

Australian Equity Research
26 May 2019

Aaron Muller | Analyst | Canaccord Genuity (Australia) Ltd. | aaron.muller@canaccord.com.au | +61.3.8688.9103

BUY

unchanged

PRICE TARGET A\$4.00↑

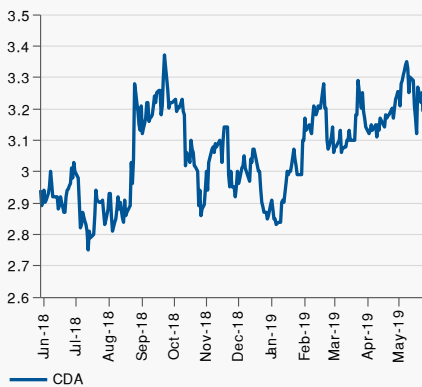
from A\$3.68

Price (26-May) A\$3.24

Ticker CDA-ASX

52-Week Range (A\$):	2.68 - 3.47
Avg Daily Vol (000s) :	200.0
Market Cap (A\$M):	573
Shares Out. (M) :	177.1
Dividend /Shr (AUc):	12.0
Dividend Yield (%) :	370.4
Net Debt (Cash) (A\$M):	(29)
Enterprise Value (A\$M):	548
Cash (A\$M):	29.0
Long-Term Debt (A\$M):	0.0

FYE Jun	2017A	2018A	2019E	2020E
Sales (A\$M)	226.1	229.9	258.0↑	279.7↑
Previous	-	-	242.0	262.1
EBITDA (A\$M)	75.6	70.4	74.7↑	81.1↓
Previous	-	-	72.7	81.2
Net Income Adj (A\$M)	44.7	39.8	43.6↑	47.3
Previous	-	-	42.0	-
EPS Adj&Dil (AUc)	25.2	22.3	24.5↑	26.6
Previous	-	-	23.6	-
P/E (x)	12.9	14.5	13.3	12.2
EV/EBITDA (x)	7.4	7.8	7.2	6.5
DPS (AUc)	13.00	12.50	13.00	13.00
Div. Yield (%)	4.0	3.9	4.0	4.0



Priced as of close of business 26 May 2019

CDA designs and manufactures a range of electronic products including radio communication products, metal detection products and mining technology

Raising Target Price

Detecting growth ahead

CDA provided a positive trading update ahead of its investor day last week, stating that sales have exceeded expectations in 2H19. Having previously guided to a weaker 2H, management now expects 2H19 to be as strong as 1H19. A guidance range was provided for FY19 NPAT of \$42m-\$45m. This compares to our estimate for \$42m. We've raised our estimate to the midpoint of \$43.5m and raise our TP to A\$4.00 (A\$3.68 previously). Looking toward FY20, there appears to be strong momentum across each division thanks to new product development. This has increased CDA's TAM and in turn is improving earnings visibility. Together with strong balance sheet capacity and being a net beneficiary of a lower currency, we believe CDA is well positioned for growth. We retain our BUY rating.

Key points

FY19 guidance range of \$42m-\$45m – CDA has guided to \$42m-\$45m NPAT for FY19. This compares to our estimate prior to the update of \$42m and consensus of \$42.9m. Management now expects 2H19 to be as strong as 1H19 (NPAT: \$22.2m). While this implies \$44.4m for FY19, the lower end of the range reflects the possibility of a contract not dropping into this year and some variability in June.

New product development driving change – What this announcement highlights and a key message from the investor day was that as a result of new product development across each division, CDA is increasing its addressable market and opening up growth opportunities. Consequently, growth is coming from outside of its traditional growth engine, being gold detectors in African markets, and specifically, its top of the range gold detector, the GPZ7000. This is having the effect of increasing earnings visibility and therefore the quality of the overall business. As this becomes more evident, this is likely to result in a further re-rating, in our view.

Tracking behind – Integration of Minetec's technology suite into Caterpillar's Minstar™ system is taking longer than expected and consequently FY19 sales expectations of \$15m will not be met and a small loss will be incurred for the year. We came away from the investor day seeing this simply as a timing issue and remain of the view that there is not much in the current valuation for Minetec. Success over the next couple of years could be a meaningful valuation driver.

Cash and currency headed in the right direction – As at 30 April, CDA was in a net cash position of \$29m. This is significantly up on the half year and being after the interim dividend payment, implies significant cash generation. In addition, CDA should be a net beneficiary of a weaker AUD/USD – we estimate a 1c movement has a ~1% impact on EBITDA and an average rate in FY19 of \$0.73-\$0.74.

Earnings changes – We have increased our EPS estimates in FY19 by +3.6%. Our FY20 estimates remained unchanged. While we see earnings risk to the upside, we're reluctant to lift them at this early stage. Still, we see value based on our current estimates.

Valuation and recommendation

We have rolled forward our EV/EBITDA valuation to FY20 and have increased our target price to A\$4.00 per share. We have applied an FY20 EV/EBITDA multiple of 8.3x. This is based on a 20% discount to the Small Industrials average. We retain our BUY rating.

Figure 1: Codan Limited (CDA); Canaccord Genuity estimates

Profit & Loss (\$m)	2017A	2018A	2019F	2020F	Valuation ratios	2017A	2018A	2019F	2020F
Sales Revenue	226.1	229.9	258.0	279.7	EPS (cps)	25.2	22.3	24.5	26.6
EBITDA	75.6	70.4	74.7	81.1	P/E (x)	12.9	14.5	13.3	12.2
Depreciation	-2.4	-2.8	-2.2	-2.4	PER Rel - All Ind.	-37%	-31%	-36%	-34%
EBITA	73.1	67.5	72.5	78.7	PER Rel - Small Ind.	-33%	-24%	-31%	-28%
Amortisation	-11.6	-13.8	-13.2	-14.3	Enterprise Value (\$m)	555.9	549.6	540.8	524.4
EBIT	61.5	53.7	59.3	64.4	EV / EBITDA (x)	7.4	7.8	7.2	6.5
Net Interest Expense	-0.8	-0.5	0.0	0.0	EV / EBIT (x)	9.0	10.2	9.1	8.1
NPBT	60.7	53.2	59.3	64.4	DPS (cps)	13.0	12.5	13.0	13.0
Tax expense	-16.0	-13.4	-15.7	-17.1	Dividend Yield (%)	4.0%	3.9%	4.0%	4.0%
NPAT - underlying	44.7	39.8	43.6	47.3	Franking (%)	100%	100%	100%	100%
Significant items	-1.2	1.7	0.0	0.0	CFPS (cps)	42.6	27.1	30.9	36.0
Reported NPAT	43.5	41.5	43.6	47.3	P / CFPS (x)	7.6	12.0	10.5	9.0
Cash Flow (\$m)	2017A	2018A	2019F	2020F	Profitability ratios	2017A	2018A	2019F	2020F
Operating EBITDA	75.6	70.4	74.7	81.1	EBITDA Margin (%)	33.4	30.6	28.9	29.0
- Interest & Tax Paid	-7.2	-16.5	-13.4	-15.7	EBIT Margin (%)	27.2	23.4	23.0	23.0
+/- change in Work. Cap.	2.2	-0.1	9.9	2.4	ROE (%)	27.1	21.2	21.8	21.6
- other	5.0	-5.6	-16.0	-3.7	ROA (%)	29.1	23.7	24.2	25.4
Operating Cashflow	75.6	48.3	55.1	64.1	ROIC (%)	31.8	25.8	27.4	29.1
- Capex	-16.4	-16.5	-18.0	-18.0	Balance Sheet ratios	2017A	2018A	2019F	2020F
- Acquisition/divestments	-7.0	-5.4	-7.0	-7.0	Net Debt (cash)	-21.4	-27.7	-36.6	-52.9
- other	-0.3	-0.5	0.0	0.0	Net Gearing (%)	-13.0	-14.7	-18.3	-24.2
Free Cashflow	51.9	25.8	30.1	39.1	Interest Cover (x)	76.9	107.4	nm	nm
- Ord Dividends	-17.7	-20.0	-21.7	-23.2	NTA per share (\$)	0.44	0.57	0.66	0.76
- Equity/other	0.0	0.4	0.4	0.4	Price / NTA (x)	7.3	5.7	4.9	4.2
Net Cashflow	34.2	6.2	8.9	16.3	EFPOWA (m)	177.3	178.2	178.2	178.2
Cash at beginning of period	14.3	21.4	27.7	36.6	Growth ratios	2017A	2018A	2019F	2020F
+/- borrowings / other	-27.1	0.1	0.0	0.0	Sales revenue (\$m)	33%	2%	12%	8%
Cash at end of period	21.4	27.7	36.6	52.9	EBITDA (\$m)	80%	-7%	6%	9%
Balance Sheet	2017A	2018A	2019F	2020F	EBIT (\$m)	111%	-13%	10%	9%
Cash	21.4	27.7	36.6	52.9	NPAT (\$m)	112%	-11%	9%	9%
Inventories	31.0	31.6	41.3	41.9	EPS (cps)	112%	-11%	9%	9%
Debtors	20.6	29.8	25.8	28.0	DPS (cps)	117%	-4%	4%	0%
PPE	12.0	12.5	13.0	14.4	Interim Analysis	1H18A	2H18A	1H19A	2H19E
Intangibles	86.2	86.6	97.3	95.8	Communications	29.0	27.6	40.7	34.3
Other assets	61.5	66.1	67.8	73.0	Metal Detection	63.5	100.3	82.0	90.5
Total Assets	232.7	254.3	281.8	306.0	Tracking Solutions	2.3	5.9	5.7	4.9
Borrowings	0.0	0.0	0.0	0.0	Total revenue	94.7	133.9	128.4	129.6
Trade Creditors	36.6	46.3	61.9	67.1	EBITDA	27.4	43.0	38.0	36.7
Other Liabilities	31.1	19.9	19.9	19.9	EBITDA margin (%)	28.9%	32.1%	30%	28%
Total Liabilities	67.7	66.2	81.8	87.0	NPAT (\$m)	15.8	24.0	21.0	22.6
NET ASSETS	165.0	188.1	200.0	219.0	EPS	8.8	13.5	11.8	12.7
Board of Directors / Substantial Shareholders					DPS	4.0	8.5	6.5	6.5
Board of Directors		Shareholding		%	Valuation				2020
David Simmonds - Chairman		0.0		0.0%	EBITDA multiple (x)				
Donald McGurk - MD		0.8		0.5%	EBITDA (\$m)				81.1
Lt Gen Peter Leahy - N-E Director		0.4		0.3%	Target multiple (x)				8.3
Graeme Barclay - N-E Director		0.0		0.0%	Net Debt (cash) (\$m)				-36.6
Kathy Gramp - N-E Director		0.0		0.0%	Implied Valuation				712.3
Substantial Shareholders		Shareholding		%	Per Share				4.00
IB Wall and PM Wall		34.8		19.7%	Target PE Multiple				
Starform Pty Ltd		11.4		6.4%	EPS (c)				26.6
Griffina Pty Ltd		10.6		6.0%	PE Target (x)				15.0
Otterpaw Pty Ltd		10.6		6.0%	Per Share				4.00
A.J Wood		10.6		6.0%					
JP Morgan Trust Co		10.6		6.0%					
Top 20 Shareholders		109.6		66.8%					

Source: Company Reports, Canaccord Genuity estimates

Earnings guidance

CDA provided a positive trading update last week giving a guidance range that points to a stronger than expected 2H19. The key points included:

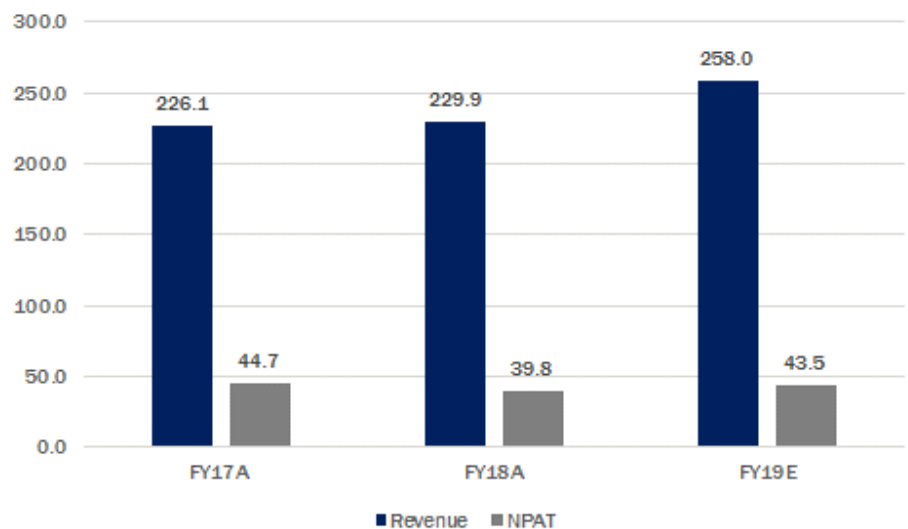
- **FY19 guidance range of \$42m-\$45m** – CDA stated that sales have exceeded expectations in 2H19. Having previously guided to a weaker second half, management now expects 2H19 to be as strong as 1H19. A guidance range was provided for FY19 NPAT of \$42m-\$45m. This compared to our estimate prior to the update of \$42m and consensus of \$42.9m.
- **What does the lower end of the range imply?** – Should 2H19 deliver NPAT similar to 1H19 of \$22.2m, this implies \$44.4m. So why isn't the range \$44m-45m? Management noted that the higher end assumes one particular tactical military contract falls into June. If this doesn't occur then, a result closer to the bottom end of the range is more likely.
- **Metal detection diversifying** – Management noted that demand had remained strong for its metal detection products and reiterated that the business is less reliant on its top of the range gold detector, the GPZ7000. We expect sales for FY19 to exceed FY18; however, with the product mix changing, we anticipate that margins are likely to be lower and consequently earnings contribution. That said, we see this as a positive given the revenue predictability is improving with a broader gold detector product base and an increasing consumer detection business.
- **Communications looking like a record year** – CDA guided to FY19 Communications revenue coming in at the top end of the base level sales range of \$65m-\$75m. This compares to our estimate of \$70.4m. Printing a number of ~\$75m would be a record for the division and appears to be a result of some early success in the tactical military market. Not only is CDA's addressable market increased in a meaningful way as a result of this pivot but it also opens up an opportunity to broaden its communications offering across other segments such as satellite communications and mesh networks.
- **Tracking behind** – Integration of Minetec's technology suite into Caterpillar's Minstar™ system is taking longer than expected and consequently sales expectations for FY19 of \$15m will not be met and a small loss will be incurred for the year.
- **Cashing in** – As at 30 April, CDA was in a net cash position of \$29m. This compares to ~\$13m at 31 December and comes after the interim dividend payment of \$11.5m. This implies significant cash generation in the four months to April.

Investor day takeaways

We attended CDA's investor day last week in Adelaide. The key takeaways for us were the following:

- CDA's addressable markets have increased and management is executing** – What shone through to us as a key takeaway is that product development across all divisions has resulted in CDA's addressable markets opening up significantly. Whilst this has been something management has been talking about for some time, products are now being sold successfully into the market. This should underpin continued growth over the next 2-3 years for CDA in our view but also improves the quality of the business.
- Base level earnings are likely to leg up (if they haven't already!)** – CDA refers to 'base business' as being sales of \$180m-\$200m and NPAT of \$25-30m. FY19 will be the third year running where sales have exceeded the top end of the range by 10%+ and NPAT by 30%+. We expect that with the new product development increasing CDA's addressable market, we believe this will continue and drive an increase in the base level business.

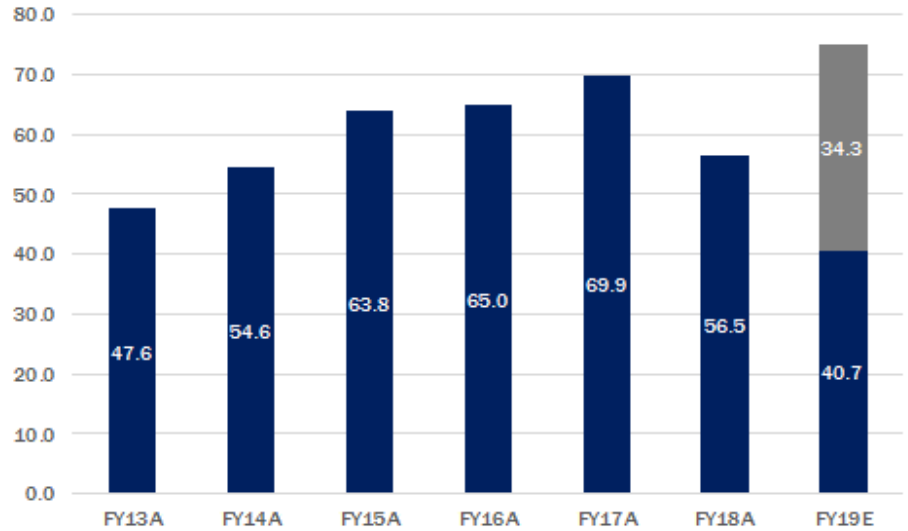
Figure 2: Revenue and NPAT 2017-2019 (\$m) has exceeded the base business level. With new product development opening up new markets, we expect this to continue in FY20-FY21 and drive an increase in the base business.



Source: Company Reports, Canaccord Genuity

- Tactical communications driving record result** – CDA has successfully transitioned the former HF Radio division into a business with a broader product offering that allows it to compete more effectively in the military market and has consequently resulted in a 4x increase in its addressable market. What we previously perceived as low growth is now a division that could lift its base business revenue from \$65m-\$75m currently to \$90m-\$100m over the next 2-3 years. Management has guided to revenue in FY19 of top end of the base business range.

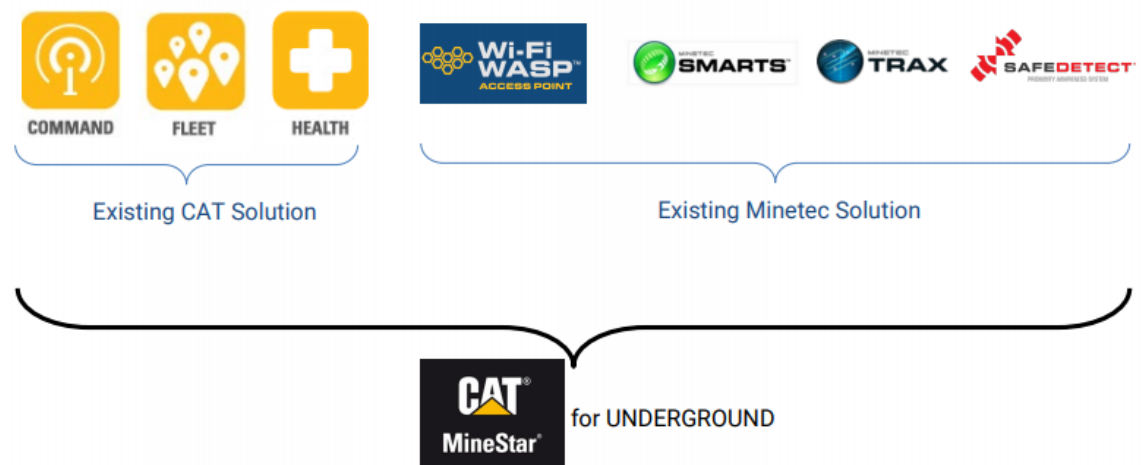
Figure 3: FY19 should be a record result for Communications on the back of Tactical Communications contracts



Source: Company Reports, Canaccord Genuity

- **There remains a lot option value in Minetec** – We don't believe there is much in the valuation for Minetec and the opportunity that lies ahead for the Tracking Solutions division. While the development of the business has underperformed expectations, this appears simply as a timing issue. What stood out to us at the investor day was the importance of the Minetec technology suite within Caterpillar's MineStar™ system. Management noted that CDA's share of licensing fees would be ~60%, which highlights its importance. This is also illustrated in Figure 4 below. The other snippet was the view that capex budgets were opening up again, which bodes well.

Figure 4: Minetec's products are a key feature of CAT's MineStar solution



Source: Company Reports

Metal Detection is growing in the consumer space – Management disclosed at the investor day that consumer products within Metal Detection were tracking at \$5-6m per month compared to \$3-4m per month previously. This is on the back of new product development. At the beginning of 2014, there were three detectors in CDA's recreational product offering and this has grown to seven. In total, including gold detectors, the product suite has increased to 11 from five. With a broader product base, there is less reliance on the top of the range gold detector product and there is more predictability in the revenue.

Detector manufacturing costs are improving – Management noted that as volumes have increased, manufacturing costs per unit have improved. While Plexus remains the key manufacturer for CDA's metal detectors, the company engaged with another electronics manufacturer (also Penang based) to diversify suppliers and to help maintain manufacturing costs.

Currency likely to help in FY20 – CDA's average AUD/USD exchange rate in FY19 is likely to be ~\$0.73-\$0.74. While the company partially hedges its exposure and has some USD costs as a natural hedge, the company's unhedged exposure is ~US\$40m. Based on the current exchange rate, there could be a \$1.2m-\$1.5m potential benefit in FY20.

Earnings changes

- In FY19 we have adjusted our earnings estimates to reflect the trading update. We have increased our revenue estimates by 6.6% reflecting the better performance of the Metal Detection and Communications divisions, offset by the miss from Tracking Solutions. Underlying NPAT now sits at the middle of the revised guidance range, increasing by 3.6%. We assume lower margins with growth not being driven solely by GPZ7000.
- In FY20, we have made some revenue changes, again to reflect new product development and momentum across Communications and Metal Detection and a small downward revision to Tracking Solutions. Our earnings estimates have remained relatively unchanged as a result of the margin mix across the divisions.

Figure 5: FY19 and FY20 estimate changes

(\$M)	FY19			FY20		
	Old	New	% Change	Old	New	% Change
Communications	70.4	75.0	6.5%	75.0	78.8	4.9%
Metal Detection	156.4	172.5	10.3%	167.4	181.9	8.7%
Tracking Solutions	15.1	10.6	-29.9%	19.6	19.0	-3.2%
Total Revenue	242.0	258.0	6.6%	262.1	279.7	6.7%
EBITDA (\$m)	72.7	74.7	2.8%	81.2	81.1	-0.1%
Underlying NPAT	42.0	43.6	3.6%	47.3	47.3	0.0%
EPS (\$) –normalised	23.6	24.5	3.6%	26.6	26.6	0.0%
DPS (\$)	13.0	13.0	0.0%	13.0	13.0	0.0%
EBITDA margin (%)	30.0%	28.9%		31.0%	29.0%	

Source: Company Reports, Canaccord Genuity estimates

Appendix: Important Disclosures

Analyst Certification

Each authoring analyst of Canaccord Genuity whose name appears on the front page of this research hereby certifies that (i) the recommendations and opinions expressed in this research accurately reflect the authoring analyst's personal, independent and objective views about any and all of the designated investments or relevant issuers discussed herein that are within such authoring analyst's coverage universe and (ii) no part of the authoring analyst's compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed by the authoring analyst in the research.

Analysts employed outside the US are not registered as research analysts with FINRA. These analysts may not be associated persons of Canaccord Genuity LLC and therefore may not be subject to the FINRA Rule 2241 and NYSE Rule 472 restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account.

Sector Coverage

Individuals identified as "Sector Coverage" cover a subject company's industry in the identified jurisdiction, but are not authoring analysts of the report.

Investment Recommendation

Date and time of first dissemination: May 26, 2019, 16:29 ET

Date and time of production: May 26, 2019, 12:35 ET

Target Price / Valuation Methodology:

Codan Limited - CDA

Our target price is based on applying a 8.3x multiple (20% discount to Small Industrials average) to FY20E EV/EBITDA estimate.

Risks to achieving Target Price / Valuation:

Codan Limited - CDA

CDA is exposed to a number of risks including: Counterfeit product: CDA's metal detection products have been subject to counterfeit product. CDA has been countering this by applying a number of security initiatives unique to CDA's products. If CDA is not successful minimising counterfeit product is could impact on demand and margins. Gold price: Increases or decreases in the gold price could impact demand for CDA's gold detection products, a key driver of group profitability. Our view is that the gold price would need to move significantly lower for demand to be impacted. Competition: CDA's success is based around having market leading products in HF Radio Communications and Metal Detection. A superior product on the market by a competitor would have an impact on the demand for CDA's products. Acquisition risk: CDA acquired 2 small businesses in FY12 and further acquisitions are part of the company's strategy. If acquisitions are poorly integrated or the company overpays, then this would impact on the company's earnings.

Distribution of Ratings:

Global Stock Ratings (as of 05/26/19)

Rating	Coverage Universe		IB Clients
	#	%	%
Buy	538	59.58%	49.81%
Hold	211	23.37%	31.75%
Sell	23	2.55%	21.74%
Speculative Buy	131	14.51%	74.05%
	903*	100.0%	

*Total includes stocks that are Under Review

Canaccord Genuity Ratings System

BUY: The stock is expected to generate risk-adjusted returns of over 10% during the next 12 months.

HOLD: The stock is expected to generate risk-adjusted returns of 0-10% during the next 12 months.

SELL: The stock is expected to generate negative risk-adjusted returns during the next 12 months.

NOT RATED: Canaccord Genuity does not provide research coverage of the relevant issuer.

"Risk-adjusted return" refers to the expected return in relation to the amount of risk associated with the designated investment or the relevant issuer.

Risk Qualifier

SPECULATIVE: Stocks bear significantly higher risk that typically cannot be valued by normal fundamental criteria. Investments in the stock may result in material loss.

12-Month Recommendation History (as of date same as the **Global Stock Ratings** table)

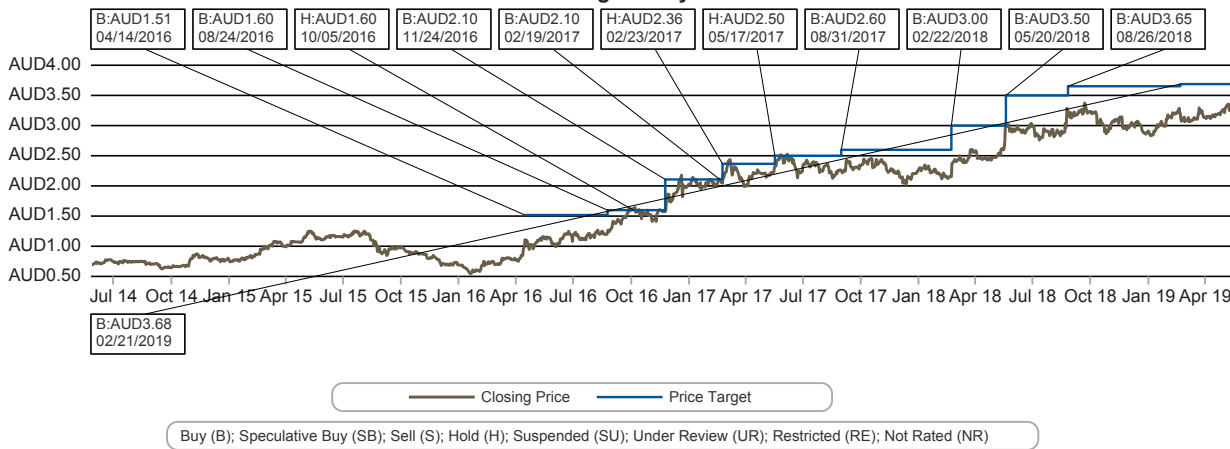
A list of all the recommendations on any issuer under coverage that was disseminated during the preceding 12-month period may be obtained at the following website (provided as a hyperlink if this report is being read electronically) <http://disclosures-mar.canaccordgenuity.com/EN/Pages/default.aspx>

Required Company-Specific Disclosures (as of date of this publication)

Canaccord Genuity or one or more of its affiliated companies intend to seek or expect to receive compensation for Investment Banking services from Codan Limited in the next three months.

The primary analyst, a member of primary analyst's household, or any individual directly involved in the preparation of this research, has a long position in the shares or derivatives, or has any other financial interest in Codan Limited, the value of which increases as the value of the underlying equity increases.

Codan Limited Rating History as of 05/23/2019



Past performance

In line with Article 44(4)(b), MiFID II Delegated Regulation, we disclose price performance for the preceding five years or the whole period for which the financial instrument has been offered or investment service provided where less than five years. Please note price history refers to actual past performance, and that past performance is not a reliable indicator of future price and/or performance.

Online Disclosures

Up-to-date disclosures may be obtained at the following website (provided as a hyperlink if this report is being read electronically) <http://disclosures.canaccordgenuity.com/EN/Pages/default.aspx>; or by sending a request to Canaccord Genuity Corp. Research, Attn: Disclosures, P.O. Box 10337 Pacific Centre, 2200-609 Granville Street, Vancouver, BC, Canada V7Y 1H2; or by sending a request by email to disclosures@cgf.com. The reader may also obtain a copy of Canaccord Genuity's policies and procedures regarding the dissemination of research by following the steps outlined above.

General Disclaimers

See "Required Company-Specific Disclosures" above for any of the following disclosures required as to companies referred to in this report: manager or co-manager roles; 1% or other ownership; compensation for certain services; types of client relationships; research analyst conflicts; managed/co-managed public offerings in prior periods; directorships; market making in equity securities and related derivatives. For reports identified above as compendium reports, the foregoing required company-specific disclosures can be found in a hyperlink located in the section labeled, "Compendium Reports." "Canaccord Genuity" is the business name used by certain wholly owned subsidiaries of Canaccord Genuity Group Inc., including Canaccord Genuity LLC, Canaccord Genuity Limited, Canaccord Genuity Corp., and Canaccord Genuity (Australia) Limited, an affiliated company that is 50%-owned by Canaccord Genuity Group Inc.

The authoring analysts who are responsible for the preparation of this research are employed by Canaccord Genuity Corp. a Canadian broker-dealer with principal offices located in Vancouver, Calgary, Toronto, Montreal, or Canaccord Genuity LLC, a US broker-dealer with principal offices located in New York, Boston, San Francisco and Houston, or Canaccord Genuity Limited., a UK broker-dealer with principal offices located in London (UK) and Dublin (Ireland), or Canaccord Genuity (Australia) Limited, an Australian broker-dealer with principal offices located in Sydney and Melbourne.

The authoring analysts who are responsible for the preparation of this research have received (or will receive) compensation based upon (among other factors) the Investment Banking revenues and general profits of Canaccord Genuity. However, such authoring analysts

have not received, and will not receive, compensation that is directly based upon or linked to one or more specific Investment Banking activities, or to recommendations contained in the research.

Some regulators require that a firm must establish, implement and make available a policy for managing conflicts of interest arising as a result of publication or distribution of research. This research has been prepared in accordance with Canaccord Genuity's policy on managing conflicts of interest, and information barriers or firewalls have been used where appropriate. Canaccord Genuity's policy is available upon request.

The information contained in this research has been compiled by Canaccord Genuity from sources believed to be reliable, but (with the exception of the information about Canaccord Genuity) no representation or warranty, express or implied, is made by Canaccord Genuity, its affiliated companies or any other person as to its fairness, accuracy, completeness or correctness. Canaccord Genuity has not independently verified the facts, assumptions, and estimates contained herein. All estimates, opinions and other information contained in this research constitute Canaccord Genuity's judgement as of the date of this research, are subject to change without notice and are provided in good faith but without legal responsibility or liability.

From time to time, Canaccord Genuity salespeople, traders, and other professionals provide oral or written market commentary or trading strategies to our clients and our principal trading desk that reflect opinions that are contrary to the opinions expressed in this research. Canaccord Genuity's affiliates, principal trading desk, and investing businesses also from time to time make investment decisions that are inconsistent with the recommendations or views expressed in this research.

This research is provided for information purposes only and does not constitute an offer or solicitation to buy or sell any designated investments discussed herein in any jurisdiction where such offer or solicitation would be prohibited. As a result, the designated investments discussed in this research may not be eligible for sale in some jurisdictions. This research is not, and under no circumstances should be construed as, a solicitation to act as a securities broker or dealer in any jurisdiction by any person or company that is not legally permitted to carry on the business of a securities broker or dealer in that jurisdiction. This material is prepared for general circulation to clients and does not have regard to the investment objectives, financial situation or particular needs of any particular person. Investors should obtain advice based on their own individual circumstances before making an investment decision. To the fullest extent permitted by law, none of Canaccord Genuity, its affiliated companies or any other person accepts any liability whatsoever for any direct or consequential loss arising from or relating to any use of the information contained in this research.

Research Distribution Policy

Canaccord Genuity research is posted on the Canaccord Genuity Research Portal and will be available simultaneously for access by all of Canaccord Genuity's customers who are entitled to receive the firm's research. In addition research may be distributed by the firm's sales and trading personnel via email, instant message or other electronic means. Customers entitled to receive research may also receive it via third party vendors. Until such time as research is made available to Canaccord Genuity's customers as described above, Authoring Analysts will not discuss the contents of their research with Sales and Trading or Investment Banking employees without prior compliance consent.

For further information about the proprietary model(s) associated with the covered issuer(s) in this research report, clients should contact their local sales representative.

Short-Term Trade Ideas

Research Analysts may, from time to time, discuss "short-term trade ideas" in research reports. A short-term trade idea offers a near-term view on how a security may trade, based on market and trading events or catalysts, and the resulting trading opportunity that may be available. Any such trading strategies are distinct from and do not affect the analysts' fundamental equity rating for such stocks. A short-term trade idea may differ from the price targets and recommendations in our published research reports that reflect the research analyst's views of the longer-term (i.e. one-year or greater) prospects of the subject company, as a result of the differing time horizons, methodologies and/or other factors. It is possible, for example, that a subject company's common equity that is considered a long-term 'Hold' or 'Sell' might present a short-term buying opportunity as a result of temporary selling pressure in the market or for other reasons described in the research report; conversely, a subject company's stock rated a long-term 'Buy' or "Speculative Buy" could be considered susceptible to a downward price correction, or other factors may exist that lead the research analyst to suggest a sale over the short-term. Short-term trade ideas are not ratings, nor are they part of any ratings system, and the firm does not intend, and does not undertake any obligation, to maintain or update short-term trade ideas. Short-term trade ideas are not suitable for all investors and are not tailored to individual investor circumstances and objectives, and investors should make their own independent decisions regarding any securities or strategies discussed herein. Please contact your salesperson for more information regarding Canaccord Genuity's research.

For Canadian Residents:

This research has been approved by Canaccord Genuity Corp., which accepts sole responsibility for this research and its dissemination in Canada. Canaccord Genuity Corp. is registered and regulated by the Investment Industry Regulatory Organization of Canada (IIROC) and is a Member of the Canadian Investor Protection Fund. Canadian clients wishing to effect transactions in any designated investment discussed should do so through a qualified salesperson of Canaccord Genuity Corp. in their particular province or territory.

For United States Persons:

Canaccord Genuity LLC, a US registered broker-dealer, accepts responsibility for this research and its dissemination in the United States. This research is intended for distribution in the United States only to certain US institutional investors. US clients wishing to effect transactions in any designated investment discussed should do so through a qualified salesperson of Canaccord Genuity LLC. Analysts

employed outside the US, as specifically indicated elsewhere in this report, are not registered as research analysts with FINRA. These analysts may not be associated persons of Canaccord Genuity LLC and therefore may not be subject to the FINRA Rule 2241 and NYSE Rule 472 restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account.

For United Kingdom and European Residents:

This research is distributed in the United Kingdom and elsewhere Europe, as third party research by Canaccord Genuity Limited, which is authorized and regulated by the Financial Conduct Authority. This research is for distribution only to persons who are Eligible Counterparties or Professional Clients only and is exempt from the general restrictions in section 21 of the Financial Services and Markets Act 2000 on the communication of invitations or inducements to engage in investment activity on the grounds that it is being distributed in the United Kingdom only to persons of a kind described in Article 19(5) (Investment Professionals) and 49(2) (High Net Worth companies, unincorporated associations etc) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (as amended). It is not intended to be distributed or passed on, directly or indirectly, to any other class of persons. This material is not for distribution in the United Kingdom or elsewhere in Europe to retail clients, as defined under the rules of the Financial Conduct Authority.

For Jersey, Guernsey and Isle of Man Residents:

This research is sent to you by Canaccord Genuity Wealth (International) Limited (CGWI) for information purposes and is not to be construed as a solicitation or an offer to purchase or sell investments or related financial instruments. This research has been produced by an affiliate of CGWI for circulation to its institutional clients and also CGWI. Its contents have been approved by CGWI and we are providing it to you on the basis that we believe it to be of interest to you. This statement should be read in conjunction with your client agreement, CGWI's current terms of business and the other disclosures and disclaimers contained within this research. If you are in any doubt, you should consult your financial adviser.

CGWI is licensed and regulated by the Guernsey Financial Services Commission, the Jersey Financial Services Commission and the Isle of Man Financial Supervision Commission. CGWI is registered in Guernsey and is a wholly owned subsidiary of Canaccord Genuity Group Inc.

For Australian Residents:

This research is distributed in Australia by Canaccord Genuity (Australia) Limited ABN 19 075 071 466 holder of AFS Licence No 234666. To the extent that this research contains any advice, this is limited to general advice only. Recipients should take into account their own personal circumstances before making an investment decision. Clients wishing to effect any transactions in any financial products discussed in the research should do so through a qualified representative of Canaccord Genuity (Australia) Limited. Canaccord Genuity Wealth Management is a division of Canaccord Genuity (Australia) Limited.

For Hong Kong Residents:

This research is distributed in Hong Kong by Canaccord Genuity (Hong Kong) Limited which is licensed by the Securities and Futures Commission. This research is only intended for persons who fall within the definition of professional investor as defined in the Securities and Futures Ordinance. It is not intended to be distributed or passed on, directly or indirectly, to any other class of persons. Recipients of this report can contact Canaccord Genuity (Hong Kong) Limited. (Contact Tel: +852 3919 2561) in respect of any matters arising from, or in connection with, this research.

Additional information is available on request.

Copyright © Canaccord Genuity Corp. 2019 – Member IIROC/Canadian Investor Protection Fund

Copyright © Canaccord Genuity Limited. 2019 – Member LSE, authorized and regulated by the Financial Conduct Authority.

Copyright © Canaccord Genuity LLC 2019 – Member FINRA/SIPC

Copyright © Canaccord Genuity (Australia) Limited. 2019 – Participant of ASX Group, Chi-x Australia and of the NSX. Authorized and regulated by ASIC.

All rights reserved. All material presented in this document, unless specifically indicated otherwise, is under copyright to Canaccord Genuity Corp., Canaccord Genuity Limited, Canaccord Genuity LLC or Canaccord Genuity Group Inc. None of the material, nor its content, nor any copy of it, may be altered in any way, or transmitted to or distributed to any other party, without the prior express written permission of the entities listed above.

None of the material, nor its content, nor any copy of it, may be altered in any way, reproduced, or distributed to any other party including by way of any form of social media, without the prior express written permission of the entities listed above.