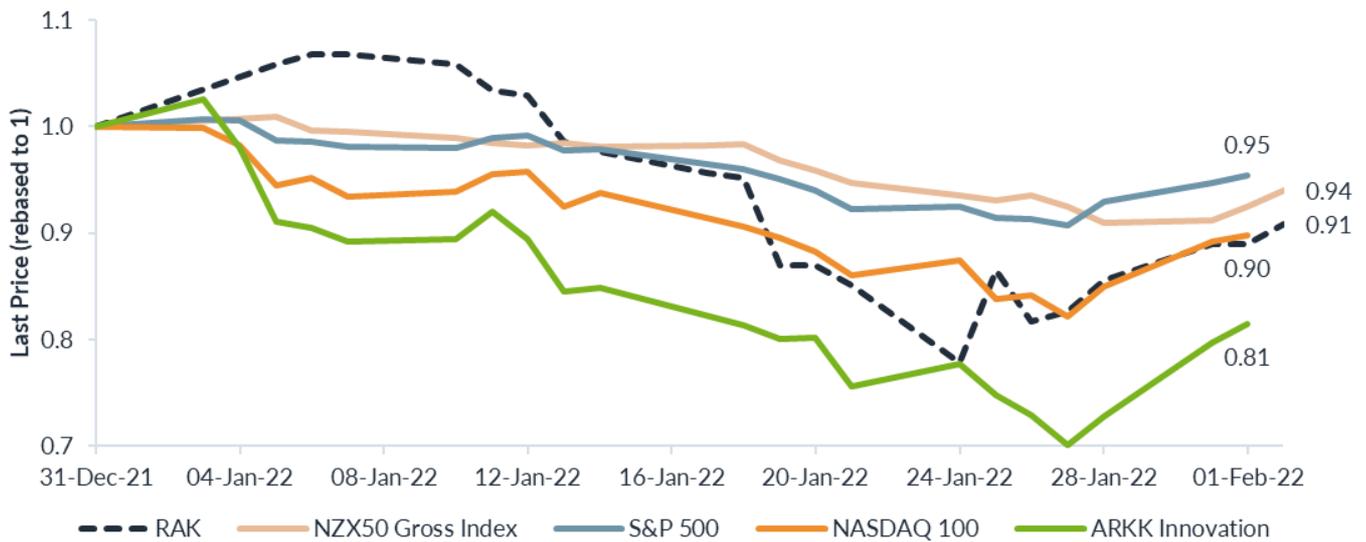
<b>Segment Gross Margin (%)</b>	2020A	2021A	2022E	2023E	2024E
Telecommunications	40	40	41	40	41
Positioning	36	48	53	51	49
Space and Defence	69	68	67	67	65
IoT, Emerging and Other	-5	15	56	15	15

<b>Underlying EBITDA</b>	2020A	2021A	2022E	2023E	2024E
<b>Profit before income tax</b>	<b>3.3</b>	<b>11.2</b>	<b>36.7</b>	<b>25.3</b>	<b>30.3</b>
Depreciation and amortisation	(8.8)	(8.7)	(8.7)	(9.2)	11.2
Finance costs - net	(1.1)	(1.6)	(1.6)	(0.4)	(0.0)
Adjustments	(1.4)	(1.8)	(2.4)	(2.4)	(2.5)
Other non-cash items	(0.2)	(0.2)	0.1	(0.1)	(0.2)
<b>Underlying EBITDA</b>	<b>14.8</b>	<b>23.5</b>	<b>49.4</b>	<b>37.5</b>	<b>44.2</b>

## Tech sector performance

In the first few weeks of 2022 most of the world’s major stock market indices have fallen heavily. The tech sector has been particularly hard hit. The NASDAQ 100 Technology index peaked at 9,855 on 16 November 2021, +2.8% higher than its price on the last day of 2021. However, the index has since shed -10% of its value so far in 2022. Individually Netflix has lost -24% of its value, Amazon -9%, Microsoft -8%, and Alphabet -5% since the start of 2022. ARKK, the flagship ARK Innovation ETF and a bellwether for the tech sector, is down -19% year-to-date.

Figure 1. Global and technology stock market indices



Source: Bloomberg, Forsyth Barr analysis

### Why is this happening?

The poor start to the year for financial markets reflects market concerns regarding rising inflation and the flow-on effects. Investors are now incorporating the following dynamics into their projections:

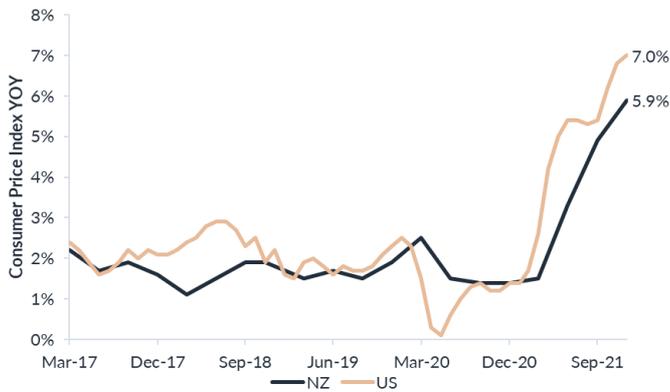
- Rising inflation rates around the world.
- Central banks reacting to this inflation by moving to a monetary tightening bias after a period of extraordinarily accommodative monetary policy.
- Interest rates moving higher.

Up until recently inflation had been characterised as transitory by some economists. A phenomenon brought about by supply chain issues triggered by the coronavirus pandemic. However, inflation has continued to rise, reaching 7.0% in the US in December 2021. Generally, central banks no longer label inflation as transitory. They are moving away from emergency pandemic measures as countries start reopening. The US Federal Reserve has indicated that it may raise interest rates three times during 2022, perhaps beginning as early as March.

Similarly, in New Zealand inflation hit a 31-year high of 5.9% in December 2021 (see Figure 2). ANZ Bank has forecast that the Reserve Bank of New Zealand will lift the official cash rate (OCR) to 3.0% by April 2023.

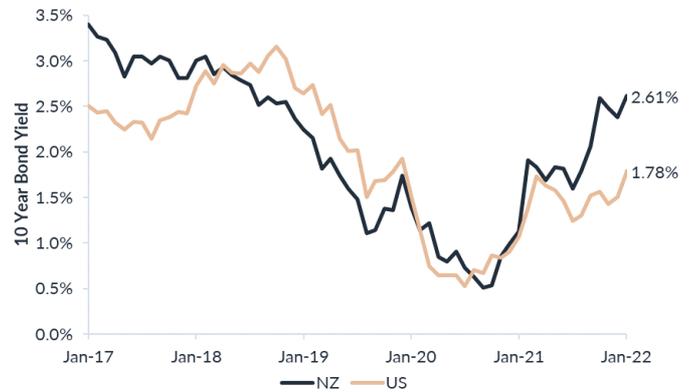
US Treasury yields have risen to reach post-pandemic highs at the start of 2022. The yield on US 10-year Treasuries is now 1.78% versus the near-zero levels seen during 2020 and 2021. Essentially, this is because rising inflation erodes the return on bonds, leading investors to demand a higher yield. In New Zealand, our 10-year government bond yields have increased from lows of 0.50% in 2020 to 2.61% now (see Figure 3).

**Figure 2. Consumer price index YOY**



Source: Bloomberg, Forsyth Barr analysis

**Figure 3. 10 year bond yield**



Source: Bloomberg, Forsyth Barr analysis

### Why are technology stocks being impacted the most?

Many factors drive stock valuations, including current earnings, perceived risk, and future growth potential. With many technology stocks the profits are many years out. When investors discount those future earnings back into valuing the company today, the level of interest rates is essential. Because of the long duration nature of the earnings profiles of many growth-oriented and technology-related stocks, they have been hit especially hard by recent movements in interest rates. As interest rates have moved upward, investors are demanding a higher return, which negatively affects the value of earnings many years out, impacting the value of these businesses today.

The souring of market sentiment toward growth and technology stocks is causing a degree of market rotation where investors sell these stocks, seen as risky assets, to reinvest in other sectors.

### How has RAK performed?

RAK has sold off -9% during 2022 from NZ\$2.08 seen on 31 December 2021 to NZ\$1.89 now. This is a slightly better performance but not dissimilar to the NASDAQ 100 index movement over the same period. As such, we surmise this year's sell-off in RAK as broadly sector-related rather than any company-specific factor.

## Market demand dynamics and supply chain disruptions

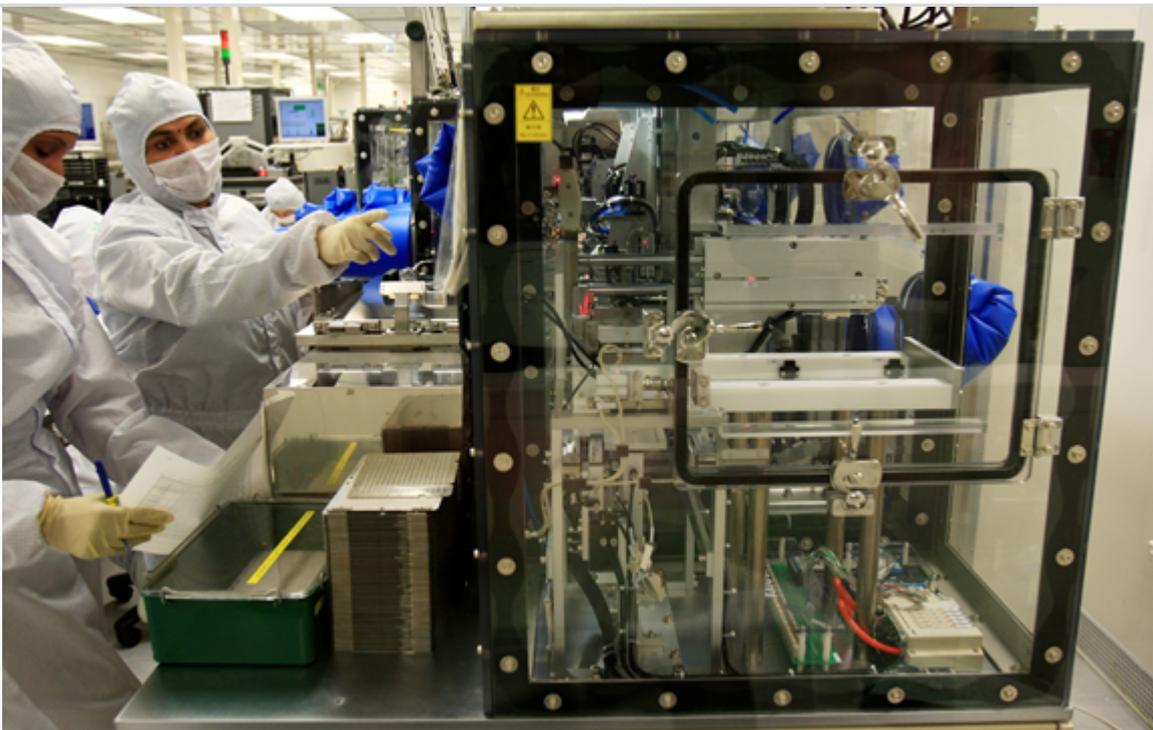
### 5G market and semiconductor disruptions

From our analysis the 5G market remains strong despite industry capacity constraints and supply chain disruptions, likely holding back even more robust growth. The coronavirus pandemic was the principal and initial cause of the semiconductor market's supply chain issues, with flow-on effects across many industries. Chip shortages remain and some industries are still having outages. Deliveries and wait times have generally continued to rise. While there are no apparent signs of improvement for the industry, RAK is partially mitigating these issues by holding inventories.

Exacerbating the issue somewhat is that Chinese New Year celebrations started earlier this week. Many Chinese factories and businesses will close for up to ten days, sometimes more, to allow employees to return to their families and celebrate the festival. This has always been a big disrupter in the global supply chain; however, given the already tight supply/demand imbalance it may have a more notable affect on international trade this year.

The underlying market is, however, strong. One market commentator's report has suggested that the 5G market will grow at a compound annual growth rate of 31% during 2022-2028. Growth in the infrastructure end of the market of 5G is vital for RAK.

Figure 4. RAK staff manufacturing electronic components at RAK's Corporate Head Office in Mt Wellington



Source: Martin Sykes

### US Department of Commerce Semiconductor report

On the issue of global chips, the US Department of Commerce released a report on 25 January 2022, "[Results from Semiconductor Supply Chain Request for Information](#)". It described the issue as a "perfect storm of factors". Some of the Biden Administration's report key findings included:

- Demand ... was as much as 17% higher in 2021 than 2019 ...
- Buyers aren't seeing commensurate increases in the supply they receive.
- This is a major supply and demand mismatch.
- Inventory ... has fallen from 40 days in 2019 to less than 5 days in 2021.
- The primary bottleneck across the board appears to be in wafer production capacity.

See <https://www.commerce.gov/news/blog/2022/01/results-semiconductor-supply-chain-request-information>

## Supply response

Global chip manufacturers are responding to the shortage and in scale. There have been many significant new plant announcements over the past six to twelve months. It is hard to determine precisely when this new capacity will come to market and whether the increased demand balances the market – or tips it the other way towards an oversupply imbalance. It is also hard to foretell when the industry can expect the current chip shortage to be solved, given the potential for customers to over-order at the first opportunity. However, most industry commentators expect an easing of pressures from the middle of 2022 and, more likely, a return to typical markets sometime in 2023.

RAK management has been working hard to avoid supply chain issues. We consider it a useful risk reduction that RAK has partnerships and associated shareholdings in key areas of supply chain constraints, including:

- Timemaker – 40% shareholding in the world's largest blank quartz manufacturer.
- Siward – a 12.2% shareholder in RAK and is one of the world's leading crystal and oscillator solutions providers.
- Hana – offers outsourced contract assembly for RAK.

## Data centres

Data centre (DC) growth has been rapid around the world with many hundreds of billions being poured into the market. New Zealand is now having its turn, with the country's first few hyper-scale DC deployments being announced:

- January 2022: Australian-based **DCI Data Centres (DCI)** revealed that it will spend NZ\$600 million for its second New Zealand-based DC to be built in Albany and provide 40MW of capacity. This follows the announcement of its first 10MW DC in Westgate in June 2021.
- September 2021: **AWS** announced that it plans to invest NZ\$7.25 billion over several years to develop an Auckland-based DC which will launch in 2024. AWS already has two Amazon Cloud-Front edge locations and offers AWS Outposts in Auckland.
- February 2021: **Microsoft** announced that it will launch three hyper-scale DCs expected to cost well north of the NZ\$100 million threshold for Overseas Investment Office approval.
- December 2020: **Datagrid** announced that it will invest NZ\$700 million in a DC for Southland. It aims to build up to ten 6,500m<sup>2</sup> modules, providing a total capacity of 150MW. The initial build would be for one module at a cost of more than NZ\$100 million and should be complete by the end of next year.
- May 2020: **Canberra Data Centres (CDC)**, which is 48% owned by Infratil (IFT), announced plans for two hyper-scale DCs (11,000m<sup>2</sup> in Silverdale and 7,000m<sup>2</sup> in Hobsonville). Initially this is expected to cost NZ\$80m to NZ\$100m and more than NZ\$300 million over time.

While these local developments won't be a significant revenue contributor for RAK specifically, they reflect the scale and sizeable monies spent on major DCs worldwide. DCs could be a valuable growth segment for RAK as part of their Telecommunications segment.

## LEO satellites

Funding of private-sector space companies hit an all-time high of US\$10 billion in 2021. This has been driven, in part, by the competitive nature of Amazon's Bezos, SpaceX's Musk and a general wave of innovation with local company Rocket Lab also participating. Investors are directing funds to Low-Earth-Orbit (LEO) and lunar programmes as technologies develop.

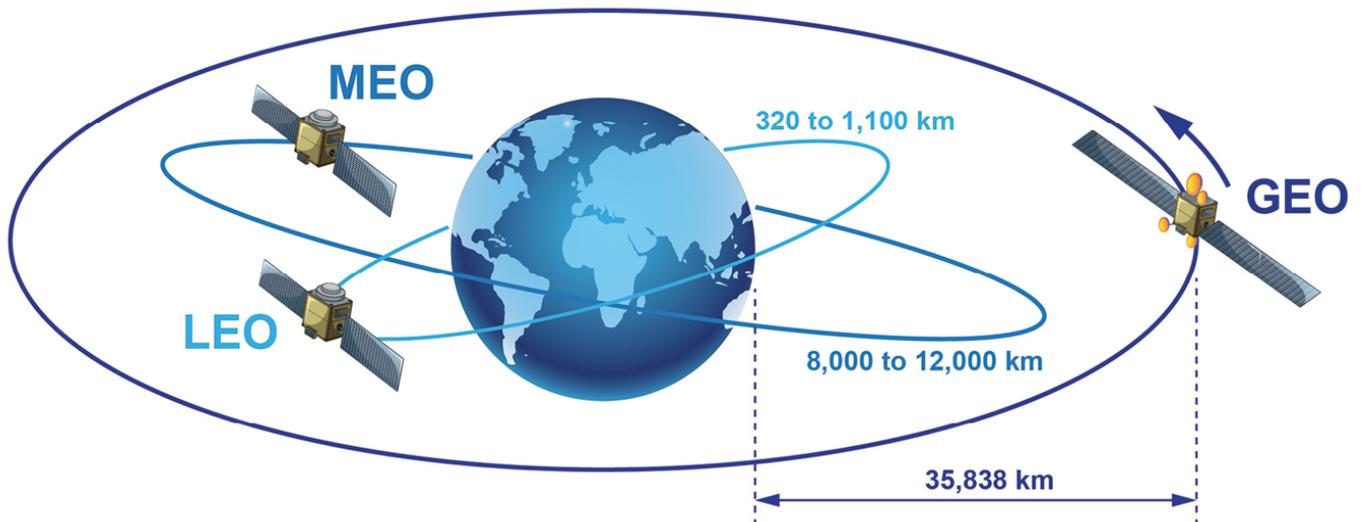
Industry estimates are that around 60% to 70% of all space-company funding is being channelled towards LEO endeavours. Investment in lunar programmes and initiatives further afield is growing and estimated to be about 10% to 15% of total private space spending. Historically, most funding focussed on GPS, satellite and television communications that used geosynchronous equatorial orbit (GEO) or medium-Earth orbit (MEO) satellites. Because of the much nearer proximity to earth, satellites in LEO enable high-speed and low-latency communications while also being much less expensive. The launch programmes of NewSpace companies are well documented.

As an example, it is anticipated that 2022 will be a big year for SpaceX. It is officially targeting up to one launch per week, with many of these to launch LEO satellites for SpaceX's Starlink programme to develop high-speed, low-latency broadband internet across the globe. See <https://www.starlink.com/satellites>

According to leading orbit-watcher, Jonathan McDowell, at the end of 2021 there were around 5,000 active satellites in orbit. If current NewSpace proposals come to fruition more than 50,000 satellites will orbit overhead within ten years.

RAK intends to be a participant in this sector growth. Late in 2021, RAK announced many new product lines for the NewSpace area for LEO satellites. See <https://www.rakon.com/applications/space/newspace>. Time will tell how successful these new RAK products will be. However, the opportunity set is large and the LEO industry is progressing at pace. RAK’s positioning at the forefront of technology could provide an early advantage. As such, we’d expect RAK to continue focussing on this opportunity from a sales perspective and further develop related R&D.

**Figure 5. Altitude classifications for geocentric orbits**



Source: Vita Technologies

**Impact on forecasts**

In our FY22 forecasts we have already factored some impact from supply chain issues into 4Q22. We have also anticipated that ongoing constraints do have some impact on 1H23. However, we haven’t seen any reason to amend our forecasts yet as we note it is a complex balance of four critical factors:

- Supply chain issues and the sourcing of adequate inputs.
- The ability of RAK to source skilled labour.
- Risk of an Omicron disruption to manufacturing capability.
- Underlying solid demand in markets, especially in 5G, and potential in LEO.

We continue to view the strength in the underlying markets as countering the supply chain risks.

## Is 5G a risk at airports?

In the US, a potential issue where 5G mobile communication technology could interfere with aircraft equipment has gained international press during January 2022. It appears too early to tell if this is a serious technical issue when both use parts of the **C-band spectrum**. It may turn out to be a non-event or even just a power struggle between the US Federal Communications Commission (FCC) and US Federal Aviation Administration (FAA) involving the airline and telecommunication industries. Other countries that are rolling out 5G using C-band frequencies that overlap with or are close to aircraft radio altimeters have not, from our research, reported issues.

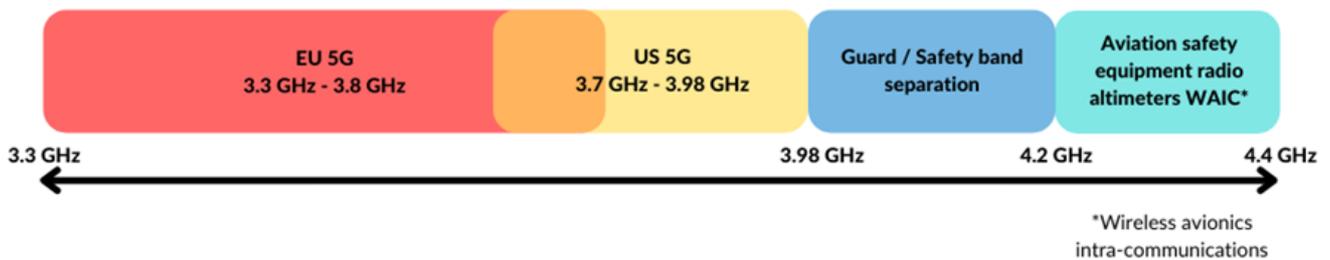
### What is C-Band?

C-Band is a radio frequency band often quoted between 3.3GHz and 4.4GHz (but definitions and ranges vary). It is a finite and extremely valuable bandwidth for modern communication. C-band sits between the two Wi-Fi bands, which are at 2.4GHz and 5GHz. For 5G, most European and Asian countries currently use from 3.3 to 3.8GHz. In the US it's from 3.3 to 4.2GHz, with Japan using the same spectrum band. New Zealand's choice of mid-band near 3.5GHz for 5G sits at the most common spot on the spectrum globally.

### What is the issue in the US?

The issue arises as the spectrum allocated for telecommunications in the US is adjacent (with a guard safety buffer) to those used by modern aircraft to measure altitude, an obviously vital piece of aircraft equipment. The effect of this potential problem is that the radio waves from 5G towers, in proximity to airports, could cause interference to onboard radio altimeter signals on plane arrival and departure.

Figure 6. C-band spectrum frequencies and uses



Source: Forsyth Barr analysis

This appears to be more of a US issue due to the frequencies chosen by the FCC for 5G being closer to the safety band. In the US, the C-Band spectrum initially assigned to TV satellite businesses is now used for:

- **Mobile 5G.** In March 2020, the FCC reallocated much of the C-Band for “next-generation services” by adopting new rules authorising a more flexible use **3.7GHz to 3.98GHz band**, including for 5G mobile networks. For mobile operators it sits in what has been referred to as the “goldilocks frequency”, being at a spectrum that delivers on both speed and relatively wide coverage. An FCC auction ending in February 2021 saw 21 telecoms companies bid just over US\$81 billion for over 5,600 C-Band licenses over the US. The spectrum was primarily purchased by US heavyweight telecommunication companies Verizon and AT&T, which spent \$44 billion and \$23 billion, respectively.
- **Guard.** A band separation between the upper end of mobile 5G GHz and the lower end of the aviation radio spectrum.
- **Radio altimeters.** Altimeters measure a plane's altitude and operate on the C-band frequencies but between **4.2 and 4.4GHz**.

While not proven, the concern was that radio waves from 5G phones could potentially distort or damage the radio altimeter's signal near the edges of both ranges. The FAA became concerned about the potential for interference. Safety officials from the FAA directed operators of some Boeing planes to adopt extra procedures when landing on wet or snowy runways. When visibility is poor, pilots undertake instrument landings (IFR) and rely heavily upon onboard systems instead of operating under visual flight rules (VFR).

Accordingly, on 18 January 2022, AT&T and Verizon agreed to temporarily not switch on ~510 towers near airports. Ten days later the FAA announced that it had agreed that AT&T and Verizon could safely enable more towers to deploy 5G service. This was because the parties shared data to precisely map the size and shape of the areas around airports where 5G signals are mitigated.

The FAA continues to work with the aviation community to safely operate in areas of current and planned 5G deployment. So far, the FAA has cleared an estimated 90% of the US commercial aircraft fleet to perform low-visibility landings at airports where wireless companies deployed 5G on C-band.

**Is this a problem elsewhere or for RAK?**

In simple terms, no. The aviation and telecommunication industries will likely find a solution through testing, changing bands or technologies in planes and/or base stations. While adjusting frequency ranges would be expensive for both industries involved, a solution will eventually evolve.

In the European Union, 5G spectrum bandwidth goes up to 3.8GHz so this doesn't represent the same issue. New Zealand uses a band around 3.5GHz spectrum for 5G services, so again it is unlikely to be a problem. The Ministry of Business Innovation and Employment (MBIE) is the government agency held responsible for managing the radio spectrum in New Zealand. Users and allocations can be viewed at [Table of Radio Spectrum Usage in New Zealand \(PIB 21\) Issue 11 | June 2021 \(rsm.govt.nz\)](https://www.rsm.govt.nz/2021/06/21/table-of-radio-spectrum-usage-in-new-zealand-pib-21-issue-11-june-2021).

For RAK the technical issue appears largely irrelevant. Even if this were a genuine technological issue for the telecommunications industry or the remainder of altimeters, the impact on the rollout of 5G would be negligible. RAK's componentry forms a part of 5G base stations, an overwhelming majority of which will be located in metropolitan cities well away from airports.

A further question may arise: will it impact the next generation of 5G mm-wave technology rollout? Again, no. When 5G mm-wave technology is adopted this will be at a significantly higher frequency band in the 24GHz to 86GHz spectrums, so again, it likely won't present a problem. Generally, in the future, distortion issues at the edges of bands of radio waves will become a common problem for the industry to find solutions for.

**Figure 7. A United Airlines Boeing 787 Dreamliner lands at LAX with a cellular tower in the foreground on 19 January 2022**



Source: Patrick T. Fallon/AFP/Getty Images

**Figure 8. Price performance**


Source: Forsyth Barr analysis

**Figure 9. Substantial shareholders**

Shareholder	Latest Holding
Siward Crystal Technology	12.2%
Ahuareka Trust	10.9%
Wairahi Investments and Wairahi Holdings Limited	5.1%

Source: NZX, Forsyth Barr analysis, NOTE: based on SPH notices only

**Figure 10. International valuation comparisons**

Company	Code	Price	Mkt Cap (m)	PE		EV/EBITDA		EV/EBIT		Cash Yld	
				2022E	2023E	2022E	2023E	2022E	2023E		
<b>Rakon</b>	<b>RAK NZ</b>	<b>NZ\$1.89</b>	<b>NZ\$433</b>	<b>13.9x</b>	<b>22.2x</b>	<b>8.7x</b>	<b>11.4x</b>	<b>12.2x</b>	<b>19.1x</b>	<b>0.0%</b>	
Txc Corp	3042 TT	TWD92.60	TWD28,684	9.6x	9.2x	6.3x	5.8x	8.7x	8.2x	7.6%	
Sitime Corp	SITM US	US\$230.15	US\$4,731	71.2x	55.9x	55.6x	41.3x	62.9x	47.8x	n/a	
Microchip Technology Inc	MCHP US	US\$77.72	US\$43,125	16.5x	15.3x	15.6x	14.5x	16.8x	15.6x	1.5%	
Siward Crystal Technology Co	2484 TT	TWD32.30	TWD5,149	10.8x	n/a	n/a	n/a	9.0x	n/a	n/a	
Daishinku Corp	6962 T	¥1241.00	¥44,920	14.1x	10.8x	5.5x	4.4x	10.2x	8.2x	2.0%	
Nihon Dempa Kogyo Co	6779 T	¥1301.00	¥27,006	5.7x	4.8x	5.1x	4.7x	8.0x	6.9x	3.3%	
Seiko Epson Corp	6724 JP	¥1778.00	¥710,551	10.9x	11.0x	4.4x	4.6x	7.9x	8.0x	3.6%	
<b>Compco Average:</b>				<b>19.8x</b>	<b>17.8x</b>	<b>15.4x</b>	<b>12.5x</b>	<b>17.7x</b>	<b>15.8x</b>	<b>3.6%</b>	
<b>EV = Current Market Cap + Actual Net Debt</b>				<b>RAK Relative:</b>	<b>-30%</b>	<b>24%</b>	<b>-44%</b>	<b>-9%</b>	<b>-31%</b>	<b>21%</b>	<b>-100%</b>

Source: \*Forsyth Barr analysis, Bloomberg Consensus, Compco metrics re-weighted to reflect headline (RAK) companies fiscal year end

### Important information about this publication

Forsyth Barr Limited ("Forsyth Barr") holds a licence issued by the Financial Markets Authority to provide financial advice services. In making this publication available, Forsyth Barr (and not any named analyst personally) is giving any financial advice it may contain. Some information about us and our financial advice services is publicly available. You can find that on our website at [www.forsythbarr.co.nz/choosing-a-financial-advice-service](http://www.forsythbarr.co.nz/choosing-a-financial-advice-service)

This publication has been commissioned by Rakon Limited ("Researched Entity") and prepared and issued by Forsyth Barr in consideration of a fee payable by the Researched Entity. Forsyth Barr follows a research process (including through the Analyst certification below) designed to ensure that the recommendations and opinions in our research publications are not influenced by this arrangement and the other interests of Forsyth Barr and related parties disclosed below. However, entities may not be willing to continue to pay for research coverage that includes unfavourable views.

Any recommendations or opinions in this publication do not take into account your personal financial situation or investment goals, and may not be suitable for you. If you wish to receive personalised financial advice, please contact your Forsyth Barr Investment Adviser.

Past performance is not indicative of future performance. Estimates of future performance are based on assumptions that may not be realised. If provided, and unless otherwise stated, the closing price provided is that of the primary exchange for the issuer's securities or investments.

This publication has been prepared in good faith based on information obtained from sources believed to be reliable and accurate. However, that information has not been independently verified or investigated by Forsyth Barr. If there are material inaccuracies or omissions in the information it is likely that our recommendations or opinions would be different. Any analyses or valuations will also typically be based on numerous assumptions (such as the key WACC assumptions); different assumptions may yield materially different results.

Forsyth Barr does not undertake to keep current this publication; any opinions or recommendations may change without notice to you.

In giving financial advice, Forsyth Barr is bound by duties under the Financial Markets Conduct Act 2013 ("FMCA") to:

- exercise care, diligence, and skill,
- give priority to the client's interests, and
- when dealing with retail clients, comply with the Code of Professional Conduct for Financial Advice Services, which includes standards relating to competence, knowledge, skill, ethical behaviour, conduct, and client care.

There are likely to be fees, expenses, or other amounts payable in relation to acting on any recommendations or opinions in this publication. If you are Forsyth Barr client we refer you to the Advice Information Statement for your account for more information.

**Analyst certification:** The research analyst(s) primarily responsible for the preparation and content of this publication ("Analysts") are named on the first page of this publication. Each such Analyst certifies (other than in relation to content or views expressly attributed to another analyst) that (i) the views expressed in this publication accurately reflect their personal views about each issuer and financial product referenced and were prepared in an independent manner, including with respect to Forsyth Barr Limited and its related companies; and (ii) no part of the Analyst's compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed by that Analyst in this publication.

**Analyst holdings:** The following Analyst(s) have a threshold interest in the financial products referred to in this publication: N/A. For these purposes, a threshold interest is defined as being a holder of more than \$50,000 in value or 1% of the financial products on issue, whichever is the lesser.

**Other disclosures:** Forsyth Barr and its related companies (and their respective directors, officers, agents and employees) ("Forsyth Barr Group") may have long or short positions or otherwise have interests in the financial products referred to in this publication, and may be directors or officers of, and/or provide (or be intending to provide) investment banking or other services to, the issuer of those financial products (and may receive fees for so acting). Forsyth Barr is not a registered bank within the meaning of the Reserve Bank of New Zealand Act 1989. Members of the Forsyth Barr Group may buy or sell financial products as principal or agent, and in doing so may undertake transactions that are not consistent with any recommendations contained in this publication. Other Forsyth Barr business units may hold views different from those in this publication; any such views will generally not be brought to your attention. Forsyth Barr confirms no inducement has been accepted from the issuer(s) that are the subject of this publication, whether pecuniary or otherwise, in connection with making any recommendation contained in this publication. In preparing this publication, non-financial assistance (for example, access to staff or information) may have been provided by the issuer(s) being researched.

**Investment banking engagements:** Other than confidential engagements, Forsyth Barr has not within the past 12 months been engaged to provide investment banking services to the Researched Entity.

**Complaints:** Information about Forsyth Barr's complaints process and our dispute resolution process is available on our website - [www.forsythbarr.co.nz](http://www.forsythbarr.co.nz).

**Disclaimer:** Where the FMCA applies, liability for the FMCA duties referred to above cannot by law be excluded. However to the maximum extent permitted by law, Forsyth Barr otherwise excludes and disclaims any liability (including in negligence) for any loss which may be incurred by any person acting or relying upon any information, analysis, opinion or recommendation in this publication. The information contained within this publication is published solely for information purposes and is not a solicitation or offer to buy or sell any financial instrument or participate in any trading or investment strategy.

**Distribution:** This publication is not intended to be distributed or made available to any person in any jurisdiction where doing so would constitute a breach of any applicable laws or regulations or would subject Forsyth Barr to any registration or licensing requirement within such jurisdiction.

**Terms of use:** Copyright Forsyth Barr Limited. You may not redistribute, copy, revise, amend, create a derivative work from, extract data from, or otherwise commercially exploit this publication in any way. By accessing this publication via an electronic platform, you agree that the platform provider may provide Forsyth Barr with information on your readership of the publications available through that platform.