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Global Equity Research led by
Dr. Thomas Kenny, Director of Equity Research
Charlie Yang, Senior Analyst, Mining and Commodities
information@cedrusinvestments.com

CEDRUS INVESTMENTS
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Overweight
Price Target:
AU$2.26

Pyx Resources: Strong Post-IPO Price Performance and Increased Visibility of Achieving Mid-term Production Target; Reiterating Overweight and Raising Price Target

Pyx Resources Limited ("Pyx") is a fast-growing leading premium zircon producer with tremendous potential to grow output and enhance profitability. Following successful listing on the National Stock Exchange of Australia (NSX), we have witnessed improvement in corporate value in terms of market capitalization and believe that Pyx will continue to benefit from strong market demand, its premium-quality deposits containing abundant mineral sands resources and high zircon assemblage value, lowered operating costs, as well as capacity and production expansion.

Recommendation Summary

- We continue our coverage of and **reiterate an Overweight rating** on Pyx (NSX: PYX) with an elevated **12- to 18-month price target of AU$2.26** (up from AU$1.83)**,** representing an upside potential of about 335% over the closing price of AU$0.52 as of 15 June 2020.

- Pyx is a leader in premium zircon production globally, and its resource base (largest zircon discovery worldwide since 2012) is not only bountiful but also the one with the **highest heavy mineral ("HM") assemblage value in the industry**, according to our analysis. Since the weighted average of the HM assemblage value is **highly correlated with market valuation**, we expect Pyx to trade at the high end of the valuation range on a per tonne of HM resource basis among its peers at least in the short term.

- We have raised our target price on Pyx as a result of **increased visibility** on the company **achieving its mid-term production capacity target of 24,000 tonnes per annum (tpa)** and confidence in the competence of the company's management team.

PYX RESOURCES

12- to 18-month Target Price: **AU$2.26**
24-month Target Price: **AU$4.17**

Market Cap: AU$139.2 M
Total Shares: 267.8 M
Dividend and Yield: N/A

Financial Data (2019):
Revenue: US$6.86M
Revenue Growth (yoy): 44%
Gross Margin: 23%
EPS: N/A
Trailing P/E: N/A

- **Pyx's latest achievements** include 1) ability to navigate smoothly very difficult economic conditions in the midst of the COVID-19 crisis, with very minimal business impact so far; 2) low concentration risk owing to the expansion of a well-diversified international blue-chip customer base located across major European and Asian markets; 3) enhanced visibility in production ramp-up, which further reduces the investment risk and leads to the increase in our base-case valuation; and 4) improved corporate governance through the building of integrity and transparency.

- **The company has recorded a strong post-IPO price performance**, driven in part by the spillover demand from the oversubscribed placement. Unfulfilled demand for Pyx's shares at the time of the IPO in earlier 2020 is driving on-market purchases, fueling share price appreciation. With **gains of around 30% versus the IPO price of AU$0.40 in just more than 3 months** after its NSX listing on 25 February 2020, Pyx is one of the best performers on Australian exchanges thus far.

- Recent overall zircon demand softening (we believe to be transitory) caused in part by the COVID-19 pandemic has had limited impact on Pyx's operations. The business update released by Pyx on 20 April 2020 stated that **its plant is expected to run at full capacity at least through the end of July 2020 due to solid backlog**. In our view, the company's long-term prospects remain flourishing. The ports in South Kalimantan of Indonesia, which are close to Pyx's flagship Mandiri asset situated in Central Kalimantan, are all operating as normal in making deliveries to China. Our channel checks confirm that industry players are still confident with the strong medium-term outlook for zircon, as supply tightness persists, and Iluka's (ASX: ILU) zircon reference price is maintained at US$1,580 per tonne throughout 2020.

- Our current valuation is strictly based on Pyx's existing JORC-compliant resources of 6.0 million tonnes of contained zircon and 7.59 million tonnes of valuable HM ("VHM"). Due to our expectations for more defined resource additions following deeper and wider exploration drillings (only 1,100 hectares out of a total of 2,032 hectares have been explored so far), including the realization of gold exploration targets in addition to those for zircon, there is tremendous upside potential to our current valuation. Therefore, we believe that **Pyx's valuation could be more than doubled in the medium term to above US$700 million** (equivalent to about AU$1,169 million) from our current estimates and reach **AU$4.17 a share**, which represents our **24-month price target**.

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I. COMPANY OVERVIEW

Based on the expectations for a strong outlook, we maintain our Overweight rating on Pyx Resources Limited ("Pyx"), which is a leading global producer of premium zircon. The company has engaged in mining and processing activities on its Mandiri mineral sands deposits in Central Kalimantan, Indonesia since August 2015.

Despite the COVID-19 pandemic might have some unfavorable impact on the operations and overall market demand for zircon in the short run, the robust business outlook for Pyx over the long term remains intact.

Pyx's promising prospects are buoyed by the planned expansion of its production capacity, mine life extension through resource discoveries and development of in-mine targets and others. Its growth strategy has been to define sufficient ore reserves to finance new capacity additions and make Pyx the largest mineral sands company in Indonesia. The company consistently evaluates its project portfolio, consisting of several advanced-stage resource targets and greenfield opportunities, with the goal of growing its total reserves and extending the overall mine life.

After the successful listing on the National Stock Exchange of Australia (NSX) and the completion of the acquisition of Takmur Pte Limited in early 2020, Pyx aims to become a major mineral sands player, supplying the global market with high-quality zircon and capitalizing on this rapidly-growing industry through the following courses of action.

Raising zircon output: In our view, **Pyx is on track to achieve its mid-term production capacity target of 24,000 tonnes per annum (tpa)**. To raise its premium zircon output at Mandiri so as to meet customers' demand, Pyx has awarded a key contract to Jakarta-based Resindo Resources and Energy, a well-established and renowned engineering consulting firm, for the acquisition of a Mine Field Unit. The award of the contract is evident of Pyx's commitment to expanding processing capacity and accelerating production growth of its world-class Mandiri asset.

Strong Corporate Governance: Pyx continues to focus on improving its corporate governance on an ongoing basis through the establishment of integrity and transparency. The board of directors is committed to fostering corporate culture that values good work ethics and dedicates to following stringent standards and compliance requirements. Besides striving to adhere to the highest possible governance principles, such as those set forth by the NSX and the ASX[1] Corporate Governance Council's latest edition of Corporate Governance Principles and Recommendations, Pyx goes beyond statutory requirements in meeting the expectations of stakeholders.

Further diversifying its global customer base: The company has a well-diversified, international blue-chip customer base that minimizes concentration risks, with key customers located across major European and Asian markets. In addition, approximately 95% of Pyx's revenue is denominated in U.S. dollar, significantly mitigating the currency risk associated with Indonesian Rupiah.

The accomplishment of the above measures will also further reduce investment risk pertaining to Pyx, leading to the raise of our target prices.

[1] Australian Securities Exchange

II. MINERAL SANDS MARKET CONDITIONS

Zircon

Throughout 2019, business sentiment and consumer confidence in key markets, particularly China, were impaired by trade and geopolitical tensions such that customers ran down their inventories and shifted their demand for lower-quality zircon to cut costs in response to economic hardship experienced.

For the China market, soft demand in the ceramics industry and continued stock drawdowns by downstream players was obvious. Orders from the foundry industry were also lower at year-end 2019, reflecting slower automotive component demand. On the other hand, demand from the refractory sector was muted, while the zirconium chemical industry appeared to be more resilient.

In Europe, downward pressure on tile selling prices continued to incentivize tile makers to reduce production costs by thrifting zircon use where possible. Most processors ended 2019 with very low inventory levels. Global supply chain was adversely affected by trade tensions, reducing zircon consumption in foundry applications in Japan and South Korea. Sluggish demand from ceramics persisted, with purchases of zircon strictly limited to consumption net of inventory reductions. Demand also slowed in North American markets, in particular for foundry and fusing applications.

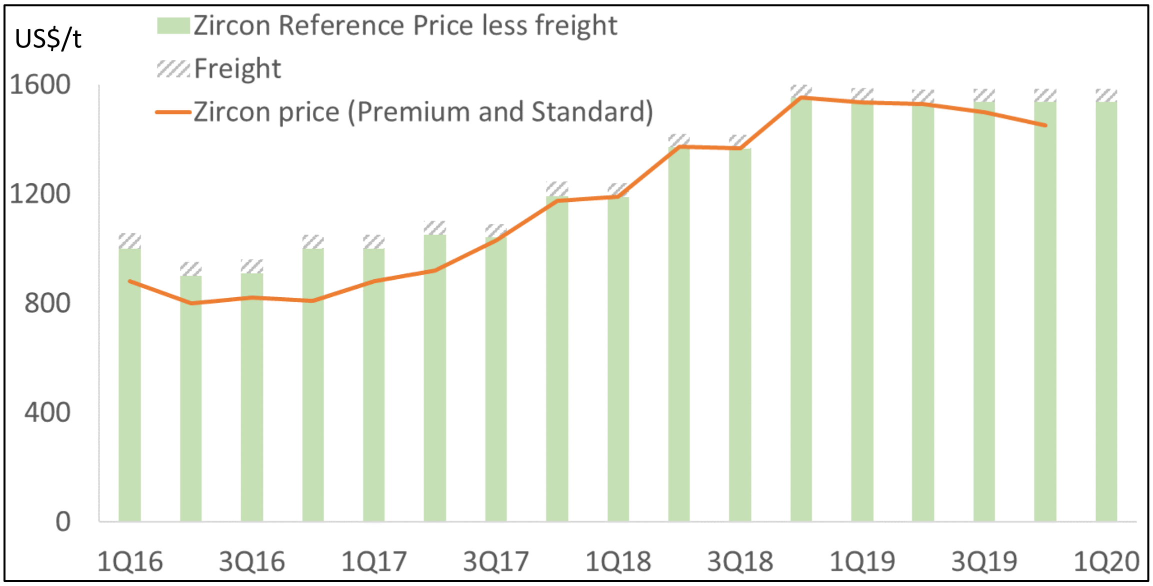
While destocking by customers seems to have largely run its course, demand outlook for the seasonally low 1Q and 2Q 2020 for zircon remains weak, given the lately devastating economic fallout worldwide triggered by the COVID-19 pandemic. The deadly and highly contagious novel coronavirus disease has spread to more than 200 countries and territories globally with confirmed cases about 8.0 million as of 15 June 2020[2], and the full impact of COVID-19 on the global economy in general and zircon demand in particular is still largely unknown although the International Monetary Fund (IMF) has predicted the global economy to contract by 3% in 2020. However, we are confident that the medium-term outlook for the zircon market is robust, as supply tightness is expected to stay.

Zircon Reference Price

Iluka's zircon reference price was US$1,580/tonne throughout 2019, and realized prices were quite stable.

[2] John Hopkins University and Medicine

Exhibit 1: Iluka Zircon Reference Price

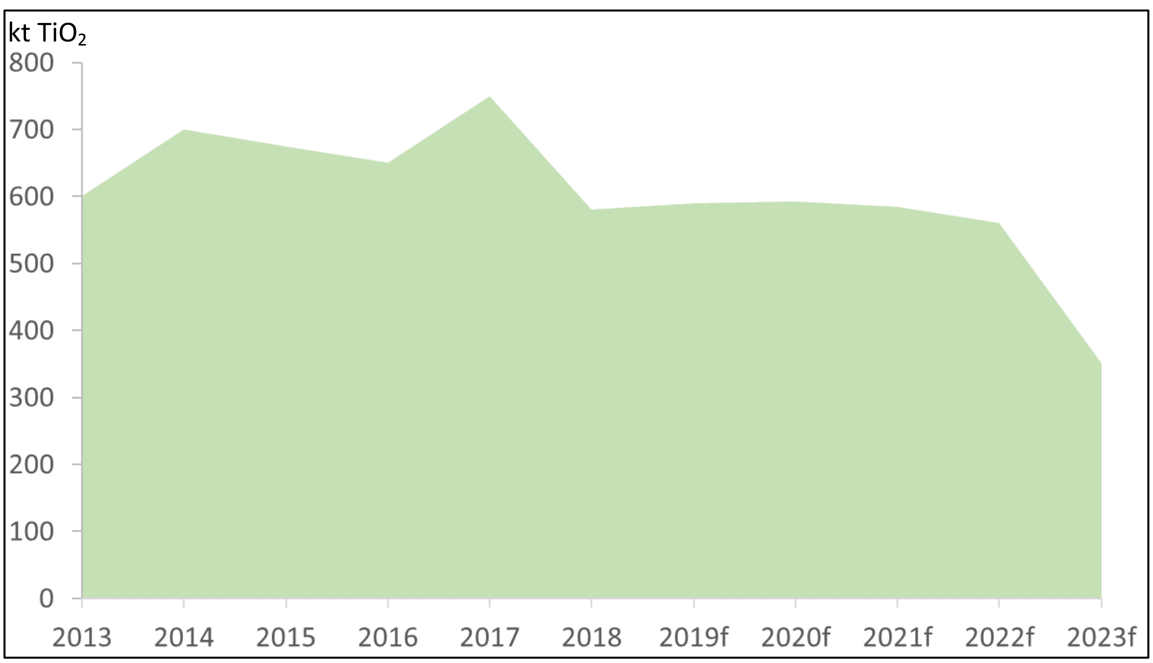


Source: Iluka's Annual Result Presentation

Titanium Dioxide (TiO2)

Market conditions continue to be positive for high-grade titanium feedstocks because premium feedstock supply was tight. By application, pigment, welding and sponge market conditions were solid, with high-grade feedstock requirements being strong.

Exhibit 2: Global Rutile Supply Outlook



Note: Production outlook excludes Iluka's rutile projects Sembehun and Balranald

Source: Iluka and TZMI

U.S. pigment market held up well in 2019 with increased demand in the second half of the year due to relatively robust GDP growth of 2.3% for the year, outpacing the 1.7% growth for the advanced economies and strong consumer confidence, with the readings of the Consumer Confidence Index compiled by The Conference Board above 120 throughout the year. Availability of certain grades of chloride pigment is tight. Nonetheless, the European market was challenging for pigment producers owing to competition from imported sulfate pigment. Capacity utilization rates amongst chloride pigment plants maintained at greater than 90%.

Meanwhile, rutile demand in India was at elevated levels due in part to the ban on private mining. Prices and demand for pigment held up pretty well in China even though more than 200,000 tpa of new chloride capacity was commissioned in the country during 2019, as sales to the welding industry matched the 2018 record levels.

With the prevalence of the COVID-19 pandemic expected to prevail until the widespread availability of a vaccine against the infectious disease, its impact on the supply and demand equation for zircon must be closely monitored in addition to the timing and strength of the economic recovery.

III. FINANCIALS

Financial Highlights (Historical Data and Forecasts)

Exhibit 3: Profitability

	2016A	2017A	2018A	2019A	2020F	2021F
Zircon Sold (tonne or "t")	173	892	3,401	4,900	10,200	24,000
Average Realized Price (US$/t)	1,400	1,400	1,400	1,400	1,400	1,400
Gross Profit Margin (GP/Sales)	62%	39%	25%	23%	39%	45%
EBITDA Margin (EBITDA/Sales)	22%	5%	8%	1%	31%	41%
Operating Margin (EBIT/Sales)	19%	4%	8%	0%	28%	38%
Net Profit Margin (NI/Sales)	15%	25%	27%	-1%	21%	28%

Source: Company reports and Cedrus' estimates

Exhibit 4: Income Statement

		2016A	2017A	2018A	2019A	2020F	2021F
Zircon Sold	t	173	892	3,401	4,900	10,200	24,000
Average Realized Price	US$/t	1,400	1,400	1,400	1,400	1,400	1,400
Revenue	US$'000	241.5	1,248.4	4,760.8	6,858.3	19,962.9	40,903.1
Revenue Growth (yoy)	%		417%	281%	44%	191%	105%
Gross Profit	US$'000	149.7	492.2	1,212.3	1,548.9	7,823.5	18,511.8
EBITDA	US$'000	61.0	71.7	412.8	91.9	6,244.7	16,783.0
EBIT	US$'000	45.7	46.0	375.1	15.5	5,583.6	15,406.9
Net Income	US$'000	26.2	14.7	297.9	-58.4	4,179.5	11,587.5

Source: Company reports and Cedrus' estimates

Exhibit 5: Cash Flow Statement

		2016A	2017A	2018A	2019A	2020F	2021F
From Operations (CFO)	US$'000	-91.3	6.3	739.9	-110.2	4,851.5	11,670.5
Free Cash flow (FCF)	US$'000	191.8	108.4	-40.7	194.4	3,161.5	7,180.5

Source: Company reports and Cedrus' estimates

Exhibit 6: Revenue and Profitability Forecast

	2019A	2020F	2021F	2022F	2023F	2024F
Zircon Net Revenue (US$'000)	6,858.3	15,978.0	32,502.0	49,435.5	49,572.0	66,096.0
Total Net Revenue (US$'000)	6,858.3	19,962.9	40,903.1	62,370.5	62,507.0	83,408.0
EBITDA (US$'000)	91.9	6,244.7	16,783.0	28,513.2	28,649.7	39,127.2
EBITDA margin	1%	31%	41%	46%	46%	47%
Cash flow (US$'000)	-110.2	3,161.5	7,180.5	13,490.0	19,917.0	23,234.1
Cash Cost Per Tonne of Zircon (US$)	1,084	929	845	803	803	796

Source: Company reports and Cedrus' estimates

Capital Expenditure

Capital expenditure ("CAPEX") is required for purchasing mining and processing equipment as well as ad hoc items to expand output of zircon and other heavy minerals, including by-product licenses and exploration drilling.

For every 24,000 tpa of new zircon mining capacity, around US$3 million of CAPEX is needed.

CAPEX investment for every 500 tonnes per month (tpm) of processing capacity of zircon is in the amount of US$600,000. Meanwhile, for every 1,000 tpm of new zircon processing capacity, an investment of US$200,000 is attributed to processing ilmenite and rutile.

To start exporting rutile and ilmenite (projected to commence in 2021 based on our model), Pyx needs to invest in ad-hoc CAPEX of US$225,000, and a similar amount of investment (assumed to be incurred in 2021 in our model) is required to export gold and obtain the relevant sales license.

Maintenance CAPEX of US$3 million for mining and the same amount for processing should be invested every 5 years for each increment of 24,000 tpa of production capacity.

Only in-house capacity requires CAPEX investment.

Working Capital

Pyx's management estimated that for every 100 tpm of zircon capacity, working capital of US$125,000 is needed. Since the first 500-tpm zircon capacity installed by Pyx is already in operation; therefore, it does not require additional working capital investment. Moreover, the agreement entered into by Pyx with a Spanish company stipulates the latter to provide working capital of up to 500 tpm of its zircon capacity. Thus, any capacity added on top of the 1,000 tpm requires a corresponding amount of working capital investment.

IV. VALUATION

Pyx's flagship Mandiri asset located in Central Kalimantan, which is a prolific geological location highly recognized for hosting premium-quality mineral sands including zircon, rutile and ilmenite among others, has completed initial exploration and development and started production, with plans for ongoing expansion of capacity. Given the nature of Pyx's business and the current status of its operations, we have adopted the following valuation methodologies to value the company.

Valuation Methodologies

Comparable Company Analysis ("CCA") – Comparable companies, all publicly listed with a similar business nature (mineral sands exploration, development, mining, processing and sales), stage of development (in production or at least in late-stage of development and trial production has begun) and comparable scale of operations and size (in terms of market capitalization except Iluka), are identified and their median EV/Resource and EV/Reserve ratios are calculated. These ratios are applied to the JORC-compliant resources to come up with an estimated value of Pyx.

Discounted Cash Flow ("DCF") – This model is constructed based on the likely scenario that an appropriate proportion of mineral resources has been extracted and further exploration potentials are realized. Key assumptions in the DCF calculations included heavy reliance on successful conversion of mineral resources and materializing exploration potentials. Hence, calculations are highly sensitive to achieving certain results. Such uncertainties and associated risks must be reflected in the DCF-based valuation by taking a probability-adjusted approach or applying a suitable discount rate in calculating the DCF.

Cedrus made proprietary forecasts on sales and profitability and applied them to the multiples (EV/Resources or EV/Reserves and Price/Book) of both the CCA and the DCF methods. Detailed analysis of probability, amount and timing of revenue is performed to enable proprietary forecasts of Pyx's revenue for valuation purposes.

Comparable Company Analysis

Comparable Company Analysis – Publicly-listed comparable companies have been selected and their median EV/Resource and EV/Reserve ratios calculated before applying these ratios to the JORC-compliant resources to arrive at an estimation of Pyx's value. Some of the key information and data of these comparable companies and their projects can be found in the table and charts below.

Exhibit 7: Some Details about Pyx's Comparable Companies and their Projects

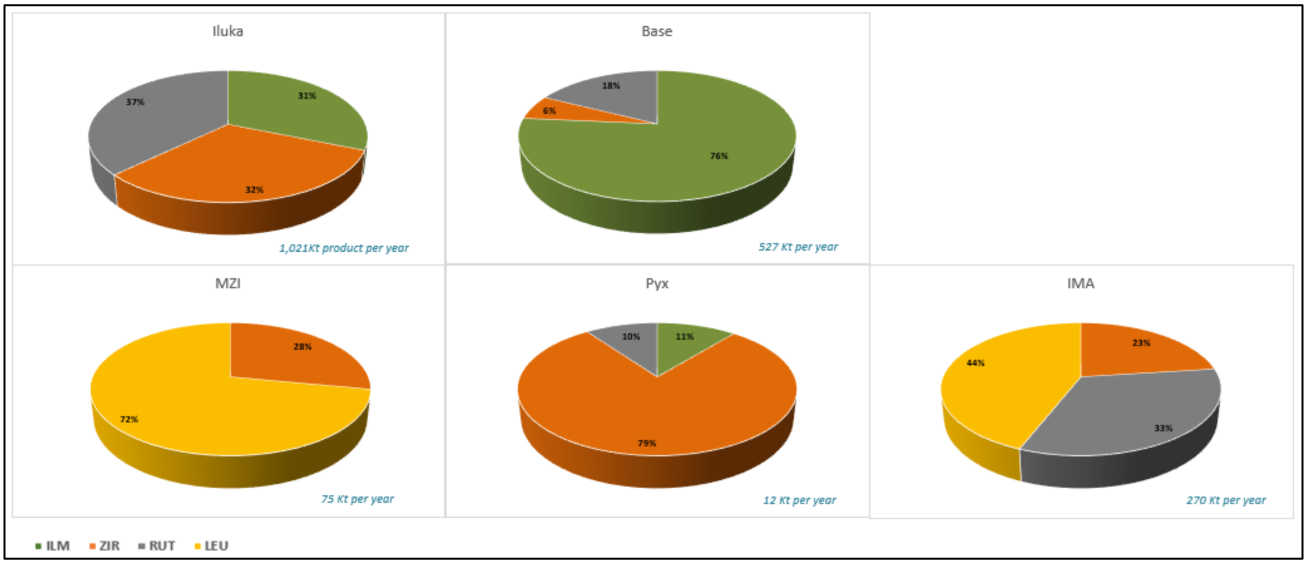
Name	Project Location	Project Status	Stock Price* (AU$)	Mkt Cap* (AU$, m)	EV* (AU$, m)	Total Resources HM (Mt)	Total Reserves HM (Mt)	Total Zr Resources (Mt)
Iluka Resources (ASX: ILU)	Australia and U.S.	Producing	8.76	3,703.5	3,692.2	173.6^	13.0	29.8
Base Resources (ASX: BSE)	Kenya	Producing	0.15	116.8	83.7	72.0	2.3	4.3
Sheffield Resources (ASX: SFX)	WA, Australia	In Development	0.13	40.2	31.3	310.0	76.8	23.9
Image Resources (ASX: IMA)	Australia	Producing	0.15	147.1	189.0	2.9	1.7	0.6
Strandline Resources (ASX: STA)	Australia, Tanzania	Exploration	0.19	81.1	78.2	29.0	6.3	6.4
Astron (ASX: ATR)	Australia	Optimization of FS	0.18	21.4	27.3	182.8	30.8	34.7
Diatreme Resources (ASX: DRX)	WA, Australia	PFS Completed	0.01	18.6	17.7	4.7	3.5	1.3
Pyx Resources (NSX: PYX)	**Indonesia**	**Producing**	0.52	139.2	139.4	9.4	N/A	6.0

Notes: *Based on 12 June 2020 closing price; PFS = Pre-feasibility Studies; N/A = Not available; ^: Total Resources of Iluka included resources of Sierra Rutile; Mt = Million tonne

Source: Bloomberg and Cedrus' analysis

From the following two exhibits, it is clear that relative to all the comparable producers, Pyx has the largest proportion of zircon within its finished product mix and the highest zircon assemblage.

Exhibit 8: 2019 Finished Product Mix for Major Australian-Listed Zircon Miners

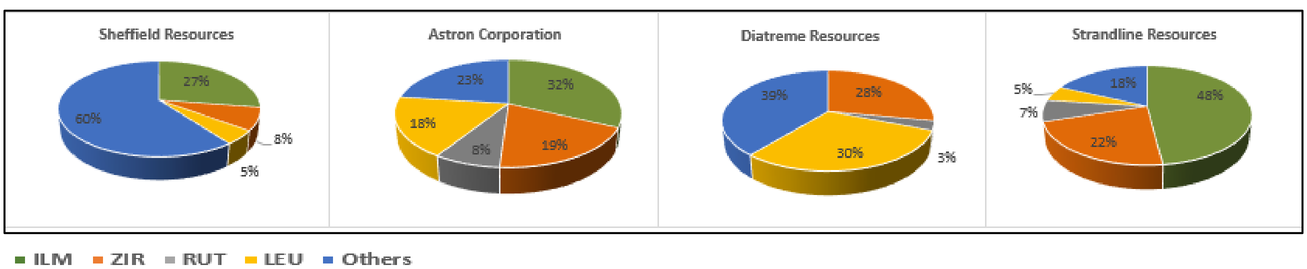


Notes: ILM = Ilmenite; ZIR = Zircon; RUT = Rutile; LEU = Leucoxene; MZI delisted from the ASX on 1 May 2020. For Image Resources, 33% of the heavy mineral concentrate (HMC) it produced was RUT and ILM.

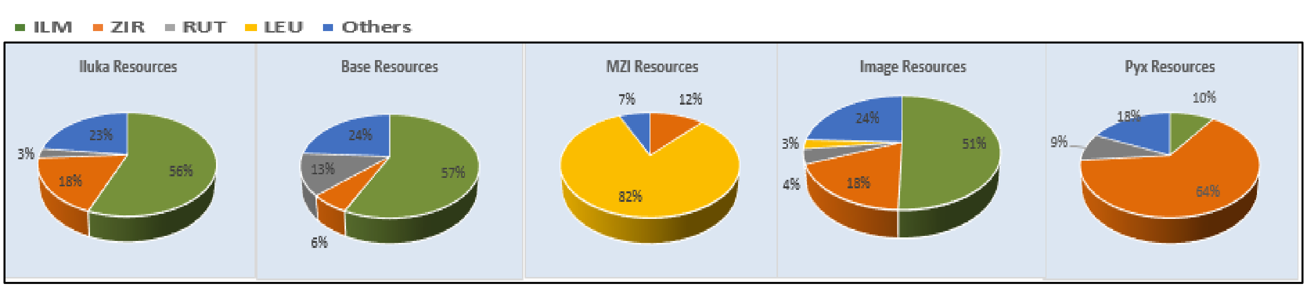
Source: Pyx

Exhibit 9: Assemblage % of Heavy Minerals for Major Australian-Listed Zircon Miners

Key Projects not yet in Production



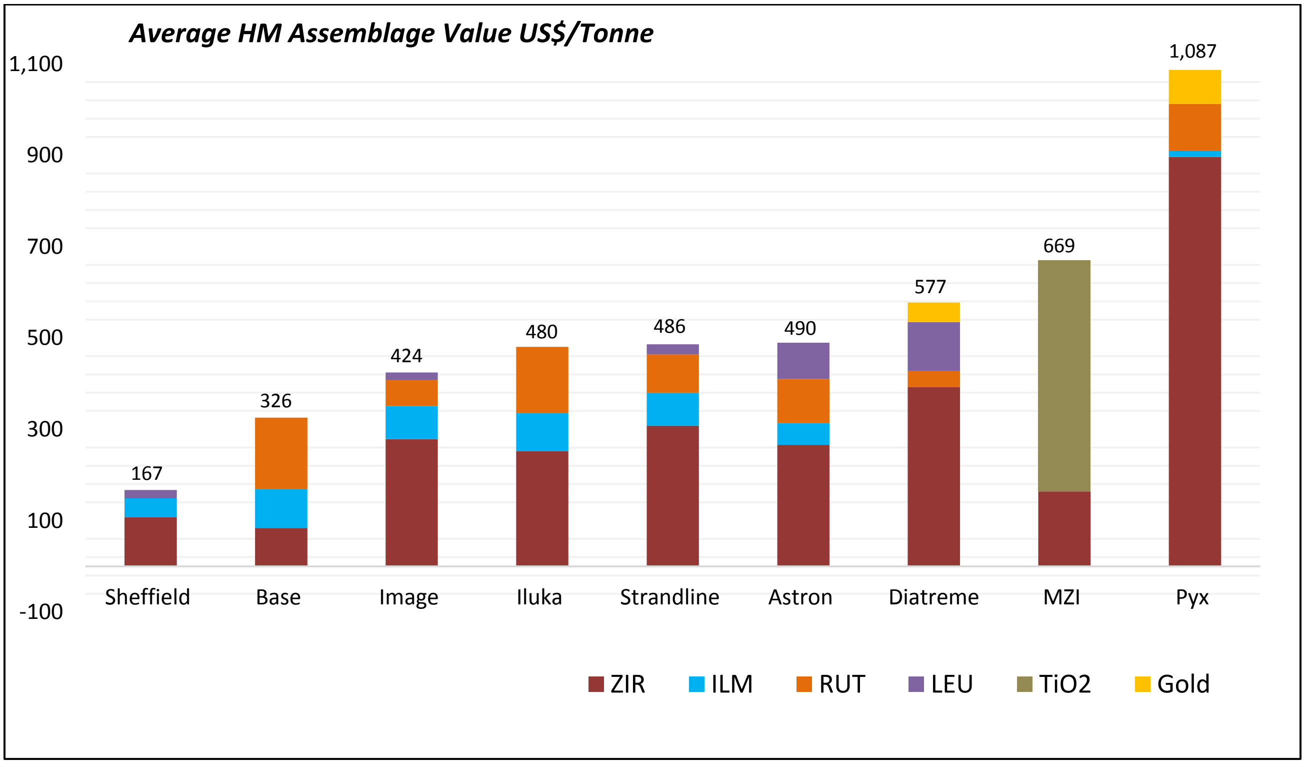
Projects in Production Stage



Source: Pyx

In our view, Pyx justifies a valuation at the top end of the comparable range partially because it will have the highest average HM assemblage value (US$/tonne) amongst its peers and its Mandiri asset is already in production.

Exhibit 10: Average Heavy Mineral Assemblage Value of Selected Australian-listed Miners

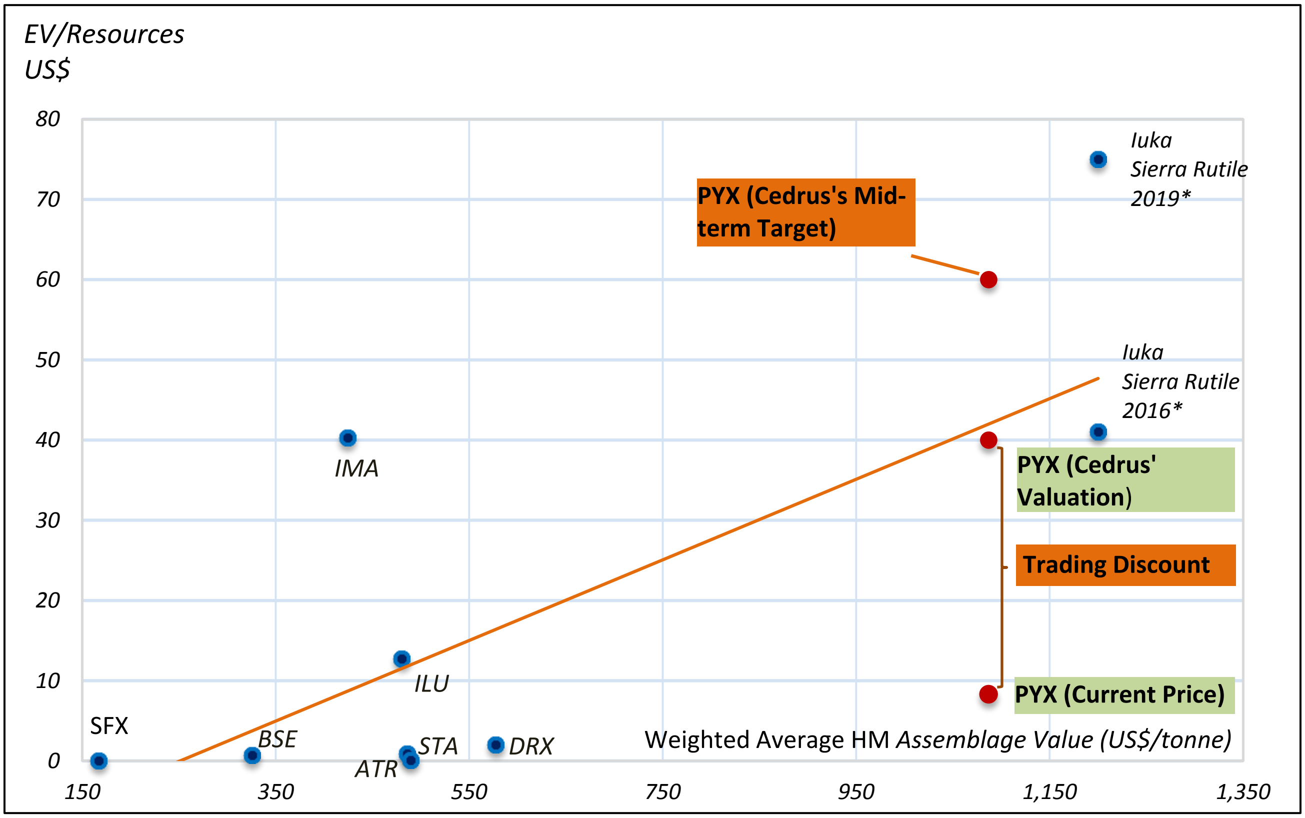


Source: Cedrus' analysis

Current valuation of other comparable mineral sand producers listed on the Australian Securities Exchange (ASX) is strongly correlated with the weighted average assemblage value of the heavy minerals of each company's JORC-compliant resources.

EV/Resource Multiple of Pyx and its Peers

Exhibit 11: Correlation between Weighted Average HM Assemblage Value and EV/Resources Multiple



Note: *Iluka Sierra Rutile 2019 valuation is based on International Finance Corporation's investment of US$60 million on Iluka Sierra Rutile's 10% stake in 2019; while 2016 valuation is based on Iluka's acquisition of Sierra Rutile Limited with US$337 million in 2016; both using assemblage value of US$1,200, equivalent to the spot price for Rutile

Source: Cedrus' analysis

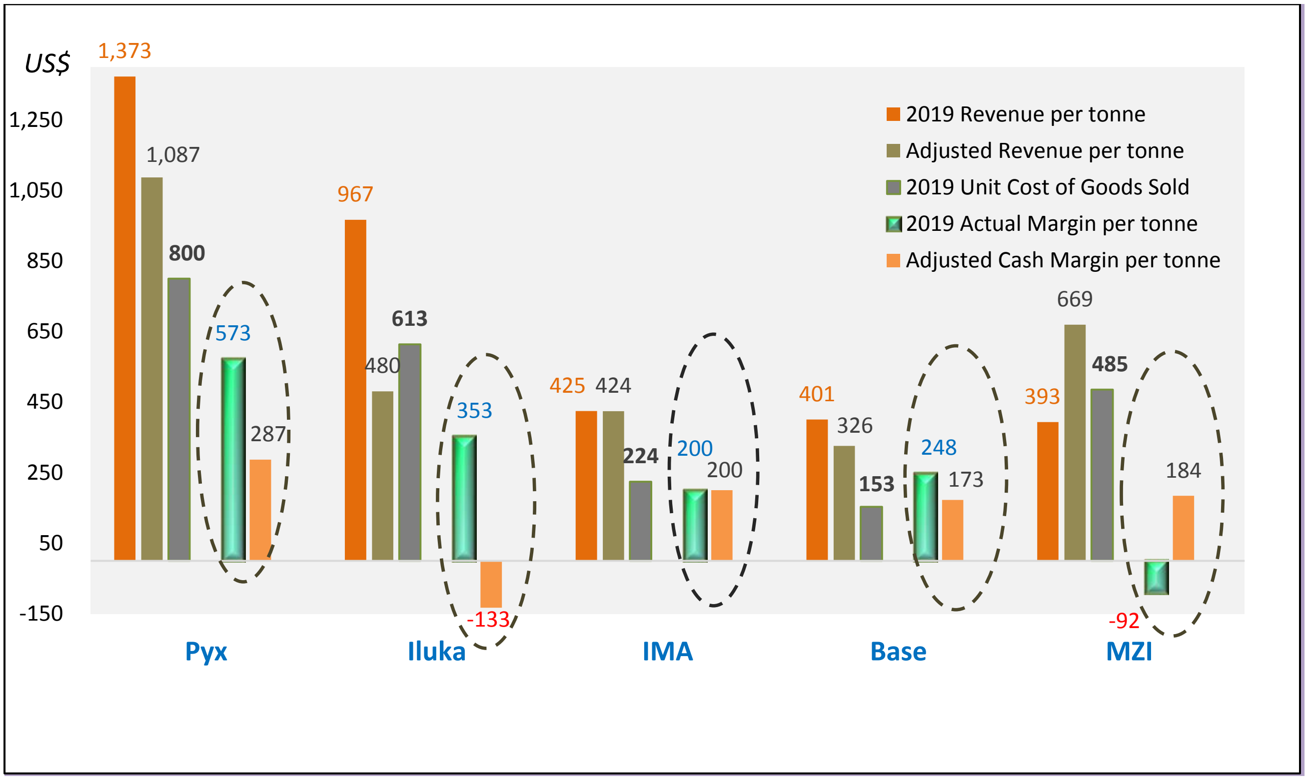
Valuation is also correlated with the share of contained zircon within each company's heavy mineral resources, as zircon has the highest selling price per tonne. Using this valuation matrix, Pyx is again an outlier due to the unique attribute of its deposits, which are very rich in zircon.

Therefore, we believe Pyx should be traded at a valuation of approximately US$40 per tonne of defined heavy mineral resources, or approximately US$375 million (equivalent to about AU$626 million), higher than its current market capitalization of AU$139.2 million by approximately 350% and representing a notable upside that should be particularly appealing to long-term investors.

Cash costs are mostly composed of expenses dealing with heavy mineral mining and heavy mineral concentrate, and cash costs are largely independent from the product mix. Product mix only impacts processing costs, which are just a small fraction of the cash costs.

The exhibit below illustrates the "sustainable", in-situ valuable heavy mineral (VHM)-adjusted cash margin for the comparable companies with assets already in production.

Exhibit 12: Actual Production Margin and In-situ VHM-Adjusted Cash Margin Comparisons of Major Australian-listed Zircon Producers



Note: All figures for Pyx are based on our forecasts for 2021, while all figures for other companies are based on their 2019 actual production

Source: Cedrus' analysis

Exhibit 13: Production, Unit Cost and Unit Margin Comparison of Comparable Companies

Company Name	PV of AP (Kt)	Total Revenue of AP (AU$, m)	Total Cash Costs of Production (AU$, m)	Avg. Revenue/ Tonne of AP (AU$)	Avg. Revenue/ Tonne of AP (US$)	Unit Cash Cost/ Tonne of AP (US$)	Margin/ Tonne of AP (US$)
Iluka Resources	1,021	1,193	540	1,401	967	365	602
Base Resources	527	304	92	581	401	120	281
Sheffield Resources							
Image Resources	270	146		616	425	197	
Strandline Resources							
Astron							
Diatreme Resources							
MZI Resources	75	43	44	570	393	406	-13
Pyx Resources				**1,990**	**1,373**	**743**	**630**

Notes: PV = Production Volume; AP = All Products

Source: Cedrus' analysis

To sum up, Pyx has the highest assemblage value of US$1,087/tonne (owing to the high zircon content in in-situ heavy minerals from the Mandiri asset), the highest cash margin per tonne of heavy minerals (calculated with a highly-conservative cash cost), and a much higher zircon content for both in-situ ore and final products. Hence, based on the above analysis, we believe that it is reasonable for Pyx to be awarded an EV/Resource multiple (in-situ heavy minerals) of 40.

Therefore, based on the EV/Resource multiple (in-situ heavy minerals) of 40 and the JORC-compliant resources of 9.4 million tonnes of heavy minerals, the value of the Mandiri asset should be US$375 million (after rounding).

EV/EBITDA multiple of Industry Peers

In addition, we have also performed an analysis of the EV/EBITDA multiple of other publicly-traded established mineral sands producers.

The EV/EBITDA multiple analysis is only meaningful (by its own definition) for mining companies already achieved a positive EBITDA. This means that among the comparable companies, only Iluka Resources, Base Resources, and Image Resources are qualified for the analysis.

Moreover, to ensure a valid comparison, we have included only those industry peers with projects already in production together with a mine life (resource base/normalized production rate) and the average price of product that are comparable to Pyx's.

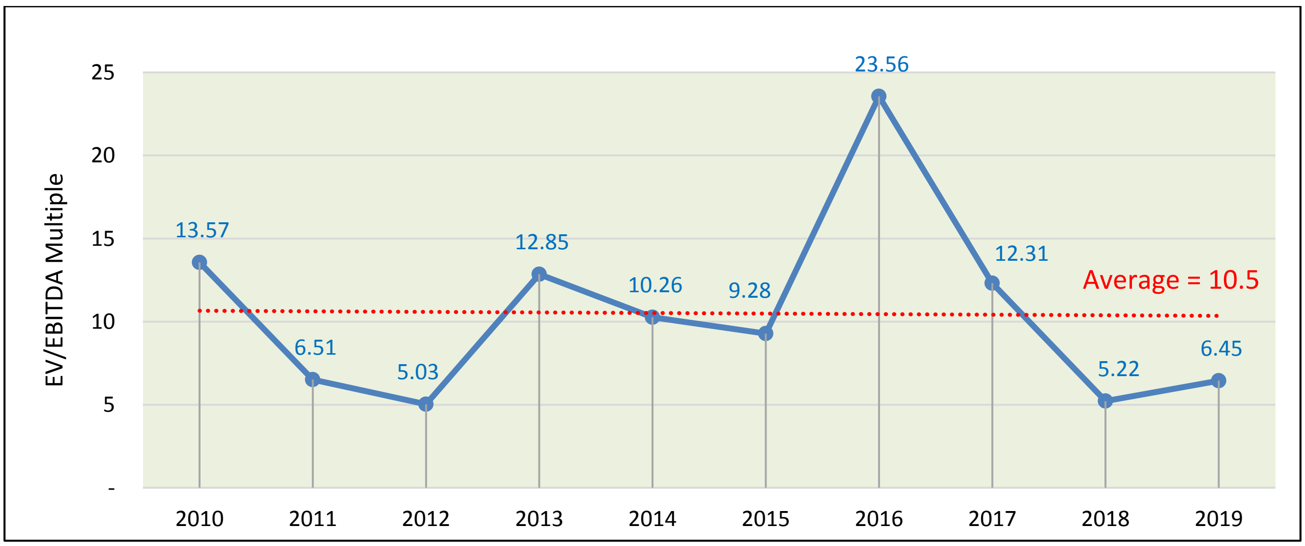
Exhibit 14: Comparability of Industry Peers

Company	Mine Life	Average Price of Product
Pyx Resources	125 years	US$1,373/t
Iluka Resources	156 years	US$967/t
Base Resources	137 years	US$401/t
Image Resources	11 years	US$425/t

Source: Cedrus' analysis

Our findings show that Base Resources' average price of product is notably lower. Meanwhile, Image Resources has trailed by a wide margin in both average price of product and mine life. Consequently, the only industry peer that is more closely comparable to Pyx is Iluka, the leader of the heavy minerals industry.

Exhibit 15: EV/EBITDA Multiples of Iluka (2010-2019)



Source: Iluka Annual Report, Cedrus Analysis

As we can see from the above exhibit, although Iluka's EV/EBITDA multiple fluctuates between 2010 and 2019, it has been traded consistently around the average EV/EBITDA multiple of 10.5 during the period.

In accordance with our analysis and company's management forecasts, Pyx is expected to continue growing its production volume, driven by strong market demand and enormous resources underground. This would lead to a constant improvement in Pyx's EBITDA, which is forecasted to reach US$40 million by 2024, based on a normalized production capacity of 48,000 tpa of zircon. Assuming an output of 72,000 tpa, we project Pyx to achieve a long-term EBITDA of US$62 million.

Therefore, based on Iluka's average EV/EBITDA multiple of 10.5 of the past decade, and the conservative EBITDA projection of US$40 million for Pyx, the value of the Mandiri asset should be US$420 million. If we use the long-term and sustainable EBITDA of US$60 million (after rounding) in the calculation, the value of the Mandiri asset would be US$630 million.

Discounted Cash Flow (DCF)

We also use the DCF valuation method to arrive at an estimation of the current value of Pyx by applying a discount rate deemed appropriate for the company in our opinion to the company's forecasted cash flow generation in the future.

Key Assumptions

According to the Independent Technical Assessment Report (ITAR), the Mandiri deposits are in possession of JORC-compliant inferred mineral resources of 126.3 Mt, which contain 9.4 Mt of heavy minerals at a high heavy mineral grade of 7.43%.

Other key assumptions are listed below:

- A risk-adjusted discount rate of 9% (real) is applied to derive the valuation;
- To determine the valuation, zircon, ilmenite and ilmenite price per tonne of US$1,400, US$150 and US$1,200 respectively, while gold price of US$1,300/oz are assumed;
- Only JORC 2012-compliant mineral resources are used;
- Effective tax rate is assumed to be 20%;
- Statutory royalties for zircon product are estimated to be US$2/tonne;
- Pyx's ability to discover and develop new deposits in the future has not been assessed at this time;
- On-going working capital of US$125,000 for each 100-tpm increment of production/supply;
- The separation plant financing contract signed with a Spanish company allows Pyx to make repayments within 3 years in the form of products it produces at a 6.5% discount off the prevailing zircon price;
- All cost assumptions are based on historical and current actual cost structures;
- In-house mining cost is equivalent to US$320/tonne of concentrate (which has an assemblage of 52% zircon, 6% rutile and 7% ilmenite) due to the inclusion of relatively low value of titanium contents (also known as "black stuff") as a common practice. For the next 5 years to 2024, Pyx will be buying zircon concentrates from contract miners as well to supplement in-house mining;
- With respect to processing plant cost, for a typical 500-tpm zircon capacity plant, total processing cost is equivalent to about US$140/tonne of zircon product, including transportation and export costs;
- For other costs,
  - Export tax is based on a rate of 1.5% on free on board (FOB) price;
  - Depreciation of fixed assets is at the rate proportional to the production level (specifically based on the volume of zircon produced).

By applying the above assumptions and methodology, the net present value (NPV) of the Mandiri asset using the DCF method is US$393 million.

Valuation Results

Exhibit 16: Valuation Summary

Valuation Method	DCF	CCA (Using EV/Resources)	CCA (Using EV/EBITDA)	
Key Parameter				
Multiple (Median)	9% (Discount Rate)	40	10.5	
Valuation (US$ M)				
Value of Pyx	393	375	420	396* (Average Value)

Notes: CCA = Comparable Company Analysis; EV = Enterprise Value; *Average value from the outcomes of the three valuation methods

Source: Company reports and Cedrus' estimates

In our view, the risk-adjusted valuation for Pyx of US$393 million (after rounding) based on the DCF analysis and the market-based comparable company analysis which values Pyx at US$375 million (after rounding) using the EV/Resource multiple and US$420 million (after rounding) using the EV/EBITDA multiple are all reliable and primary valuation methodologies. Hence, in arriving at the fair value of the Mandiri asset, the results from all the above three methods should be considered with equal weight.

Pyx completed a placement, resulting in net cash proceeds (after fees) of AU$10 million or about US$6 million before official quotations of the company's shares commenced on the NSX effective 25 February 2020.

To arrive at our price target, we have also taken into account the performance rights to be issued to Pyx's management. The details of which are as follows:

- Potentially, Pyx's management will be granted in aggregate 21,110,195 shares after the conversions of performance rights during 1 November 2019 and 31 December 2022 upon the satisfaction of certain conditions or performance criteria such as continuous employment with the company, attaining certain sales volume and EBITDA targets in each assessment year, and Pyx's shares reaching certain pre-determined price targets;
- The issuance of these performance rights will be assessed and made in tranches, namely on each of the following expiry dates: 31 March 2020, 30 June 2020, 30 June 2021, 30 June 2022, and 31 December 2022; and
- Pursuant to our analysis and assumptions, Pyx's management will most likely receive a total of 15,957,967 shares during the above-mentioned period, and we have taken these shares into account when doing our valuation analysis and setting our target prices.

Therefore, after adjusting for cash balance and minority interest, **Pyx's implied equity value is US$378 million** (**AU$631 million** based on the exchange rate of US$1 = AU$1.67), which is our **near-term (12- to 18-**

month) valuation target, corresponding to a share price of AU$2.26 and representing an **approximately 335% potential increase** over Pyx's closing price of AU$0.52 on 15 June 2020.

Importantly, we believe there is notable upside to our valuation, potentially doubling from current estimates to above US$700 million in the medium term after capitalizing on exploration targets projected to yield another 3 million tonnes of zircon alongside a high possibility of growing its gold resources owing to higher gold grades. This potential upside is further supported by the results from a comparable company analysis indicating a valuation range of between US$660 million and US$752 million. Thus, we have set a **mid-term (24 months) sustainable price target of AU$4.17** for Pyx.

In the long term, we expect Pyx's valuation to be much higher than our current estimates attributable to the likelihood of additional mineral resource discoveries and more robust economic conditions globally, boosting overall demand for zircon and other heavy minerals.

Cedrus' analysis of Pyx's current and future financial positions rests on the following publicly-available information obtained from company reports and Bloomberg.

Exhibit 17: Key Valuation Metrics

Valuation Metrics	
Market Capitalization as of 15 June, 2020	AU$139.2 million
Total Outstanding Shares	267,777,037
Estimated Performance Shares to be Issued to Pyx's Management henceforth	11,739,812
Estimated Total Outstanding Shares (including the above performance shares)	279,516,849
Estimated Implied Equity Value	US$378 million
Estimated Enterprise Value	US$396 million

Source: Company reports, Bloomberg and Cedrus' estimates

The current valuation has taken into consideration current operations based on ore reserves as well as mineral resources from all deposits and mines Pyx owns. However, our valuation is relatively conservative because we have excluded any upside potentials arising from new discoveries.

V. CONCLUSION AND RECOMMENDATION

As our valuation analysis shown above, shares of Pyx are currently significantly undervalued, especially in view of the expected surge in revenue and net income from its operations. Year-over-year revenue growth rates for 2020 and 2021 are projected to be 191% and 105% respectively, while net income is forecast to soar by more than twofold to US$11.587 million in 2021 from $4.18 million in 2020. We believe Pyx to experience meaningful revenue and net income growth in a sustainable manner beyond 2021.

We estimate that Pyx's implied equity value is US$378 million (AU$631 million, assuming the exchange rate of US$1 = AU$1.67), corresponding to a **share price of AU$2.26, which is our near-term (12- to 18-month) target price**. This target price represents an **upside potential of around 335%** from Pyx's closing price of AU$0.52 as of 15 June 2020.

Summary of investment recommendation

- We believe that Pyx would be increasingly attractive to global investors, as it ramps up its premium zircon output to become a stronger player, potentially reporting better financial results, and further unleash its inherent value just as other zircon producers did;
- Pyx's recent successful fundraising through a placement not only demonstrated strong support and confidence from the investment community but also broadened the company's shareholder base. The listing on the NSX will facilitate Pyx to tap the capital market when needed for business expansion and other purposes that would enhance shareholders value;
- Currently, Pyx is focused on building its mineral sands business by increasing production capacity, improving in-house mining operations, and in the process of broadening the source of revenue through the sales of by products, all with the ultimate goal of maintaining rapid growth;
- Apart from the planned production volume increases, the company is likely to materialize remarkable upside potentials stemming from the development of auspicious in-mine and near-mine targets to enlarge its resource base and extend the overall mine life;
- Besides growing revenue, increased capacity and output also have the potential to deliver considerable operating cash flow enhancement to boost the company's financial position;
- Prospective acquisitions of other mineral sands projects within the same prolific region in Kalimantan where Pyx's assets are currently located could likely allow Pyx to further strengthen its position as the largest mineral sands company in Indonesia, reaping the benefits of economies of scale and becoming a stronger competitor globally;
- Long-term demand for zircon and titanium oxide products is seen to remain resilient going forward, driven by global economic growth, continued trend of urbanization, and technology advances that lead to new applications. Meanwhile, outlook for the mineral sands industry as a whole is expected to be highly positive due to supply constraint.

IMPORTANT DISCLOSURES

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- Neither Dr. Thomas Kenny nor any member of the research team or their households is an owner of Pyx Resources Limited common shares.

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Dr. Thomas Kenny hereby certifies that the views expressed in this research report accurately reflect his personal views about the subject companies and their securities. He also certifies that he has not been, and will not be, receiving direct or indirect compensation in exchange for expressing the specific recommendations in this report.

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