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Metals & Mining Research

Best Undeveloped Projects

2020

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Cover Photo

The cover photo is West African Resources' Sanbrado Gold Project in Burkina Faso

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Best Undeveloped Projects – Key picks

Special Mention Projects

Metals & Mining 2020

While less than 10 projects populate our 2020 BUPs, a number of major discoveries in 2019/2020 will likely add to future editions

Our 2019 BUPs list performed very well, up 51% over the 12 months to 31 Oct. '20, comfortably ahead of the Small Resources Index (up 1%)

Low cost, high margin projects remain our key focus

A key theme this year is a well-funded junior mining sector, which is likely to accelerate exploration

We also focus on cost accuracy, team quality, and reiterate our expectation of further M&A

Stock prices as at 07/12/20

Important Disclosures:
Please refer to important disclosures for ATU, BGL, CTM, DEG, MYL, NXE:TSX, PNR, SVM, SVY, TIE and VRX and other disclosures at end of report (from page 74)

Argonaut's Best Undeveloped Projects (BUPs)

Argonaut has completed its 2020 review of the best undeveloped projects (BUPs) in the metals and mining sector that are majority owned by ASX listed companies. Once again it was a challenge to fill our target list of 10-12 projects, due to a lack of quality, feasibility-stage projects. It is noteworthy that 2019/2020 has seen a number of major discoveries (listed in this book as Special Mentions) which will likely populate future editions of BUPS.

Selection criteria: Argonaut's 'bottom-up' fundamental approach is generally commodity and management agnostic. However, we do apply some jurisdictional filters, removing projects in the highest geopolitical and sovereign risk countries. As part of our selection process, we assessed >450 companies listed on the ASX with valid studies.

Argonaut continues to use the following selection criteria to identify projects considered worthy of inclusion in the BUPs:

1. Development stage between scoping study and pre-commercial production
2. An Internal Rate of Return (IRR) exceeding 25%
3. Profitable through all market/commodity price cycles (assumed 7 years)
4. A high likelihood of achieving >$100m project valuation within 24 months
5. The stock must have a market capitalisation less than A$5b

The focus of this book is on project quality. Inclusion does not necessarily imply a corporate level opinion, recommendation, valuation, or target price.

High margin, low risk: The key criterion to our BUPs is low cost, high margin assets with the capability to maintain strong financial returns through the commodity price cycle. The quality of such projects enables a broader range of financing options and underpins likely development as well as increasing M&A appeal.

How did our 2019 BUPs perform? The 2019 list of BUPs performed very well with an average return over the 12 month period to 31/10/2020 of 51%, versus the best comparable index S&P ASX Small Resources which was up 1%. Of the seven projects, all but one showed a material advancement.

Top performers: Standouts were Cardinal Resources (CDV), which was up 177%, and which is currently subject to a competitive takeover, and West African Resources (WAF), which was up 109%, and which has commenced commissioning having completed construction on time and on budget. Of the stocks listed in our Special Mentions category for 2019, Genesis (GMD) was the best performer, up 155% year-on-year (YoY).

Key themes for metals and mining developer sector: In this report we explore the themes which we believe will have an impact on the developer sector over the coming year. A key change over the past 12-months is balance sheet strength which will accelerate exploration and should lead to mineral discoveries. In the gold producer sector, we explore the real cash generating potential of key ASX stocks, highlighting the gap between quoted all-in sustaining costs (AISC) and actual corporate all-in costs (CAIC). M&A is expected to be an ongoing theme, particularly in the gold sector where organic growth amongst mid-tier producers is limited.

2020 Best Undeveloped Projects

Based on the aforementioned criteria, a list of eight projects have been selected as shown in Table 1 below. We also list eleven Special Mention companies which have either not reached the study phase, or do not meet all of our criteria at this point. We expect many of these projects will progress to our BUPs main list in coming years.

Note that projects which have been in our BUPs list for more than three years, such as Cardinal Resources' (CDV) Namdini Project and Sandfire Resources' (SFR) Tshukudu Project, are not included in this edition.

Table 1. Best Undeveloped Projects & Special Mentions

Company	Project	Ticker	Commodity	Location	Market Cap A$m	Cash A$m	Debt A$m	EV $m
Best Undeveloped Projects								
Adriatic Metals	Vareš	ADT	Polymetallic	Bosnia & Herzegovina	435	14	-	421
Atrum Coal	Elan	ATU	Metallurgical Coal	Canada	196	14	-	182
Bardoc Gold	Bardoc	BDC	Gold	Australia	128	29	-	99
Galena Mining	Abra	G1A	Lead	Australia	120	20	-	100
Myanmar Metals	Bawdwin	MYL	Silver/Lead	Myanmar	141	9	-	132
OreCorp.	Nyanzaga	ORR	Gold	Tanzania	216	23	-	193
Pantoro	Norseman	PNR	Gold	Australia	296	63	-	233
VRX Silica	Arrowsmith/Muchea	VRX	Silica Sands	Australia	130	9	-	121
Special Mentions								
Bellevue Gold	Bellevue	BGL	Gold	Australia	1,156	149	-	1,007
Chalice Gold Mines	Julimar	CHN	PGEs	Australia	1,239	116	-	1,123
Centaurus Metals	Jaguar	CTM	Nickel/Copper	Brazil	200	27	-	174
De Grey Mining	Mallina	DEG	Gold	Australia	1,424	122	-	1,302
Mincor Resources	Cassini	MCR	Nickel/Copper	Australia	462	102	-	360
Musgrave Minerals	Break of Day	MGV	Gold	Australia	196	8	-	188
Nexgen Energy	Arrow	NXE.TSE	Uranium	Canada	1,044	81	165	1,129
Oklo Resources	Dandoko	OKU	Gold	Mali	103	20	-	84
Sovereign Metals	Kasiya	SVM	Rutile	Malawi	150	3	-	147
Stavely Minerals	Stavely	SVY	Copper	Australia	248	31	-	217
Tietto Minerals	Abujar	TIE	Gold	Cote D'Ivoire	199	60	-	138

Source: Company data, FactSet, Argonaut Estimates

Stock Market capitalisation as of 7 December 2020. Cash and debt are generally as of 30 September 2020 unless later dated information was available.

All metrics are quoted in Australian Dollars unless stated otherwise

Table 2. Project metrics and feasibility assumptions

Company Code	Project	Commodity	Project NPV A$m	Disc. Rate %	IRR (%)	Capex A$m	First Prod'n (Year)	Country Risk
ADT	Vareš	Polymetallic	538	11%	80%	240	2023	Moderate
ATU	Elan	Metallurgical Coal	817	10%	25%	1,113	2025	Low
BDC	Bardoc	Gold	374	7%	41%	168	2022	Low
G1A	Abra	Lead	330	10%	32%	170	2022	Low
MYL	Bawdwin	Silver/Lead	746	12%	28%	417	2022	High
ORR	Nyanzaga	Gold	358	11%	25%	424	2023	High
PNR	Norseman*	Gold	470	5%	72%	89	2022	Low
VRX	Arrowsmith/Muchea	Silica Sands	402	10%	60%	87	2021+	Low

Source: Company data, FactSet, Argonaut Estimates

Applying AUD/USD of 0.72

*Project NPV calculations are on a 100% basis; * Norseman's project value includes $250m exploration value*

Performance of the 2019 Best Undeveloped Projects

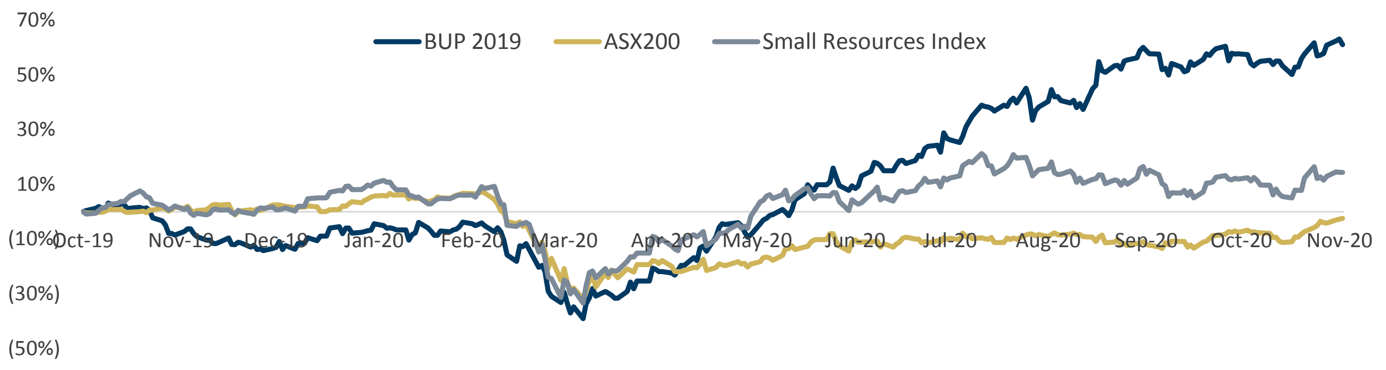
The stocks in the 2019 BUPs generated a strong absolute result with an average share price increase of 51% for the 12 months to 31/10/2020. This was strong outperformance against most relevant indexes, namely ASX Small Resources, which was up 1% and the ASX 200, down 11%. As development stocks commonly raise equity capital, we also measure the change in market capitalisation to take into account share dilution. On a market capitalisation basis, the BUPs list increased by 74% YoY.

Table 3. Best Undeveloped Projects 2019 performance

Company	Project	Code	Commodity	Price 31/10/20	Price Change	Peak Share Price	SOI Change	Mkt Cap Change
2019 Best Undeveloped Projects								
Cardinal Resource	Namdini	CDV	Gold	1.03	177%	1.10	9%	202%
Galena Mining	Abra	G1A	Lead	0.24	-30%	0.35	23%	-14%
Myanmar Metals	Bawdwin	MYL	Polymetallic	0.07	52%	0.11	18%	79%
OZ Minerals	CentroGold	OZL	Gold	14.86	46%	16.50	2%	50%
Salt Lake Potash	Lake Way	SO4	Potash	0.52	-34%	0.80	119%	44%
VRX Silica	Arrow / Muchea	VRX	Silica	0.19	36%	0.24	9%	48%
West African Resources	Sanbrado	WAF	Gold	0.96	109%	1.21	1%	110%
2019 Special Mentions								
Adriatic Metals	Vareš	ADT	Polymetallic	2.28	102%	2.75	20%	142%
Agrimin Ltd	Lake McKay	AMN	Potash	0.56	4%	0.64	5%	9%
Apollo Consolidated	Lake Rebecca	AOP	Gold	0.32	39%	0.41	22%	69%
Aspire Mining	Ovoot	AKM	Coking Coal	0.08	-38%	0.18	53%	-5%
Atrum Coal	Elan South	ATU	Metall. Coal	0.28	-19%	0.40	21%	-2%
Bellevue Gold	Bellevue	BGL	Gold	1.14	106%	1.49	47%	204%
Capricorn Metals	Karlawinda	CMM	Gold	1.74	58%	2.26	6%	67%
Centaurus Metals	Jaguar	CTM	Nickel/Copper	0.54	138%	0.69	29%	207%
Exore Resources	Bagoe & Liberty	ERX	Gold	0.12	50%	0.12	14%	70%
Genesis Minerals	Ulysses	GMD	Gold	0.08	155%	0.09	41%	260%
Nexgen Energy	Arrow	NXE.TSE	Uranium	2.23	31%	2.60	6%	39%
Northern Minerals	Browns Range	NTU	Rare Earths	0.03	-39%	0.06	74%	6%
Oklo Resources	Dandoko	OKU	Gold	0.26	82%	0.37	22%	122%
Red 5	King of the Hills	RED	Gold	0.28	0%	0.36	58%	58%
Sandfire Resources	Botswana Copper	SFR	Copper	4.42	-24%	6.29	0%	-24%
St George Mining	Mt Alexander	SGQ	Nickel/Copper	0.14	-10%	0.18	22%	10%

Price Change: For 12 month period to 31/10/2020; SOI: Shares on Issue
Source: Company data, FactSet, Argonaut Estimates

Figure 1. Argonaut BUPs share price performance vs relevant ASX indices



Source: FactSet, Argonaut

Most 2019 projects have made significant progress over the last twelve months

BUPs stocks have performed well over the six years since the introduction of the book

BUPs stocks have outperformed the Small Resources Index, on either share price or market cap basis, in all but one year

The 2019 BUPs stocks have exhibited one of the best performances yet

Best performers of 2019

Of our 2019 BUPs picks, CDV was the best performer over the period, up 177% on share price and 202% by market capitalisation. The table below outlines the progression of each project over the course of the last twelve months.

Table 4. 2018 BUP's advancement status 14 months later

Company	Project	Oct 2019 Status	Dec 2020 Status
Cardinal Resource	Namdini	DFS	Subject to takeover
Galena Mining	Abra	DFS	Financed/Under Construction
Myanmar Metals	Bawdwin	PFS	Final Permitting
OZ Minerals	CentroGold	PFS	Subject to mining embargo
Salt Lake Potash	Lake Way	Financing	Financed/Under Construction
VRX Silica	Arrow / Muchea	DFS	Mining Licence Granted
West African Resources	Sanbrado	Under Construction	Commercial Production

Source: Company filings

Performance on a 6-year basis

On a six-year basis, the BUPs stocks have performed well against the Small Resources Index. BUPs stocks outperformed the index in all but one year on either a share price or market cap basis. In 2017, BUPs underperformed as investors rotated funds out of risk sectors, in particular those exposed to Chinese resources demand.

Table 5. 2014 to 2019 BUPs performance

	Annual Performance			BUPs
Year	BUPs	Small Res.	S&P 200	Mkt. Cap (%)
2014	10%	-20%	-5%	27%
2015	62%	48%	3%	101%
2016	7%	17%	12%	85%
2017	-19%	6%	-2%	-11%
2018	34%	-7%	14%	59%
2019	51%	1%	-11%	74%
Average	**24%**	**8%**	**2%**	**56%**

Source: IRESS, FactSet

Themes of 2020

2019/2020 saw some significant discoveries

A cashed-up junior mining sector should lead to further discovery

The right management team, backed up by quality consultants, remains important

We discuss the actual costs keeping a mine operational

M&A activity is in full flow

The ASX has become the dominant exchange for resources in recent times

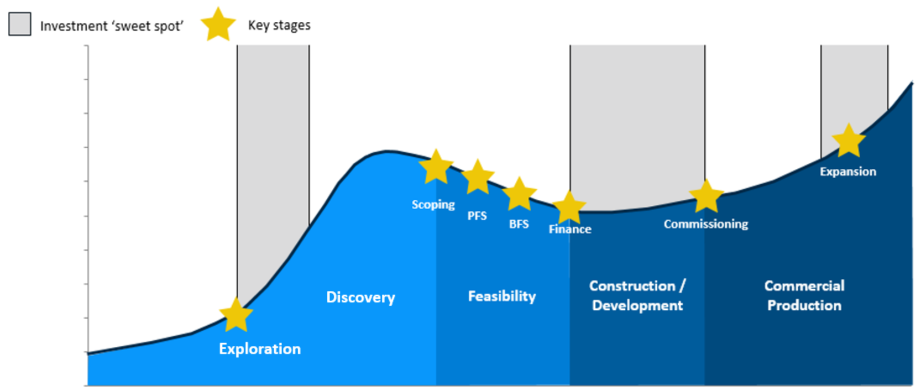
Argonaut outlines a number of themes that we see as most pertinent to the Metals and Mining Sector over the coming 12 months:

1. **Reward via the drill bit**. The discovery phase offers the best returns over the life cycle of a mining stock. 2019/2020 saw some significant discoveries which should progress to feasibility through 2020/2021.
2. **A cashed up junior sector**. Following a resurgence in investor interest, the junior resources sector has been able to raise substantial equity capital. As a result, exploration activities have surged, which should lead to further discovery.
3. **Trusting the team**. While funding accelerates exploration, risks include poor capital allocation, high corporate overheads, or value destructive M&A. We highlight the need to back proven management teams, quality projects, and consultants with strong track records. The latter is important as juniors typically outsource resource estimates and key workstreams of feasibility studies.
4. **A cost is a cost:** All-in Sustaining Costs (AISC) was developed as a proxy for the total non-discretionary cost to run a mine. However, with decreasing correlation between AISC and actual cash generation, we explore a better alternative, being corporate all-in costs (CAIC).
5. **M&A cycle ongoing:** With the cycle of M&A in full flow, we predict further transactions in the ASX resources sector.
6. **ASX becoming the home of resources:** The ASX has been the dominant exchange for resources recently. We discuss the benefits of listing Down-under.

1 Reward from the drill bit

The highest rate of share price increase for resource stocks generally occurs during the discovery phase. Companies can transform from micro-caps (sub $10m market cap) to well-institutionalised +$100m market cap within a few months.

Figure 2. Lifecycle of a mining project



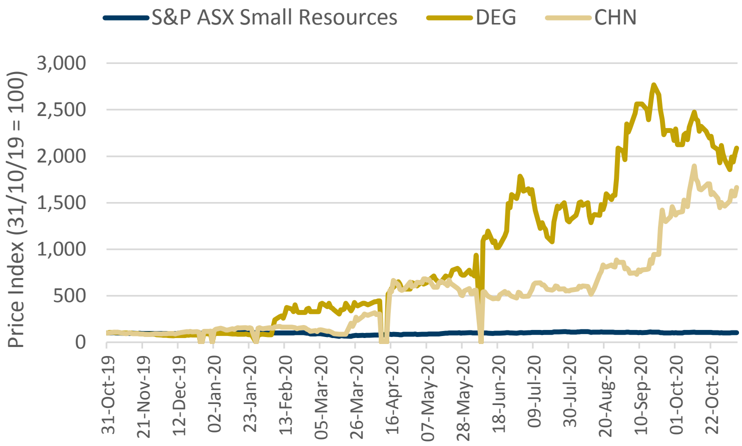
Notes	Stock gains momentum based on a new mineral discovery and further drilling success	Market Interest wanes during study / construction process	Market revaluation with producer status
Capital Growth	High	Low	Moderate
Risk	High	Moderate	Low
Financing	Equity	Equity / Debt	Funded
Yield	None	None	Dividend Distribution
Investor Interest	Retail, specialist resource funds		
		Specialist resource funds / small cap Institutional / Sophisticated Investors / corporate M&A / generalist funds	

Source: Various

Discoveries can lead to exceptional price performance, as demonstrated by DEG (the Hemi discovery) and CHN (the Julimar discovery)

There have been some major discoveries over 2019/2020 by ASX listed companies accreting significant value to shareholders. Two standout examples include De Grey Mining's (DEG) Hemi gold discovery and Chalice Mines' (CHN) Julimar PGE-Ni-Cu discovery. Notably, both were near surface, situated in non-remote locations and in Western Australia, which is the 2019 Fraser Institute's top ranked destination for mining investment attractiveness.

Figure 3. Share price performance of major discoverers vs ASX Small Resources



In 2020 the market has been more prepared to reward earlier stage projects

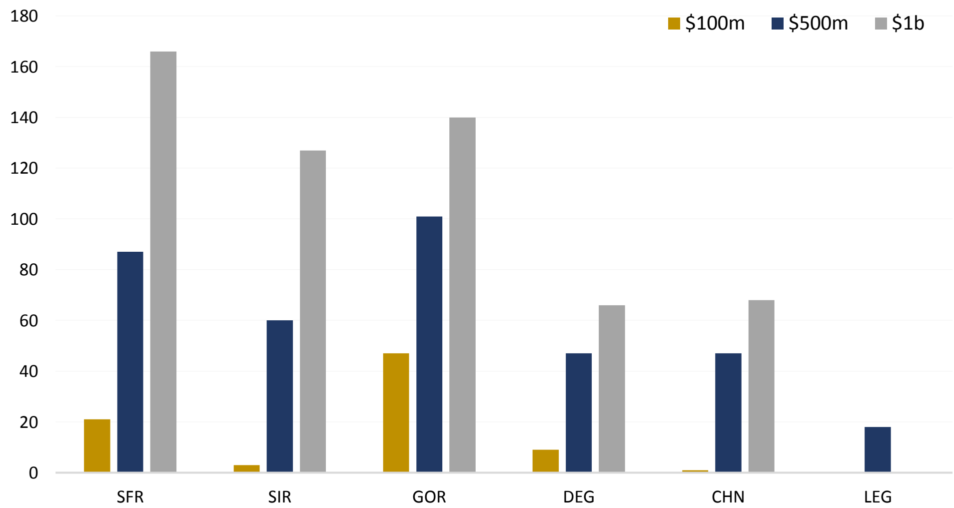
Source: FactSet

Both DEG and CHN attained $1b market caps prior to a Mineral Resource estimate

In comparison to other pre-2020 discoveries, the market appears willing to reward earlier stage projects. In 2020 we have seen two companies (DEG, CHN) attain +A$1 billion market caps prior to a Mineral Resource estimate (on the primary discovery). As an example, Figure 4 below shows the number of drillholes required to achieve market cap milestones for key discoveries in Western Australia over the past decade. Institutional investors are willing to take on higher risk, and in a virtuous cycle, higher market caps and liquidity attract more professional investment.

Fewer drillholes were required to achieve market cap milestones for DEG and CHN

Figure 4. Number of significant drill holes to reach key market cap milestones



Discovery companies appear to be attracting investors earlier

Results pertain to discovery location only. A significant hole is one that adds to mineralisation
Source: SNL, Company Reports, Argonaut

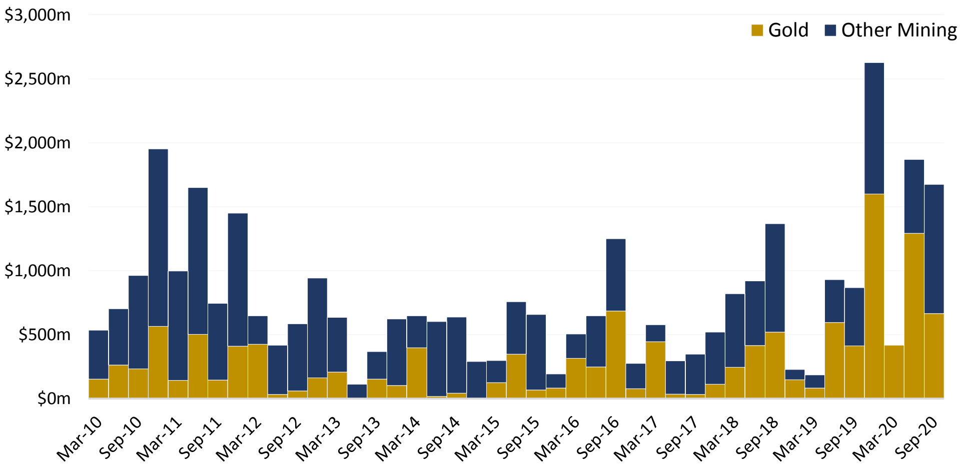
2 Cashed up for discoveries

Equity capital markets have been open to junior resource companies, who are now flush with cash

The equity capital markets have been open to the ASX resources sector resulting in a sector flushed with cash. The June and September quarters of 2020 saw $3.5b raised, collectively the highest over 6-months for over a decade. We note that the December 2019 quarter was dominated by ~$1.6b raised by SAR and NST for KCGM (Super Pit) acquisitions.

The last two quarters have seen the most cash raised over a six-month period in over a decade

Figure 5. Cumulative equity raised by ASX materials companies, quarterly

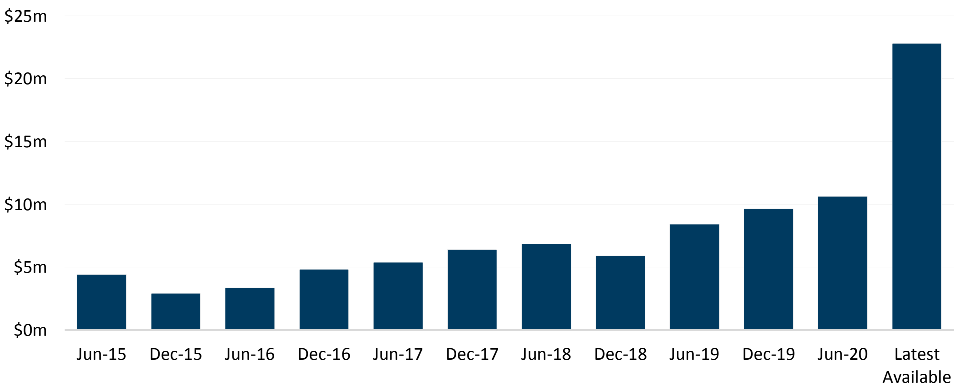


Source: Bloomberg

As a result, the ASX junior resource sector is flush with cash, with explorers' balance sheets potentially holding the highest levels of cash on record.

The average cash balance of ASX-listed explorers is the highest on record

Figure 6. Average cash balance of ASX listed Explorers



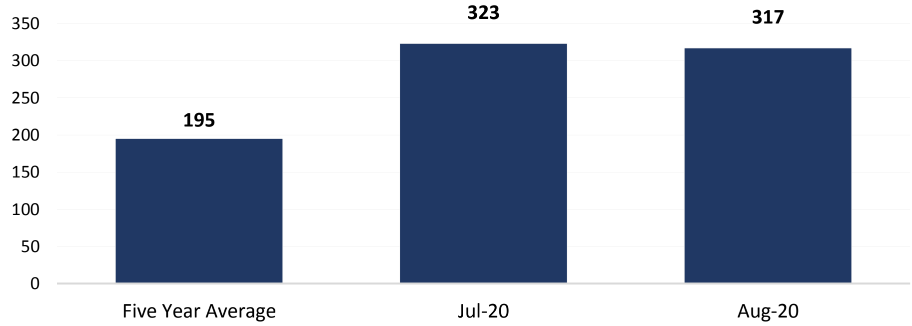
Source: IRESS, Company Presentations for latest available. Based on sample of 43 Explorers

Exploration programs are ramping up

This money is being put to work with exploration programs ramping up, both in Australia and globally. Notable programs include: De Grey (DEG) $83m over 12 months, Gold Road (GOR) $26m for 2020, Chalice (CHN) $22m and Pantoro (PNR) 100,000m in 2021. Department of Mines Work Applications for exploration in Western Australia for July and August 2020 were both over 300, versus the five-year average of 195. Overwhelmingly, both in Australia and overseas, the bulk of the exploration expenditure is in the gold sector.

Exploration work applications in WA in July and August were more than 50% up on the five-year average

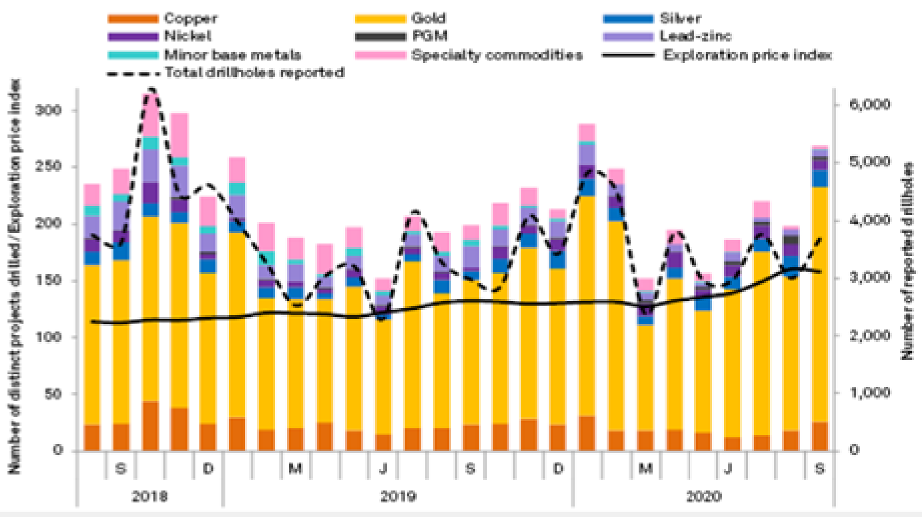
Figure 7. Programme of Work applications received by DMIRS



Source: Western Australia Department of Mines, Industry Regulation and Safety (DMIRS)

Gold continues to dominate exploration programs

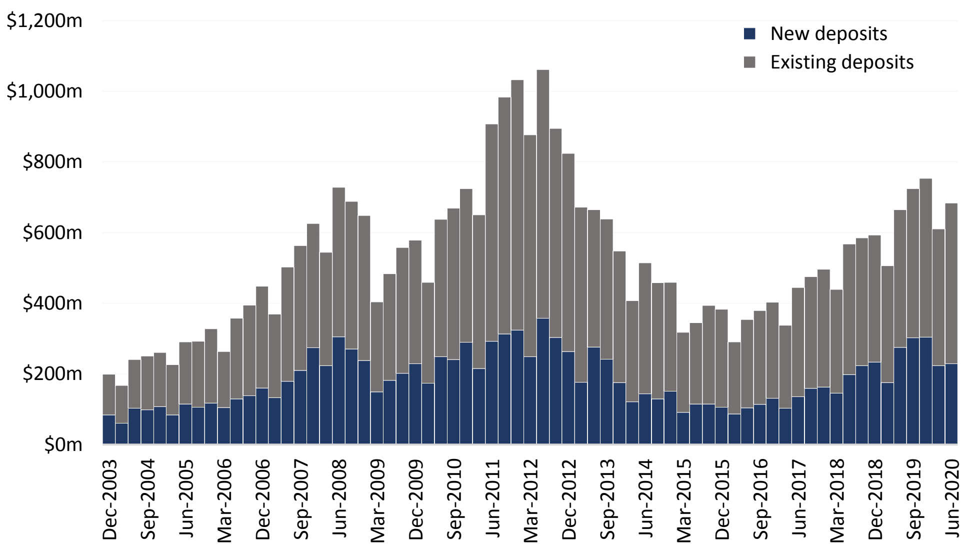
Figure 8. Quarterly statistics for projects drilled and the number of holes reported by commodity 2018-2020 (excluding bulk commodities)



Source: S&P Global Market Intelligence

Gold exploration spend is trending up for both greenfield and brownfield

Figure 9. Quarterly Spend on Gold Exploration - Australia



Source: Australian Bureau of Statistics

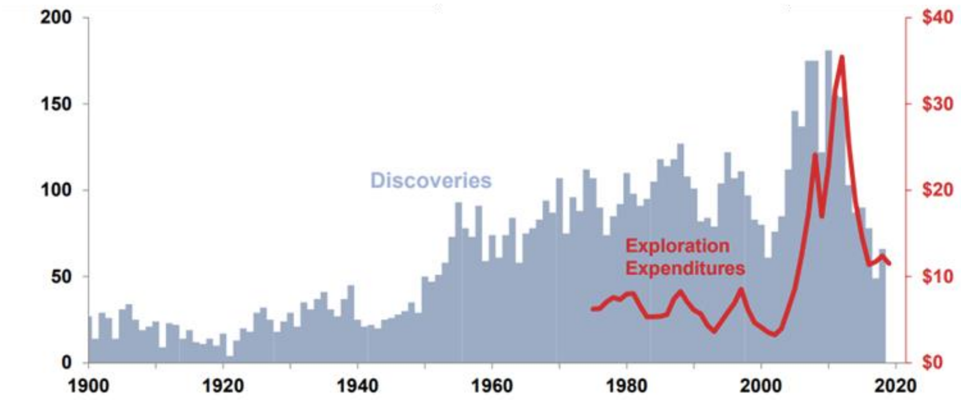
Exploration will lead to discovery

Increased exploration spend should lead to more discoveries

Increased exploration expenditure should lead to more discoveries, although evidence suggests it takes more exploration dollars now to achieve similar discovery outcomes given the "easier" deposits have already been found.

However, evidence suggests it now takes more exploration dollars to achieve similar discovery outcomes

Figure 10. Number of discoveries and exploration expenditures (2020 US$b)

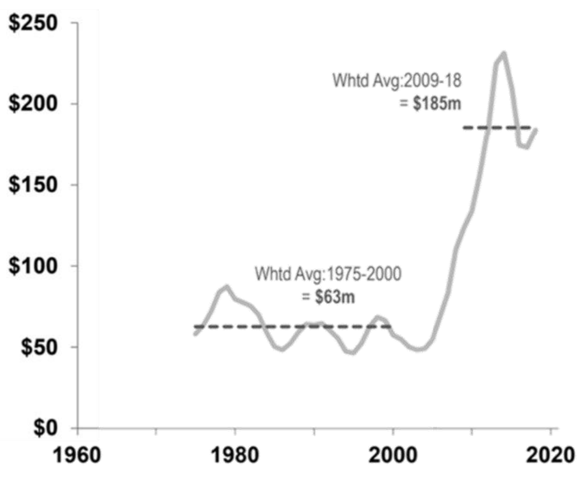


Based on "moderate-sized" deposits. Excludes satellite deposits within existing camps.
Source: MinEx Consulting

Analysis by MinEx Consulting indicates that the average cost per discovery has trebled in the most recent decade when compared to discovery costs in the latter decades of the 1900s.

Average cost per discovery over the last decade is more than treble the costs toward the back end of the last century according to MinEx Consulting

Figure 11. Average cost per discovery (2020 US$m)



Source: MinEx Consulting

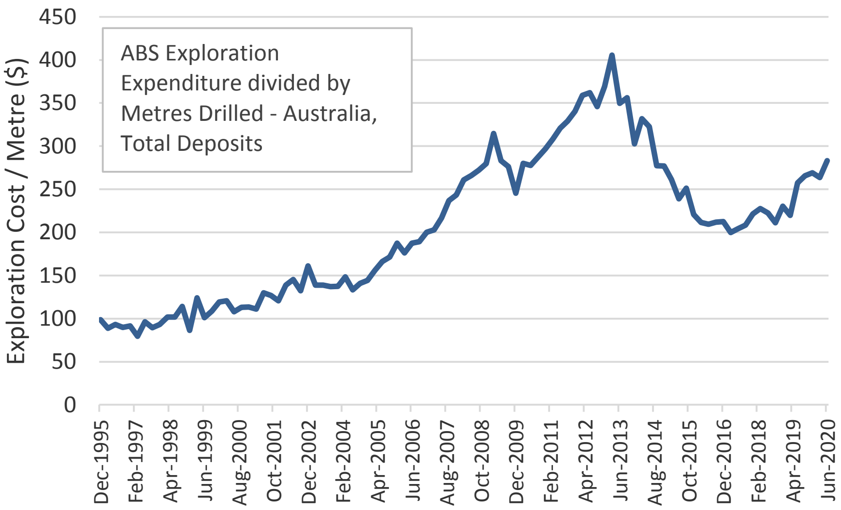
Risk of exploration cost inflation

Part of the growth in discovery costs can be attributed to higher drilling costs

Part of the growth in discovery costs can be attributed to higher drilling costs per metre. This accelerated from the start of the 2000s and although these costs dropped off with rig underutilisation between 2013 and 2016, evidence points to a slow pick up in drilling costs over the last couple of years.

Argonaut analysis of ABS drilling data shows costs are trending up following a drop in the first half of the 2010's

Figure 12. ABS exploration expenditure per metre drilled



Source: Argonaut calculation based on ABS data

Anecdotal evidence suggests utilisation has increased to a point where availability of labour and equipment is now tight in the mining space

In more recent months, anecdotal evidence suggests the increased exploration activity is putting pressure on the availability of labour, services and materials. This has been compounded by COVID-19 which is restricting labour movements and supply chains. In Western Australia drill rig availability is reportedly very low. Companies who have secured drill rigs are reluctant to release them and drilling contractors are favouring large, longer dated contracts which makes it harder for smaller, more targeted campaigns to secure rigs. In this environment we expect drilling costs to continue to increase.

Further, labour is tight due to restricted travel and closed borders, along with labour poaching (from the majors for example). The turnaround for assays at laboratories has increased and even hiring light vehicles from major mining centres is reportedly challenging.

3 Trusting the team

Major discoveries are uncommon

The probability of any economic resource discovery is low. Most geologists will complete their careers without putting a major find against their name. The ultimate aim of an exploration company is to acquire the best tenure and use the best tools available (geophysics, mapping, historical data) to increase the probability of success at the drill-bit in the shortest time and for the lowest cost.

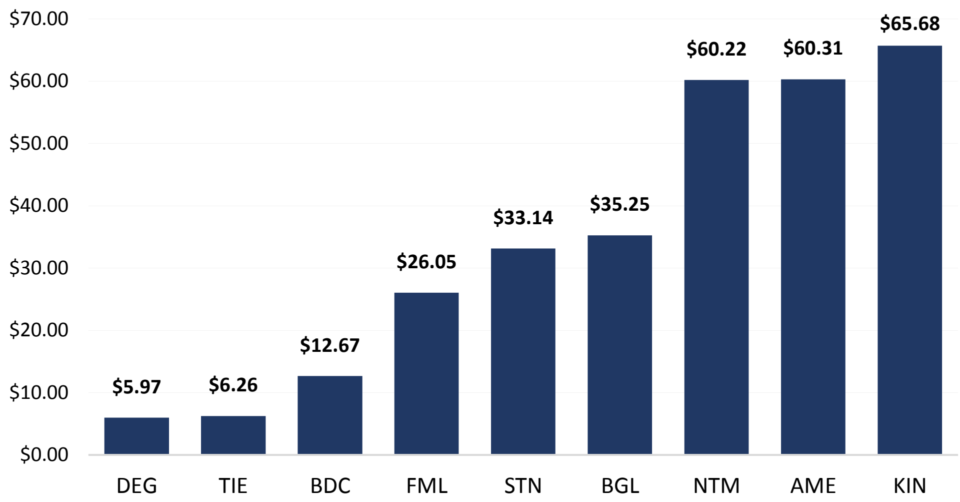
With a junior sector awash with cash, there is the danger of wasteful capital allocation

With the junior sector awash with cash, there is a risk of wasteful capital allocation. High corporate overheads and/or executive salaries should be justified by performance and we remain wary of "lifestyle companies" focussed on self-preservation and self-remuneration rather than returns to shareholders.

While exploration is a risky game, untargeted drilling or the drilling of poor targets can drain cash unnecessarily. A combination of a good project and well-targeted drilling tends to result in low discovery costs.

It can lead to widely differing costs for additional resources

Figure 13. Cost per Resource ounce for select ASX gold companies (last two years)



Cost includes Exploration and Employee cash flow. De Grey Resource includes Argonaut Research's estimated 4Moz at Hemi. Source: FactSet, Company Reports

The quality of the reported resources is also important

The track record of the management team, as well as the consultants on which they rely, is critical

It is also important to be able to trust the reported resource estimates. In this regard, limited budgets and one-off studies lead to a reliance on consultants rather than in-house skills for junior resource companies. They are relied upon for an independent assessment yet are compensated by the company they are analysing data for. In our view, the track records of the consulting and engineering teams behind resource estimation and feasibility studies are often as important to consider as those of the company executives.

4 A cost is a cost

Classification of costs can cause discrepancies between actual free cash flow and that implied by all-in sustaining costs (AISC)

What's the real cost number for undeveloped projects?

The usefulness of reported all-in sustaining costs (AISC) in feasibility studies is steadily declining. We note a growing trend of developers classifying large portions of post-production total cost as 'mine development capex' and hence it is excluded from AISC.

When comparing gold producers, we have disregarded the distinction between AISC, sustaining capital, exploration expenditures and taxes as there are too many overlaps and omissions in reported numbers to make them of use for shareholder wealth creation comparisons. Our measure of a producing gold company's total costs, or corporate all-in costs (CAIC), reflects all outgoings other than those paid to shareholders or for new projects. The CAIC for a gold company for a given period is therefore defined as:

We have introduced the concept of corporate all-in costs (CAIC) which accounts for all cash outgoings other than to shareholders or for new projects

$$CAIC = Au\ Price - \frac{\Delta\ in\ net\ cash - new\ equity + dividends + new\ project\ capex}{Au\ produced}$$

In order to capture the post-production capex for an undeveloped project we have introduced life of mine capital intensity, defined as follows.

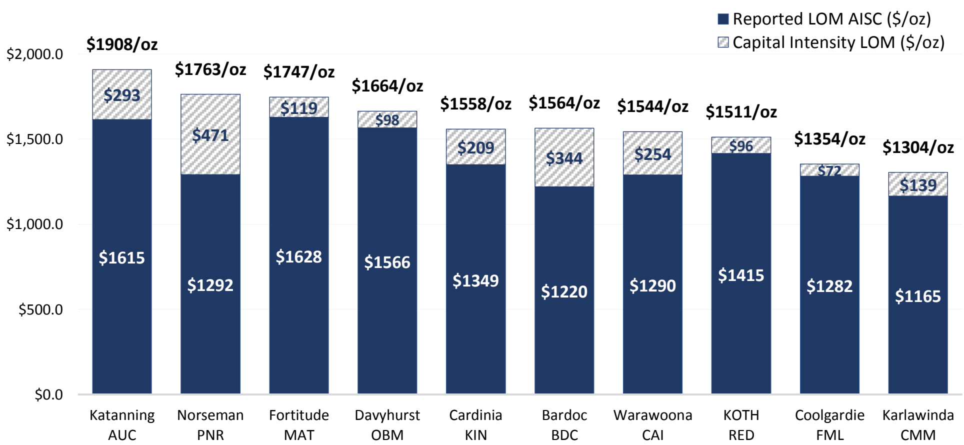
$$Capital\ Intensity_{LOM} = \frac{Pre\ Production\ Capex + LOM\ Development\ Capex}{LOM\ Production}$$

For a pre-production developer we can append life of mine sustaining capex to the stated AISC to get a better feel for life of mine total costs

By appending the quoted AISC in developer studies with capital intensity, we begin to see a better picture of the life of mine unit costs of the project.

Figure 14. AISC + LOM Capital Intensity ($/oz) for Australian Domiciled Gold Developers

This is akin to our CAIC and can have a meaningful impact on the AISC shown in feasibility studies

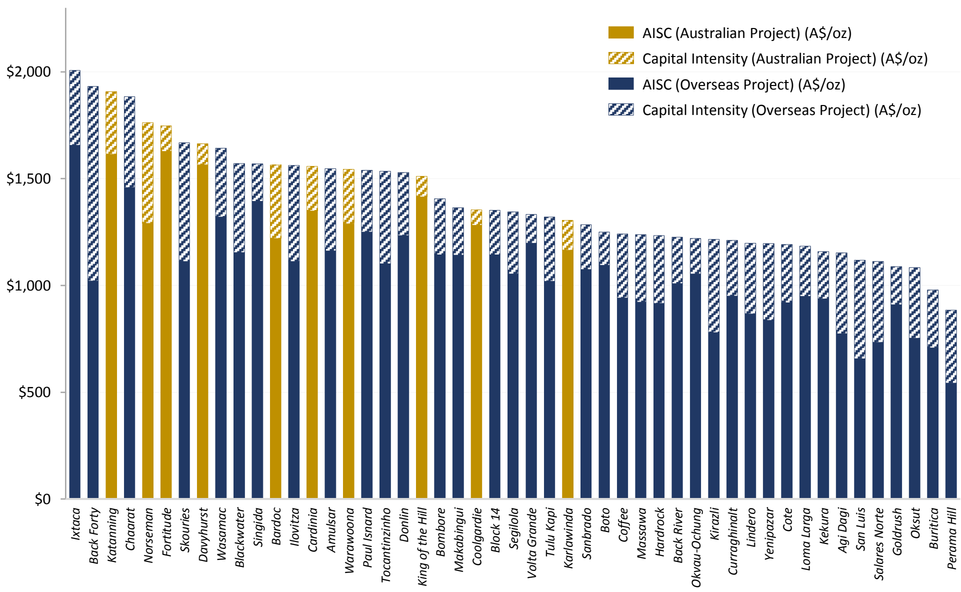


Source: FactSet, Company Feasibility Studies, Pre-Feasibility Studies & Scoping Studies

A number of Australian developers sit at the higher end of the cost curve for pre-production projects

On this basis, relative to global projects Australian undeveloped projects sit at the higher end of the cost curve

Figure 15. AISC + LOM Capital Intensity ($/oz) for Global Gold Developers



Source: SNL, Company Reports

5 M&A cycle continues

West African Consolidation

We expect further consolidation in West Africa

West Africa has seen considerable consolidation in the past 12-months, with a number of corporate and asset level transactions. Recent transactions include:

- PRU takeover of ERX
- WAF acquisition of B2Gold's (TSX:BTO) Toega deposit
- Shandong Gold (HK:1787) and Nord Gold bids for CDV

TIE is a likely target

With further consolidation anticipated, we believe the predators in the region could include; Endeavour Mining (TSX:EDV) (we note the recent merger announcement with Teranga [TSX:TGZ]), Nord Gold (private unlisted), Zijin Mining (HK:2899), RoxGold (TSX:ROXG), Shandong Gold, and Perseus Mining (PRU).

The most obvious potential takeover target in the region is WAF – with its healthy margins, mine life, and single asset status better suited to a broad asset portfolio. Tietto Minerals (TIE) has the largest undeveloped resource in Côte d'Ivoire (currently 2.2Moz, expected to grow to +3Moz within 2020) which may attract a suitor. Along with corporate level M&A we also see tenure consolidation, particularly from non-core projects from majors such as Rand-Barrick (TSX:ABX).

We also expect ongoing consolidation amongst the smaller gold miners in Australia

Consolidation of the Australian domiciled junior miners

Argonaut predicts the most active Australian M&A will be among the mid-smaller gold miners (sub-300kozpa production), driven by upwards envy and strength in diversification.

In the ASX gold space companies are rewarded for size

In the ASX gold producer sector 1+1=4 in a rising market. Companies are rewarded for growth, garnering international attention, and gaining entry into ETFs and higher indexes (i.e. SAR moving into the S&P ASX 100 following its acquisition of 50% of KCGM). The low cost of debt provides another compelling reason backing further M&A.

Key strategic rationale for M&A include grade enhancement, scale, and regional consolidation

We see the following as key attributes for M&A targets:

- Ore quality - comparatively better ore than the acquirer's current reserves, through some combination of grade, strip ratio, continuity, scale, location, proximity to surface
- Price and availability – Value is in the eye of the beholder, and some companies are dressed up for a party but not necessarily a wedding.
    - Our potential targets: RED, AOP, MGV, DEG, BDC, GMD, CAI, PNR

Developer/producer Red 5 (RED) is notable for the absence of any apparent third party interest in it, despite a swelling gold inventory backed by a huge drilling database, first rate location, and tepid market rating. It is possible it just doesn't stack up – or it is a stand-out opportunity for someone? We favour the latter.

The acquirers

SLR and RMS have strong balance sheets and have a stated intention to consider M&A

NST and SAR have set the scene and will now be sidelined from further M&A until the Scheme is approved in February 2021. Dacian has moved on NTM Gold (NTM) in a recommended Scheme of Arrangement. Aurelia (AMI) has agreed to take over Dargue's Reef.

Gold Road (GOR), Westgold (WGX), Silver Lake Resource (SLR) and Ramelius Resources (RMS) all have +$100M net cash balances and stated intentions to pursue M&A. WGX is a recovering mergaholic that could relapse once Big Bell is at capacity. RMS and SLR have recent form (Spectrum and Egan Street respectively) and GOR recently swooped on some loose DEG shares only to sell two months later at a $17M profit. Cash is piling up quickly in all cases, but scrip value in this group remains restrained, in our view.

RRL and SBM are also likely acquirers

ALK has taken cornerstone positions in GMD (approved to move to 19.9%) and CAI (12.7%), participating in recent equity raises for both companies. ALK could use its strong equity position and cash balance ($37.8m cash and bullion at 30 September) to acquire a second production centre, boosting production to +150kozpa.

RRL and SBM are most likely opportunistic acquirers. RRL's Duketon must eventually bow to the weight of a 10Mtpa ore replacement task and McPhillamys is still pending approvals. SBM is actively exploring around its Gwalia mine and said at Diggers and Dealers that truckable ore sources would be assessed for acquisition.

The predicted merger of SAR and NST consolidates the two into a ~2Mozpa producer from ~2026

Big deals

As predicted the most meaningful recent transaction in the ASX gold sector is the SAR and NST merger; consolidating KCGM and its ~2Mozpa production base from ~2026. Beyond KCGM, MergeCo claims significant operational synergies across five mining centres in Western Australia, including four within 350km of Kalgoorlie.

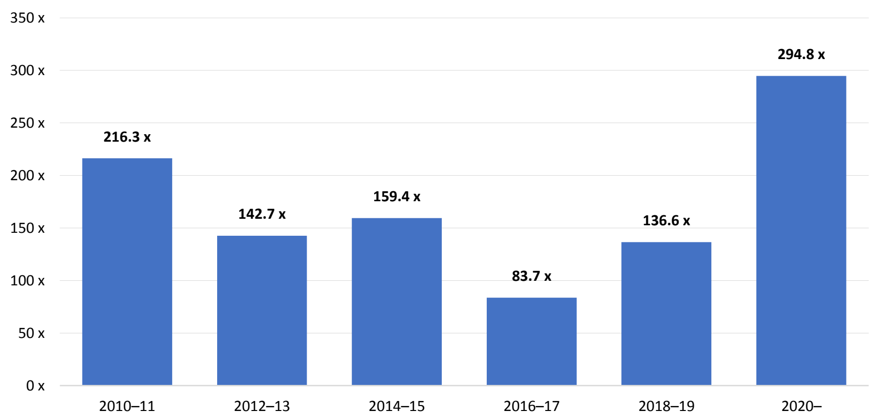
DEG's large Hemi discovery makes it a target

DEG has rapidly grown to a +$1b market cap following the Hemi discovery. Argonaut forecasts Hemi could develop into a +400kozpa gold proposal soon. This would make it a target for major gold miners globally, particularly once ore reserves are defined and

More recent transactions have seen higher resource multiples, …

technical studies, including metallurgy are well progressed. A company with an Australian presence and experience processing refractory ore, such as NST/SAR, Newcrest (NCM) or Newmont Corp (USA:NEM), could be well suited to this asset.

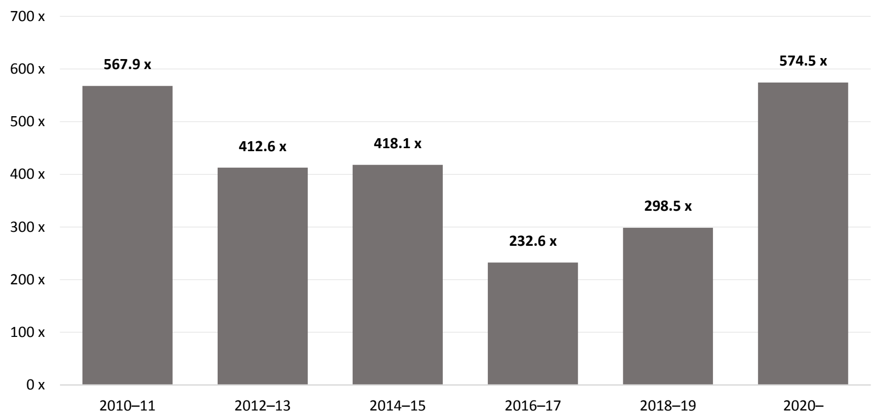
Figure 16. Average EV/Resource - Australian Gold M&A Transactions (>$60m) Last Decade



Source: SNL, Company Reports

… higher reserve multiples, …

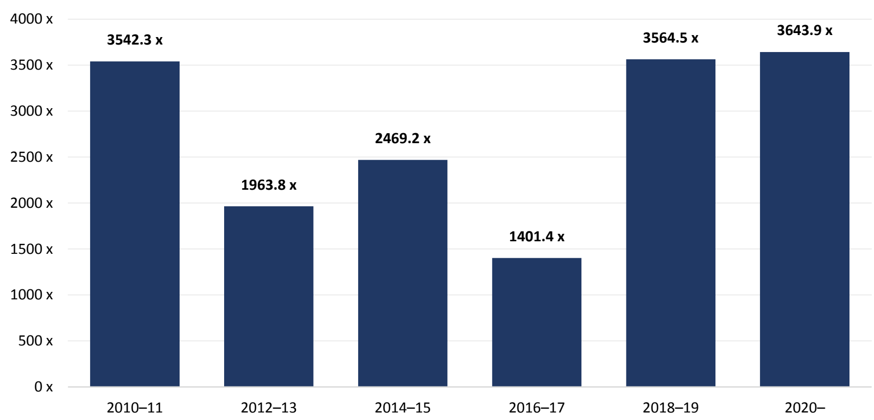
Figure 17. Average EV/Reserve - Australian Gold M&A Transactions (>$60m) Last Decade



Source: SNL, Company Reports

… and higher production multiples

Figure 18. Average EV/Production - Australian Gold M&A Transactions (>$60m) Last Decade



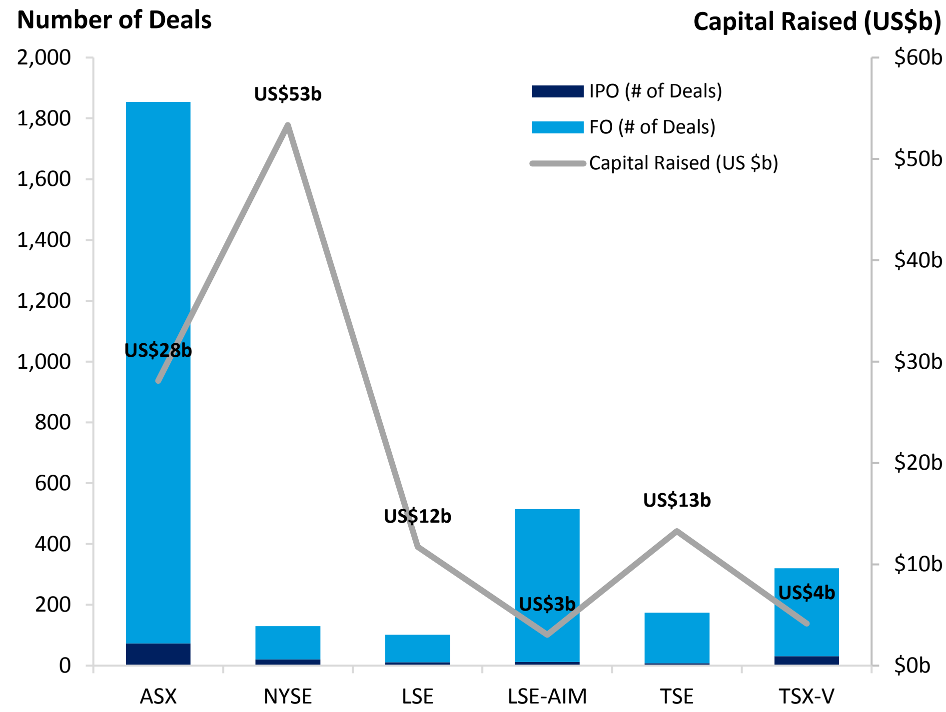
Source: SNL, Company Reports

6 ASX the home of resources

The ASX has dominated global exchanges in recent years with regard to capital raised for resources companies

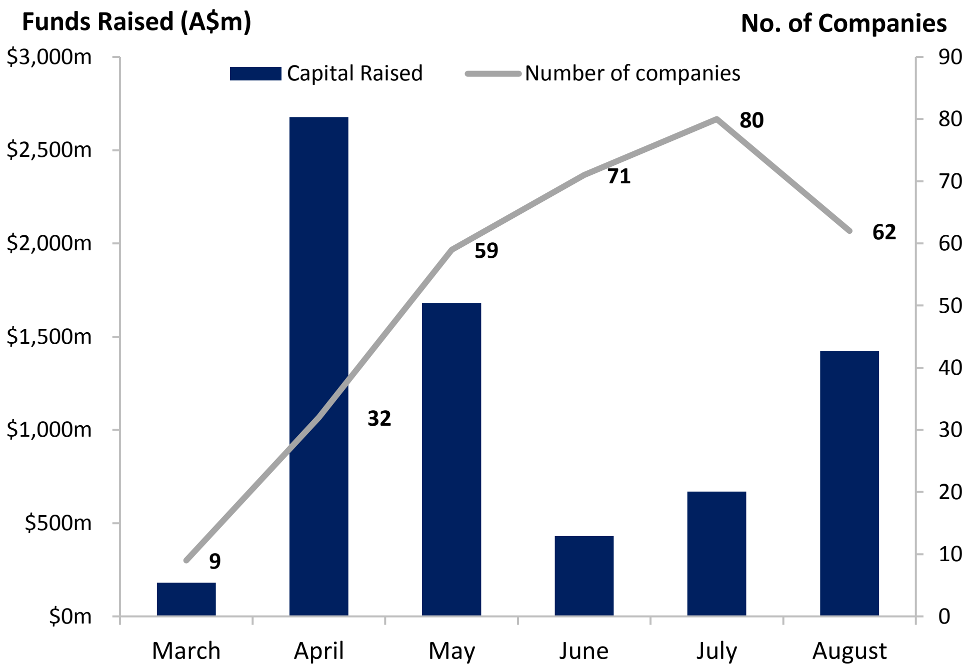
Over the last three years, by far the bulk of the capital raised for resources companies has been on the ASX.

Figure 19. Global Resource Capital Raisings (2017-2020 YTD)



Source: ASX & Dealogic. Apportioned 50% of deal value to each exchange where required

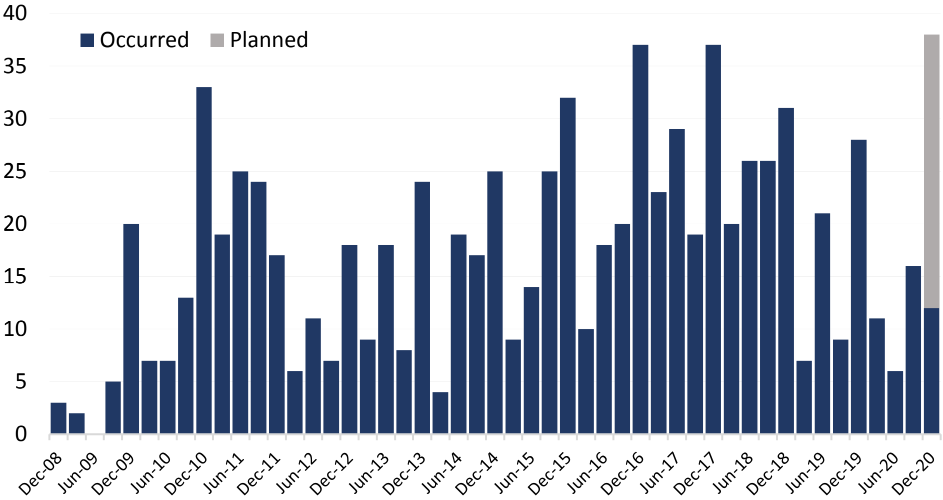
Figure 20. ASX Resources Sector – Follow-On Capital Raised



Source: ASX data, Bloomberg GICS Materials & Energy

The ASX is on track to have the largest number of IPO's in a single quarter since December 2007

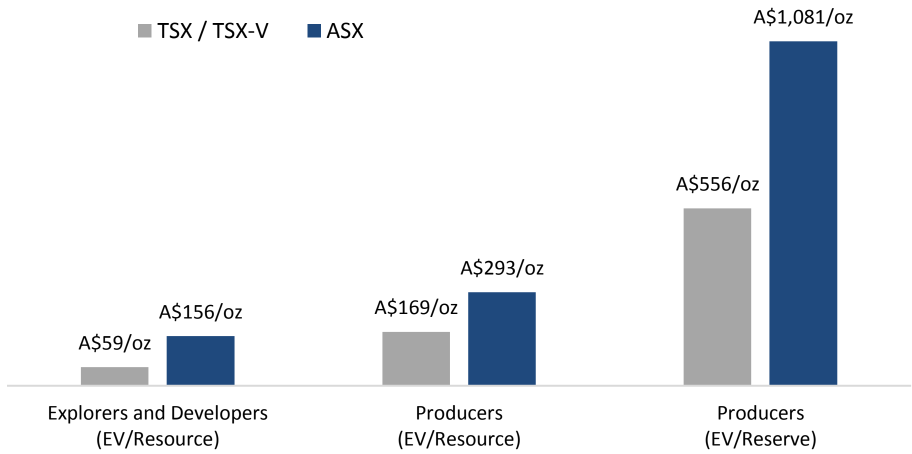
Figure 21. Return of the IPO – ASX Initial Public Offerings per quarter



Source: ASX

ASX gold companies now trade at a premium to TSX listed stocks

Figure 22. ASX Gold Companies trade at a premium to TSX/TSXV Gold Companies



Source: FactSet, S&P Market Intelligence and Company Announcements

Argonaut’s price assumptions

Table 6. Argonaut’s commodity price assumptions

Pricing Assumptions							
Commodity	**Unit**	**H2 2020**	**2021**	**2022**	**2023**	**LT**	**Current Spot**
Base Metals							
Aluminium	US$/lb	0.86	0.86	0.86	0.86	0.86	0.88
Copper	US$/lb	2.96	3.15	3.25	3.25	3.50	3.20
Nickel	US$/lb	6.50	6.50	6.50	7.00	7.00	7.12
Zinc	US$/lb	1.25	1.25	1.25	1.25	1.25	1.21
Precious Metals							
Gold	US$/oz	1,905	1,850	1,750	1,750	1,750	1,880
Silver	US$/oz	25	19	18	18	18	25
Bulks							
Premium Australia Coking Coal	US$/t	125	140	150	150	150	115
Uranium							
Uranium	US$/lb	43	50	60	60	60	31
FX							
AUD/USD	#	0.71	0.72	0.72	0.72	0.72	0.73

Source: Argonaut; current spot from FactSet

Notes

Polymetallic

Vares Project

Asset Valuation	$538m
Current Share Price	$2.15

Ticker:	**ADT**
Sector:	**Metals & Mining**

Shares on Issue (m):	**202.1**
Market Cap ($m):	**434.5**
Cash Est. ($m)	**7.7**
Debt Est. ($m)	**Nil**
Enterprise Value ($m):	**426.8**

52 wk High/Low:	**$2.75**	**$0.81**
12m Av Daily Vol (m):		**433**

Projects	**Stage**
Rupice	Pre-Feasibility

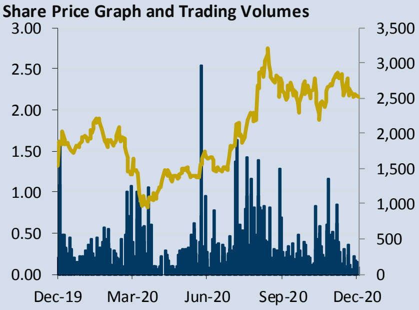
Mineral Resource	**Mt**	**Ag g/t**	**Zn %**	**Pb %**
Rupice	12.0	149.0	4.1	2.6

Cashflows	**2019**	**2020**
Operating Cashflow	-3.6	-5.2
Investing Cashflow	-5.6	-11.4
Financing Cashflow	10.6	25.0
Cash Balance	9.7	17.8

Directors:	
Michael Rawlinson	Non-Executive Chairman
Paul Cronin	Managing Director
Peter Bilbe	Non-Executive Director
Julian Barnes	Non-Executive Director
Sandra Bates	Non-Executive Director
Sanela Karic	Non-Executive Director

Substantial Shareholders:	**%**
Sandfire Resources	16.2%
Paul Cronin	8.7%
Milos Bosnjakovic	7.9%
Eric de Mori	5.3%

Share Price Graph and Trading Volumes



Adriatic Metals (ADT)

Silver linings

Quick Read

ADT has released a PFS for its 100% owned Vares Ag-Pb-Zn-Ba-Au project in Bosnia & Herzegovina. The project generates excellent economics driven by high silver grades, complemented by a suite of metals. The Company is well funded after recently raising ~US$28m via a US$20m private placement of 8.5% unsecured convertible debentures to Queen's Road Capital Investment and a £6.2m share placement to the European Bank for Reconstruction and Development (see Company announcement 27 October 2020).

Overview

Vares PFS: The October 2020 PFS outlined a 14-year operation mining sequentially from two deposits, the high-grade underground Rupice mine and the lower grade open pit Veovaca mine. The plant will have an annual throughput of 800ktpa producing on average 3Mozspa payable silver, 23ktpa payable zinc and 17ktpa payable lead in two base metal concentrate streams, plus pyrite and barite concentrates. The process flow sheet comprises conventional crushing and grinding followed by three-stage flotation. In order to achieve adequate separation, ore requires fine grinding (80% passing <40µm).

Location: The Rupice and Veovaca deposits are near the town of Vares and ~35km SSE of Sarajevo. Rupice is largely untouched while Veovaca was historically mined up to 1988, producing zinc and lead in concentrate, and barite. Power and sealed roads run to Veovaca, while Rupice has a mix of well-maintained sealed and unsealed roads but requires a new powerline. A rail line exists from Vares to the port of Ploce in Croatia. There are plans to extend the rail line north into the main Balkan network which will provide overland access to European customers.

Strong economics: Argonaut derives a post-tax NPV_{11} of $538m and a post-tax IRR of 80%. If ADT can create a marketable barite product, it will be the largest producer in Europe with up 250ktpa. However, barite specifications can be fickle based on particle size, colour and impurities. ADT needs further processing to produce a saleable product. Our model excludes barite sales.

Corporate appeal: Sandfire Resources (SFR) and ADT recently agreed to settle a dispute brought by SFR against ADT whereby ADT will issue SFR 4.8m CDI's in ADT for $8.65m ($1.79 per CDI). This reinstates SFR to 16.2% voting power in ADT. Given the technical challenges of polymetallic projects and the relatively unknown permitting regime of the country, we believe ADT's assets will attract increased corporate attention following the DFS and/or upon completing final permitting.

Project Valuation

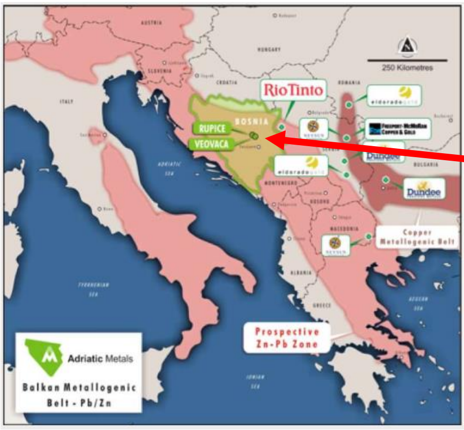
Argonaut's post-tax NPV_{11} at a project level is $538m, which excludes potential barite sales. This is based on key metrics as outlined in the PFS.

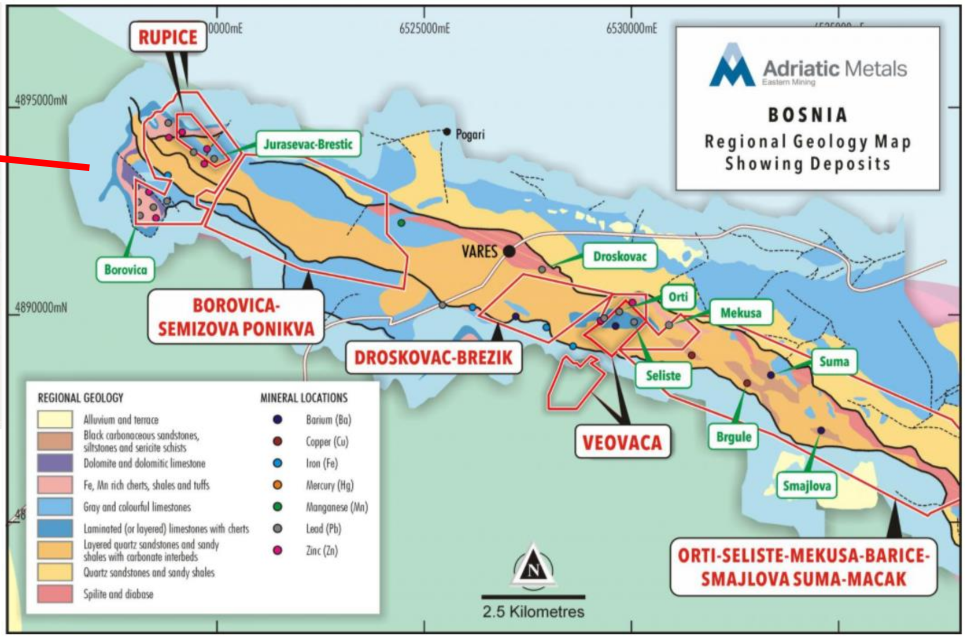
Project overview

ADT acquired the Vares Project in 2017

ADT acquired the Vares Project in 2017. The Rupice and Veovaca deposits are located 8.7km WNW and 3.5km east respectively of the town of Vares. The country's capital Sarajevo is ~35km NNW.

Figure 23. Location and geological map of the Vares Project





The deposits are located 35km from the capital, Sarajevo

Source: ADT

The ore reserve tabled below represents a 57% conversion from the Mineral Resource. Rupice has the highest metal grades and constitutes 79% of the reserve tonnage to be mined from underground. Veovaca is low grade and will be mined via open pit at the back end of the project life.

Rupice has the highest metal grades

Table 7. Vares Ore Reserves

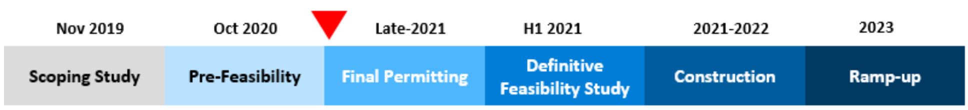
Vares Silver Project Ore Reserve, October 2020									
Deposit	Classification	Ore	Ag	Au	Zn	Pb	$BaSO_4$	Cu	Sb
		Mt	g/t	g/t	%	%	%	%	%
Rupice	Probable	8.41	179	1.66	5.04	3.18	29.2	0.55	0.22
Veovaca	Probable	2.72	59	0.09	1.69	1.09	17.7	0.07	0.11
Total	**Probable**	**11.12**	**150**	**1.28**	**4.22**	**2.67**	**26.4**	**0.43**	**0.19**

Source: ADT

Timeline to development

Mining and commissioning are expected to commence in 2H 2022

Environmental and water permit applications for Rupice have been submitted, and once received, the Urban Planning Permit will be submitted. The Exploitation Permit is expected to be lodged and granted through 2021. Mining and commissioning are predicted to commence in H2 2022 with full scale operations from 2023.



Highly positive PFS

The positive PFS was focused on the higher grade Rupice underground deposit

The Vares PFS outlined a 14-year project life producing 42.7Moz Ag, 246koz Au, 323kt Zn, 233kt Pb, 38kt Cu and 1.7Mt $BaSO_4$ from an 800ktpa processing facility. The study is focused on the higher grade Rupice underground deposit with the lower grade Veovaca open pit backfilling tonnes in the final years of the project life. Pre-production capital is estimated at US$173m with an AISC per tonne milled of US$120. ADT plans to produce four concentrates; zinc, lead-silver, pyrite (iron sulphide) and barite. Zinc and lead concentrates should be attractive for their high precious metal content and low iron, but will contain elevated mercury which could attract penalties (estimated ~US$20m over the LOM).

Pre-production capital is estimated at US$173m, with an operating cost (AISC) of US$120/t

Barite is generally sold direct to the end user and customers are particular about quality and consistency. Therefore, the Company may need to invest in further processing equipment to achieve a saleable product. Argonaut estimates average EBITDA for the LOM of A$96m p.a. (excluding barite) with 41% of project revenue generated from silver and gold. The mill will be located at Veovaca and crushed ore will be trucked from the Rupice underground operation. Filtered process tails will be either trucked to Rupice as backfill for the underground or stacked in a tailings storage facility at Veovaca. Environmental impacts are minimised by using the disturbed Veovaca site.

The Company may need to invest in further processing equipment to achieve a saleable barite product

Table 8. ADT PFS key metrics summary

KEY METRIC	UNIT	2020 PRE-FEASIBIITY STUDY
Mined tonnes to plant	Mt	11.1
Life of operation	Years	14.0
Total life of mine AqEq* production	koz	137,269
Average annual AqEq production years 1-5	koz/year	15,302
Cash Cost **	$USD/t Milled	117.1
All-in Sustaining Cost (AISC) ***	$USD/t Milled	120.0
Revenue	$USD/t Milled	296.3
Pre-production capital	US$ Million	173.0
Post tax NPV (8%)	US$ Million	1,040
Post tax Internal Rate of Return	%	113%
Project payback from first production	years	1.2
Average annual EBITDA years 1-5	US$ Million	251
Profitability Index	(Post-Tax NVP_8/CAPEX)	6

* PFS Metal Price Au 1900 USD/oz | Ag 24 USD/oz | Zn 2,500 USD/t | Pb 2,000 USD/t | Cu 6,500 USD/t | $BaSO_4$ 150 USD/t | Sb 6,500 USD/t
** Cash costs are inclusive of mining costs, processing costs, site G&A, treatment, refining charges (including transportation charges) and royalties
*** AISC includes cash costs plus sustaining capital, closure cost and salvage value

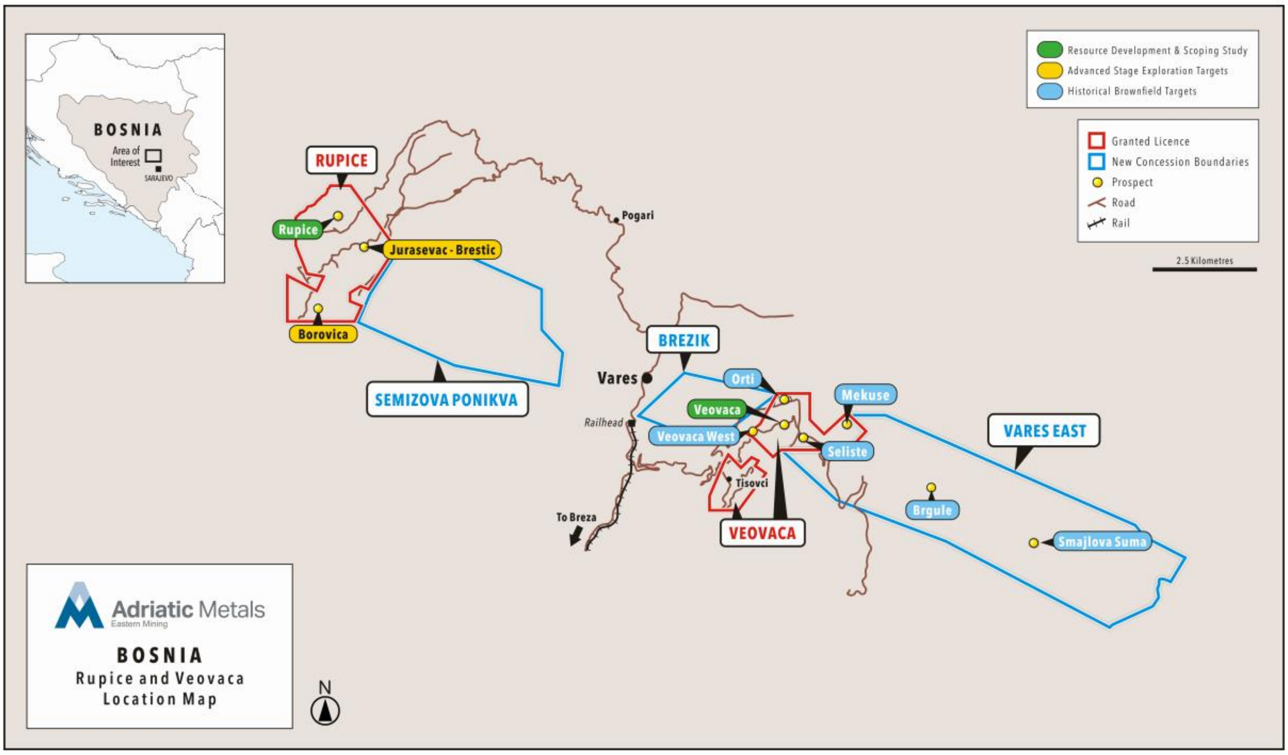
Source: ADT

Exploration Upside

Argonaut estimates average EBITDA for the LOM of A$96m p.a.

To date, much of the exploration has focussed at the Jurasevac-Brestic prospect, a historic mining area, however ADT had been unsuccessful is defining meaningful massive sulphide lodes. In September 2020, ADT received approval to expand its Concession Agreement adding a further +32km^2 including areas Semizova Ponikva, Orti-Seliste-Mekuse-Barice-Smajlova, Suma-Macak and Droskovac-Brezik. This new ground presents a number of targets including the Droskovac iron ore mine with a historic resource of 900kt @ 3.9% Zn+Pb. This new area will be surveyed using airborne EM then followed up with localised IP surveys. Any higher-grade deposits found in areas to the east of Veovaca present an opportunity to displace lower grade feed in the later years of the project.

Figure 24. – New Semizova Ponikva, Brezik and Vares East Concessions



Source: ADT

There are a number of exploration opportunities

Project valuation

Most metrics for Argonaut's Vares valuation are in line with the PFS study. We derive a post-tax NPV_{11} of $538m and a post-tax IRR of 80%, which conservatively assumes the Barite is not saleable.

Argonaut's project NPV calculations are largely based on PFS metrics (excluding barite)

Table 9. Key assumptions for Argonaut's Vares valuation

Metric	Measure	Result
Zn Price	US$/t	2,750
Pb Price	US$/t	2,200
Cu Price	US$/t	6,620
Au Price	US$/oz	1,750
Ag Price	US$/oz	18
Sb Price	US$/t	6,500
Mine Life	Years	14

We derive a post-tax NPV_{11} project valuation of A$538m

Payable Metal Produced LOM	Measure	Result
Zn	kt	323
Pb	kt	233
Cu	kt	38
Au	koz	245
Ag	koz	42,727
Sb	kt	3

Source: Argonaut

Coking Coal

Elan Premium Hard Coking Coal

Asset Valuation	$817m
Current Share Price	$0.34

Ticker:		**ATU**
Sector:		**Metals & Mining**
Shares on Issue (m):		**576.1**
Market Cap ($m):		**195.9**
Cash Est. ($m)		**14.0**
Debt Est. ($m)		**Nil**
Enterprise Value ($m):		**181.9**
52 wk High/Low:	**$0.40**	**$0.12**
12m Av Daily Vol (m):		**879**

Projects	**Stage**
Elan Project	Pre-Feasibility

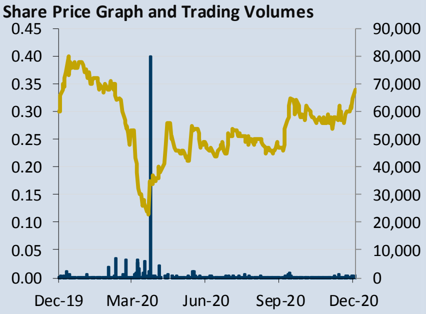
Mineral Resource	**Mt**
Elan Project	454.0

Cashflows	**2019**	**2020**
Operating Cashflow	-3.6	-12.7
Investing Cashflow	-3.1	-0.1
Financing Cashflow	7.8	19.7
Cash Balance	3.1	10.1

Directors:	
Charles Blixt	Non-Executive Chairman
Andrew Caruso	Managing Director
Glen Koropchuk	Non-Executive Director
Richard Barker	Non-Executive Director
George Edwards	Non-Executive Director
Charles Fear	Non-Executive Director
William Fleming	Non-Executive Director

Substantial Shareholders:	**%**
Timothy Roberts	17.4%
Nero Resource Fund Pty Ltd	5.6%
Regal Funds Management Pty Limited	5.2%
Lumyna Investments Limited	4.5%

Share Price Graph and Trading Volumes



Atrum Coal (ATU)

Everything in Isolation

Quick Read

ATU's Elan Project in Alberta, Canada is a rare unexploited low strip premium hard coking coal project located close to established infrastructure. The Company completed a Scoping Study in April 2020, mainly based on mining in the Elan South area. Subsequent studies will focus on Isolation South as the first mine, due to its more favourable coal geometry, thick coal seams and low strip ratio potential. Elan abuts Hancock Prospecting's Grassy Mountain Project which was obtained through the Riversdale Mining acquisition in 2019 for ~A$800m.

Overview

All in Isolation: Where the April 2020 Scoping Study was centred largely on the Elan South area, the upcoming revised study will focus on Isolation South. This area has been the focus of recent resource definition drilling and coal quality test work. Isolation South has more favourable coal seam geometry and a lower strip ratio than Elan South (<4:1). The average composite coal seam thickness is >30m and up to 80m in areas. Recent clean coal and coke test work has confirmed Isolation South to be a premium product, comparable to Teck Resources (NYSE:TECK) Elk Valley Hard Coking Coal (HCC) products. Coke results demonstrate excellent CSR of 69-74% and clean coal properties including very low ash (7-9%) low sulphur, low phosphorous and low deleterious elements (Cl and Hg).

The Grassy Mountain effect: Hancock Prospecting is anticipated to receive final permitting for its Grassy Mountain Project which abuts Elan to the south in H1 2021. This will be a major catalyst for ATU as Elan is likely be the next coal project in the region to progress permitting. We expect Elan permitting to be more streamlined, benefitting from the success and learnings of the Grassy Mountain process. During Argonaut's site visit in 2019, we met with the Alberta Energy Regulator (AER), the department responsible for coal mine approvals. Members of the AER were cognisant of the issues that delayed permitting of Grassy Mountain and were taking measures to improve their processes. Indicatively, ATU aims to attain requisite approvals by H2 2023.

Corporate appeal: Argonaut believes the permitting of Grassy Mountain will increase the corporate appeal of Elan. The project is likely to be a target for both operators in the region and large diversified miners (i.e. BHP, S32 or SOEs).

Coal price tailwinds: Premium HCC prices are at decade lows ~US$100/t FOB although we note the 10-year average is closer to ~US$160/t.

Project Valuation

Argonaut's NPV_{10} valuation for Isolation South is $817m applying a conservative average realised coal price of US$137/t FOB.

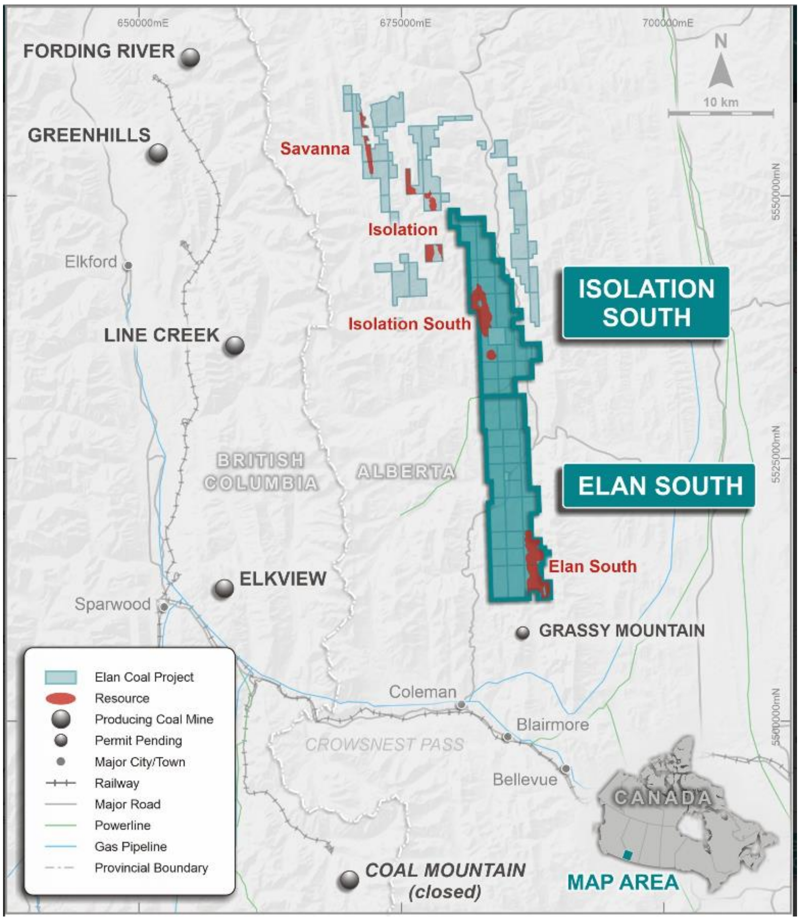
Project overview

ATU's Elan HCC Project is located in Alberta, directly north of Hancock's Grassy Mountain Project

ATU's 100% owned Elan Hard Coking Coal Project is located southwest of Calgary in Alberta, Canada. The project comprises ~230km^2 of tenements over a +40km strike length. Coal outcrops in several locations with apparent cumulative seam thicknesses up to 80m in the Isolation South area. The project is directly north of Hancock Prospecting's Grassy Mountain Project and 13km from industrial rail to the south. To the west, Teck Resources has four operating mines in its Elk Valley Complex, producing +25Mtpa of high quality coking coal. Elk Valley's 35 coal seams coalesce into ~4 thick seams under the dividing Rocky Mountains and outcrop again in ATU tenements. The Mist Mountain Formation contains up to 100 seams for a collective seam thickness up to 100m. Elan incorporates a number of target areas with resources defined at Elan South, Isolation, Isolation South and Savannah. The most advanced areas from a resource definition perspective are Isolation South and Elan South.

Elan incorporates a number of target areas, with resources defined at Elan South, Isolation, Isolation South and Savannah

Figure 25. Map of the Elan Premium Hard Coking Coal Project



Source: ATU

Timeline to development

A revised Scoping Study and resource update is due late 2020

A revised Scoping Study and resource update are due late-2020, which should be followed by a PFS mid-2021. Permitting for Elan has a long lead time with final approvals not anticipated until H2-2023. Argonaut models first production in H1-2025.

Premium Coal and Coke Quality

Test work indicates a premium hard coking coal product with favourable coking properties

Detailed clean coal and coking characteristics test work shows the four main seams targeted for mining have the ability to produce a premium hard coking coal product with favourable coking properties. Coke results demonstrate excellent CSR of 69-74% and clean coal properties include very low ash (7-9%), low sulphur, very low phosphorous and low deleterious elements (Cl and Hg). Detailed coal classification is due to be completed in the current quarter, including updated clean coal yield data which is expected to be higher than the 60% applied to the April 2020 Scoping Study. Test results to date show Elan coal to be analogous to Teck's sought-after Elk Valley products.

Table 10. Comparison of Elan coal properties to neighbouring projects and selected indexes

	Elan Project (Atrum) (adb)	Elk Valley (Teck Premium)[1]	Grassy Mount. (Riversdale)[2]	Platts Premium Low Vol Index[3]	Platts Peak Downs Index[3]
CSR	**69 – 71**	70	65	71	74
Coal Rank R_oMax (%)	**1.16 – 1.20**	1.14	1.18 - 1.20	1.35	1.42
Yield (%)	**60**	(est 60 – 70)	55	-	-
Ash Content (%)	**8 - 9**	8.8	9 - 9.5	9.3	10.5
Volatile Matter (%)	**22 – 26**	25.5	23.5	21.5	20.7
Total Moisture (%)	**10**	10	10	9.7	9.5
Total Sulphur (%)	**~ 0.60**	0.65 – 0.70	0.50	0.50	0.60
Phosphorus (%)	**< 0.050**	0.075	0.040	0.045	0.03
CSN	**7 - 8**	7.5	-	8	8.5
Fluidity (ddpm)	**100 – 300**	200 – 500	150	500	400

1. S&P Global Platts Coal Trader International (pg8), 3 August 2018.

2 Riversdale Resources Targets Statement, Grassy Mountain Technical Report by RPM Global (pg21), 28 March, 2019.

3 S&P Global Platts. Specifications Guide, Metallurgical Coal, April 2020.

Note Elan specification are not updated for the most recent Isolation South results

Source: ATU

Test results to date show Elan coal to be analogous to Teck's sought-after Elk Valley products

Strategic Appeal

Elan offers attractive attributes in a Tier 1 location including scale, access to infrastructure, low cost potential, and premium specs

The greater Elan Project has the potential to host multiple mining and coal processing facilities over its +40km prospective strike. In a November 2020 Isolation South Resource update, ATU announced an increase in the global Resource to 486Mt. The Isolation South Measured + Indicated resource increased 93Mt to 175Mt and the total Isolation South resource increased 32Mt to 262Mt.

Considering the global scarcity of coking coal projects Elan offers attractive attributes in a Tier 1 location, including:

- Scale – multi-production centre potential
- Access to established infrastructure with both port and rail capacity
- Low cost potential driven by low strip ratios, favourable seam geometry and access to power and infrastructure
- Premium hard coking coal specifications
- A low sovereign risk, pro-mining and development jurisdiction

We believe the Project has strategic appeal

We believe the project has the most appeal to Hancock Prospecting to increase the inventory for Grassy Mountain. We see optionality for ATU to negotiate either a whole asset divestment or partial divestment of southern Resources such as Elan South.

Asset Level Valuation

We have assumed mining only from the Isolation South area

Argonaut has taken a conservative approach to modelling Elan. We have assumed mining only from the Isolation South Area, unlike the April 2020 Scoping Study (SS) which incorporated both Elan South and Isolation South. Our model applies a 15-year mine life at the 10Mtpa ROM coal rate with an average clean coal yield of 60%. We acknowledge that while this yield is in line with the SS, it is expected to be higher when further test results are released later this year. Operating and capital costs applied to our model are also in line with the SS, however we have applied an additional US$100m for transport infrastructure to account for the increased distance from existing rail to the Isolation South area. Argonaut's long-term price assumption is US$140/t on which we apply a 2% discount for Elan's specifications.

Inputs are largely in line with the Scoping Study outputs, and we assume a US$137/t FOB average realised price

Table 11. Key metrics applied to Argonaut's Elan South NPV

Metric	Measure	Result
Construction Commencement	Year	2023
Construction Period	Months	18
Comissioning	Year	2025
Mine Life	Years	15
Mining Rate	Mtpa	10
ROM Coal Mined	Mtpa	150
Clean Coal Produced	Mtpa	89
Yield	%	60%
Strip Ratio	t/BCM	4:1
Average Realised Price	US$t FOB	137
Pre-Production Capex	US$m	801
Operating Costs	US$/t FOB	76
All-in Sustaining Costs[1]	US$/t FOB	93
Post-Tax NPV_{10}	A$m	817
Post-Tax IRR	%	25

[1]Includes market, corporate overheads and sustaining capital

Source: Argonaut

We calculate an NPV_{10} of $817m for Isolation South

Our NPV_{10} of $817m for Isolation South is highly sensitive to coal price, yield and mine life. Tabled below are valuation scenarios based on variations of these metrics.

Table 12. Isolation South valuation sensitivity to coal price, yield and mine life

Coal Price US$/t FOB	120	130	140	150	160	170	180
Isolation South NPV10 A$m	220	520	817	1115	1415	1710	2010

Clean Coal Yield (%)	60	61	62	63	64	65	66
Isolation South NPV10 A$m	817	870	920	975	1025	1080	1130

Mine Life (Years)	10	15	20	25
Isolation South NPV10 A$m	560	817	975	1070

Source: Argonaut

If Argonaut incorporates the 60Mt Indicated Resources from Elan South into our model (mined sequentially after Isolation South with a 6:1 strip ratio), our combined Elan valuation increases to $945m.

Gold

Bardoc Gold Project

Asset Valuation	$374m
Current Share Price	$0.074

Ticker:		**BDC**
Sector:		**Metals & Mining**
Shares on Issue (m):		**1,730.9**
Market Cap ($m):		**128.1**
Cash Est. ($m)		**29.5**
Debt Est. ($m)		**Nil**
Enterprise Value ($m):		**98.6**
52 wk High/Low:	**$0.10**	**$0.05**
12m Av Daily Vol (m):		**3,530**

Projects	**Stage**
Bardoc Gold Project	Pre-Feasibility

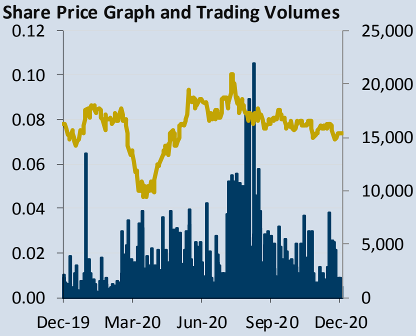
Mineral Resource	**Mt**	**g/t Au**	**koz Au**
Bardoc Gold Project	48.9	1.9	3,031

Cashflows	**2019**	**2020**
Operating Cashflow	-8.7	-9.0
Investing Cashflow	-4.3	5.4
Financing Cashflow	11.6	14.3
Cash Balance	1.3	11.9

Directors:	
Tony Leibowitz	Non-Executive Chairman
John Young	Non-Executive Director
Neil Biddle	Non-Executive Director
Robert Johnston	Non-Executive Director
Peter Buttigig	Non-Executive Director

Substantial Shareholders:	**%**
Peter Buttigieg	4.5%
Neil Biddle	2.2%
John Young	2.0%
Alex Jordan	1.3%

Share Price Graph and Trading Volumes



Bardoc Gold (BDC)

Goddess of concentration

Quick Read

This cobbled together project shows healthy margins, decent size and fewer technical challenges than the market would have us believe.

Overview

Consolidation north of Kalgoorlie: The Bardoc Gold Project proposal in Western Australia's eastern goldfields, is built around the Aphrodite, Excelsior and Zoroastrian deposits. In a March 2020 pre-feasibility study, Bardoc Gold estimated reserves of 790kozs in mine plans supporting a 1.8Mtpa CIL/flotation throughput rate and average output of 135kozspa. Inferred resources make up 23% of the total inventory of 1.05Mozs, considered by the feasibility study.

Gold concentrate market opens up for Bardoc: Aphrodite is the base load deposit of the project, although possibly not the first to be mined. Aphrodite has free milling oxide and refractory fresh ore components. The lack of a processing solution for the fresh ore has obstructed development in the past. Recently, base metal smelters have been introducing more gold concentrates into their feed mix in response to the gold price rise. We understand payability for gold, on sales of Aphrodite concentrate with arsenic <5% and gold grade >40g/t, is greater than 90%. The Company is close to signing offtake agreements and plans to announce some details by the end of December 2020. Bardoc plans to build flotation and CIL circuits at Zoroastrian, producing bullion and a gold concentrate for sale.

Nice wide wireframes: Pit plans at Excelsior and Aphrodite oxide dominate the early years of production from the project. Both deposits exhibit broad, continuous zones at pit cutoff grades, enabling dilution control, and a straightforward estimation task, both of which have been problems for other independently developed gold projects in the recent past. Bardoc management has experience relevant to the type of orebodies to be developed within the project.

Feasibility study: The PFS was optimised at A$1,900/oz, using resource estimates that have been superseded in some cases following drilling. The feasibility study is due for completion in the March 2021 quarter.

Exploration upside: Bardoc has 17 deposits with estimated resources in its portfolio. The tenure covers 50km of a major tectonic zone just north of Kalgoorlie. Exploration will play a part in this project's future.

Project Valuation

Argonaut's DCF valuation for the Bardoc Gold project is $374M at an average realised gold price of US$1,750/oz and AUD/USD 0.72.

Project overview

The Bardoc Gold project is located north of Kalgoorlie in WA

The Bardoc Gold project comprises gold deposits within BDC's tenure covering the Bardoc Tectonic Zone, from 50 to 80km north of Kalgoorlie. A pre-feasibility study of Bardoc's development prospects was completed in March 2020. Four main component deposits Aphrodite, Excelsior, Zoroastrian and Bulletin South, all 100% owned by Bardoc Gold, were considered in the feasibility study.

Aphrodite

Aphrodite was discovered in 1994 and drilled out in a series of campaigns, the most recent of which was completed in November 2020. Five main parallel, steep dipping shears are interpreted within a 500m wide sequence. Aphrodite is 20km from the proposed treatment plant site at Zoroastrian. In September 2019 Bardoc estimated indicated resources at Aphrodite of 11.6Mt at 1.7 g/t open pit and 3.4Mt at 3.9 g/t underground for a total of 15.0Mt 2.2 g/t (1.06Mozs.). In the pre-feasibility study Bardoc assumed;

A PFS was completed in March 2020

Open pit reserve of 2.8Mt at 2.3 g/t (211kozs, 15:1 w:o)
Underground reserve of 2.6Mt at 3.7 g/t (290kozs)

Excelsior

Aberfoyle mined 2.02Mt at 1.5 g/t (97kozs) from a 100m deep pit at Excelsior from 1987-1991. The pit was constrained by road and rail on the eastern flank of the deposit and partially backfilled with tailings. Limited holes drilled into Excelsior since 2012 include a short program in September 2020, with intercepts including 76m at 0.9 g/t from 173m down hole. Excelsior mineralisation is steep dipping, forming zones up to 50m wide. Indicated resources are estimated at 6.2Mt at 1.3 g/t (259kozs) from which Bardoc assumed;

Four main component deposits Aphrodite, Excelsior, Zoroastrian and Bulletin South were considered in the feasibility study

Open pit reserve 3.5Mt at 1.4 g/t (160kozs, 6:1 w:o).

Zoroastrian and Bulletin

Two open pit mining campaigns at Zoroastrian extracted 80kozs from maximum 115m deep pits before 2017. Three to five interpreted lodes extend to 500m depth, and over 500m strike length, beneath and south of the mined pits. Intercepts from eight deep holes drilled from February to August 2019 included 19m at 6.4 g/t from 297mdh, 4m at 91.9 g/t from 154mdh and 6m at 22.8 g/t from 323mdh with follow up drilling this year further extending mineralisation. Bardoc's indicated resources at Zoroastrian were 3.9Mt at 1.8 g/t (open pit) and 580kt at 4.4 g/t (underground), from which the PFS assumed;

Open pit reserve of 350kt at 1.9 g/t (20kozs, 14:1 w:o)
Underground reserve of 810kt at 3.2 g/t (80kozs)

The March 2020 PFS considered total reserves of 10.4MT at 2.4 g/t for 790kozs and 200kozs of inferred material in underground positions

Bulletin is a cutback of an existing pit. The PFS assumes;

Reserve of 0.6Mt at 2.0g/t Au (35koz , 16:1 w:o)

Development.

The March 2020 PFS considered total reserves of 10.4Mt at 2.4 g/t (790kozs), as outlined above, and 200kozs of inferred material in underground positions. Construction of facilities at Zoroastrian to process 1.8Mtpa was considered. PFS findings include;

- Average production of 135kozspa, over a 7 year mine life.
- Maximum project cash draw down of $165M from decision to proceed.
- Total project costs (capital, operating costs and royalties) are estimated at $1.36B, which over total output of 951kozs = A$1,430/oz total costs.

Risks

Project risks include gaining the requisite approvals

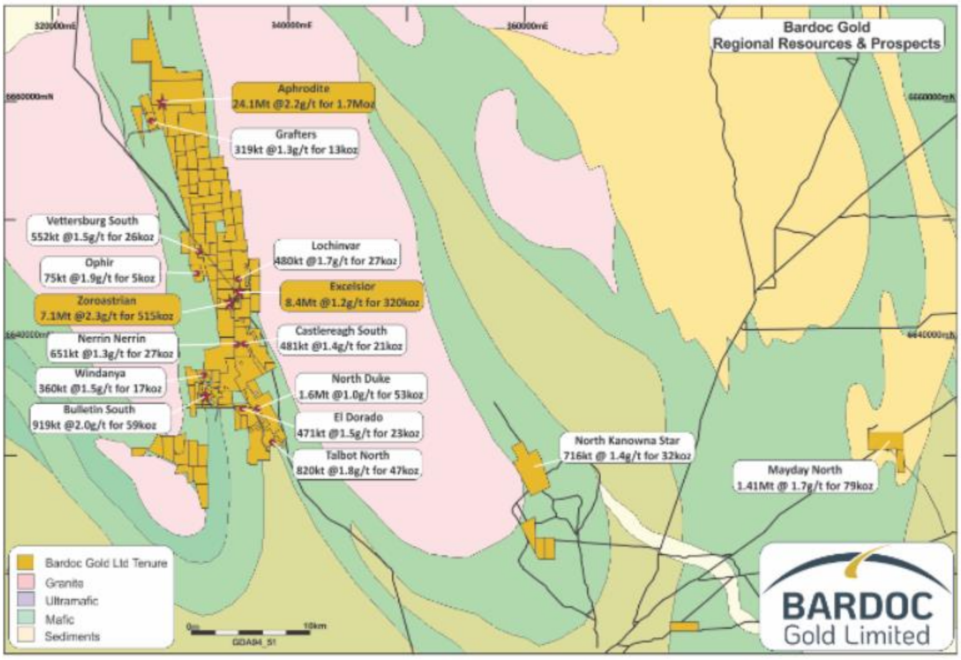
The Excelsior deposit will be mined first. A 3km section of highway and rail must be moved before mining can begin, which requires approvals from government and private stakeholders. Excelsior is part back filled with tailings that must be removed. Aphrodite fresh ore is refractory. Bardoc plans to sell part of the project output (up to 60% of the inventory in the PFS) as a gold concentrate via a commodity trader. The Company has foreshadowed signing of offtake agreements by the end of December 2020. Bardoc's test work suggests 92% recovery to a con containing circa 3% As and 50 g/t Au; within minimum specs (max. 5% As, min. 45 g/t Au) for saleability to most base metal smelters. High 80s to mid 90s payability, net of charges is implied.

Opportunities

Subsequent to the PFS, Bardoc added 40kozs to indicated resources at Zoroastrian underground, and 45kozs to Aphrodite. The Company has consolidated tenure in the Bardoc region over the past three years, enabling a more systematic approach to regional exploration. There are 13 resource positions outside the four major deposits, making up a total of 3.0Mozs in indicated and inferred resources

The Company has consolidated tenure in the region over the past three years, enabling a more systematic approach to regional exploration

Figure 26. Tenement plan, Bardoc Gold Project



Source: BDC

The final feasibility study is due in the March quarter 2021

Development forecasts

The final feasibility study is due in the March quarter of 2021. Argonaut models first production in September quarter of 2022.

Argonaut models first production in September quarter of 2022

Table 13. Bardoc Gold Project. Argonaut production and cost forecasts.

Summary Year to June	2022E	2023E	2024E	2025E	2026E
Bardoc					
Ore processed (Mt)		1.0	1.4	2.2	2.1
Head grade (g/t)		1.3	1.8	2.0	2.6
Met. recovery, payability		94%	92%	91%	84%
Payable gold prodn (kozs)		39	75	132	162
Cost per milled tonne (A$/t)		65	53	85	87
Cash costs pre royalty (A$/oz)		1660	990	1461	1176
Sustaining capital ($M)	2	2	2	2	2
All in sustaining costs (A$/oz)		1857	1131	1566	1232
Growth capital ($M)	168	20		3	6
CAIC ($M)	18	97	152	260	292
CAIC (A$/oz)		2478	2042	1978	1799
Price Assumptions	**2022E**	**2023E**	**2024E**	**2025E**	**2026E**
AUDUSD	0.72	0.72	0.72	0.72	0.72
Gold US$/oz	1775	1750	1750	1750	1750
Gold A$/oz	2465	2431	2431	2431	2431

Source: BDC

Asset Level Valuation

Argonaut's project valuation uses the inventory and cost inputs from the PFS and a 7% real, after tax discount rate

Argonaut values the Bardoc gold project using the inventory and cost inputs set out in the pre-feasibility study. The schedules in our model may differ from Bardoc's. The valuation is based on the after tax NPV of modelled cash flows at an 7% real, after tax discount rate.

Table 14. Bardoc Gold Project. Argonaut cash flow forecasts.

Yr to June	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Sales			83	181	320	394	444	387	174	174	128
Cash cost			57	106	192	190	202	172	76	63	48
Royalty			3	6	11	14	16	14	6	6	4
Mine cashflow			**23**	**69**	**116**	**189**	**226**	**201**	**92**	**105**	**76**
Depreciation & amortisation			15	25	45	44	54	38	4	9	0
PRE TAX PROFIT			**9**	**44**	**71**	**145**	**172**	**163**	**89**	**96**	**76**
Tax			3	13	21	44	52	49	27	29	23
NET PROFIT			**6**	**31**	**50**	**102**	**120**	**114**	**62**	**68**	**53**
Capital expenditure		170	22	2	5	8	8	8	7	5	1
Surplus		-170	2	65	98	160	175	142	36	74	45
NPV	**374**	**570**									

At our long term gold price assumption of A$2,430/oz, Argonaut estimates;

IRR of 41%

Average profit margin of 36%

NPV of $374M at a 7% real, after tax discount rate.

Lead

Abra Project

Asset Valuation $198m (60%)

Current Share Price $0.26

Ticker:	**G1A**
Sector:	**Metals & Mining**

Shares on Issue (m):	**461.9**
Market Cap ($m):	**120.1**
Cash Est. ($m)	**20.2**
Debt Est. ($m)	**Nil**
Enterprise Value ($m):	**99.9**

52 wk High/Low:	**$0.33**	**$0.16**
12m Av Daily Vol (m):		**835**

Projects	**Stage**
Abra Base Metals	Project Construction

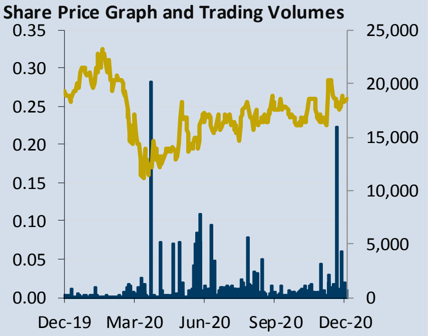
Mineral Resource	**Mt**	**Pb %**	**Ag g/t**
Abra Base Metals	41.1	7.3	18

Cashflows	**2019**	**2020**
Operating Cashflow	-9.4	-5.9
Investing Cashflow	18.8	-14.4
Financing Cashflow	10.0	1.3
Cash Balance	28.0	9.1

Directors:	
Adrian Byass	Non-Executive Chairman
Alexander Molyneux	Managing Director
Tony James	Non-Executive Director
Stewart Howe	Non-Executive Director
Jonathan Downes	Non-Executive Director
Tim Morrison	Non-Executive Director

Substantial Shareholders:	**%**
Bloomgold Resources	14.3%
Timothy Roberts	9.7%
Warburton	6.6%

Share Price Graph and Trading Volumes



Galena Mining (G1A)

On the brink of construction

Quick Read

G1A has now secured a US$110m debt facility from Taurus Mining Finance. This, along with the previously announced second tranche A$60m project level investment from Toho Zinc Co. for 40% equity, means the Abra project is now fully financed (pending final conditions precedent from Taurus and Toho). Abra is being developed as a high-grade underground lead mine with minor silver credits. At depth there is evidence of copper and gold mineralisation, which remains to be fully tested.

Overview

Abra overview: The Abra lead-silver deposit has a Resource of 41.1Mt @ 7.3% Pb and 18g/t Ag and a Reserve of 10.3Mt @ 8.8% Pb and 24g/t Ag. It is located on a granted Mining Lease with all requisite approvals in place to commence construction. Product is due to be exported through the port of Geraldton, which has both capacity and the necessary approvals to handle lead. Abra is expected to produce one of the highest concentrate grades on the global market at 75% Pb and ~200g/t Ag. G1A's 60% of production is committed to an off-take contract with IXM for 10 years at a premium to the benchmark LME price (after payabilities). The initial mine life is 16 years and Argonaut estimates steady state EBITDA of ~$110m (applying US$18/oz Ag and US$0.90/lb lead prices). The project was 12% complete at 30 September with the camp installed, a second-hand paste plant procured, and the underground box-cut completed.

Project financing nearing completion: Total pre-production capital is estimated at $170m including ~$8m in contingencies (with $30m spent to September). Of this, $74m for plant and other selected infrastructure has been awarded to GR Engineering (ASX:GNG) on a guaranteed maximum price basis in-line within the feasibility estimates. Total required capital is estimated at $215m. G1A has secured a US$110m debt facility with Taurus comprising a US$100m development facility and a US$10m cost overrun facility. Draw down on the first US$70m of the development facility is dependent on usual conditions and some confirmatory drilling. Toho is investing $90m for a 40% stake in the project. An initial $30m has been received for ~13.8%. The remaining $60m is due in two tranches, with the first $20m to be paid when the debt facility closes and $40m when the $70m debt becomes available. G1A has a current $38m buffer on total financing requirements.

Exploration upside: The most encouraging exploration upside is the potential for copper-gold mineralisation at depth. Recent EM surveys may help vector in on fluid paths to define this mineralisation. In addition, G1A recently acquired the Copper Chert Project which consolidates >76km of strike within the prospective Jillawarra sub-basin and Quartzite Well Fault zone to the west of Abra. Historic drill intercepts at Copper Chert include 14m at 1.12% copper from 44m, including 3m at 2.96% Cu and 13m 0.85% copper from 30m, including 5m at 1.32% copper.

Project Valuation

Argonaut's post-tax NPV_{10} for Abra is $330m (100% basis) and we derive a 32% IRR.

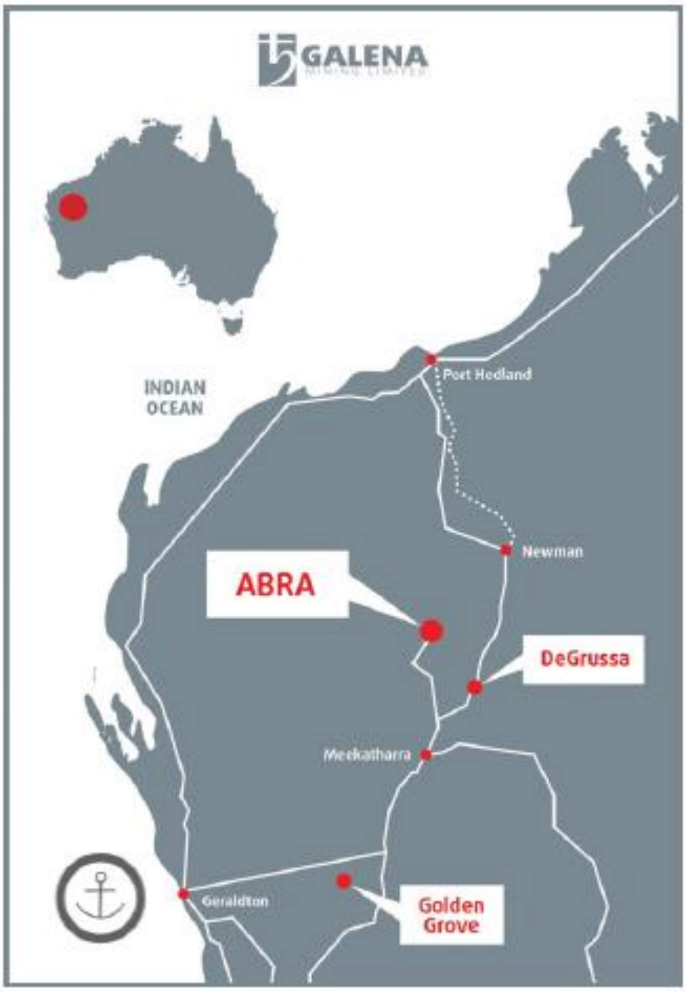
Project Overview

G1A's Abra lead-silver deposit is located near Sandfire's DeGrussa mine in the Gascoyne region of WA

G1A's Abra lead-silver deposit is located in the Gascoyne region of Western Australia, approximately 110km from Sandfire Resources' (ASX:SFR) DeGrussa mine. The region has established infrastructure including proximity to the Great Northern Highway which provides a route to the containerised handling facilities at the Port of Geraldton (~700km by public roads). Mineralisation starts from ~180m and G1A plans to exploit higher grade zones within a much larger low-grade deposit. At depth, drilling has shown increasing copper and gold concentrations.

Mineralisation starts from ~180m and G1A plans to exploit higher grade zones within a much larger low-grade deposit

Figure 27: Location of the Abra Deposit and proximity to key infrastructure



Source: G1A

Finalisation of debt and the remaining equity injection from Toho for 40% of the project is imminent

Timeline to development

G1A has completed a DFS and is well advanced on debt financing. Finalisation of debt and the subsequent remaining $20m payment (of a total $60m investment) from Toho (to complete its acquisition for 40%) is imminent. The project has a 15-month forecast build time with first production expected early 2022.

First production is expected early 2022

Copper-Gold Potential

In VMS and sedex deposits copper is commonly associated with "hotter" fluids closer to the primary source of mineralisation

A recent downhole EM survey has identified several EM conductors on the southern side of the Abra deposit. Most are explained by currently defined mineralised structures, but one large conductor is untested and may be related to a feeder structure. There appears to be a correlation with deeper copper-gold intercepts including 11m @ 1.8% Cu and 4.5g/t Au and 8.1m @ 2.0% Cu and 1.5g/t Au. In VMS and sedex deposits, copper is commonly associated with "hotter" fluids closer to the primary source of mineralisation.

Figure 28. Isometric view showing lead-silver (green) and copper-gold (red and yellow) mineralisation in the Abra deposit

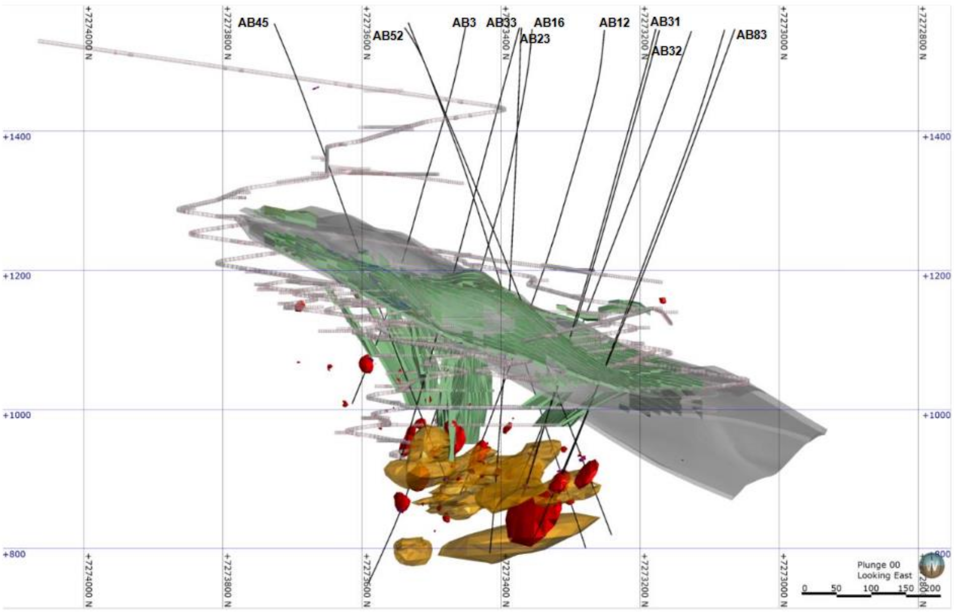
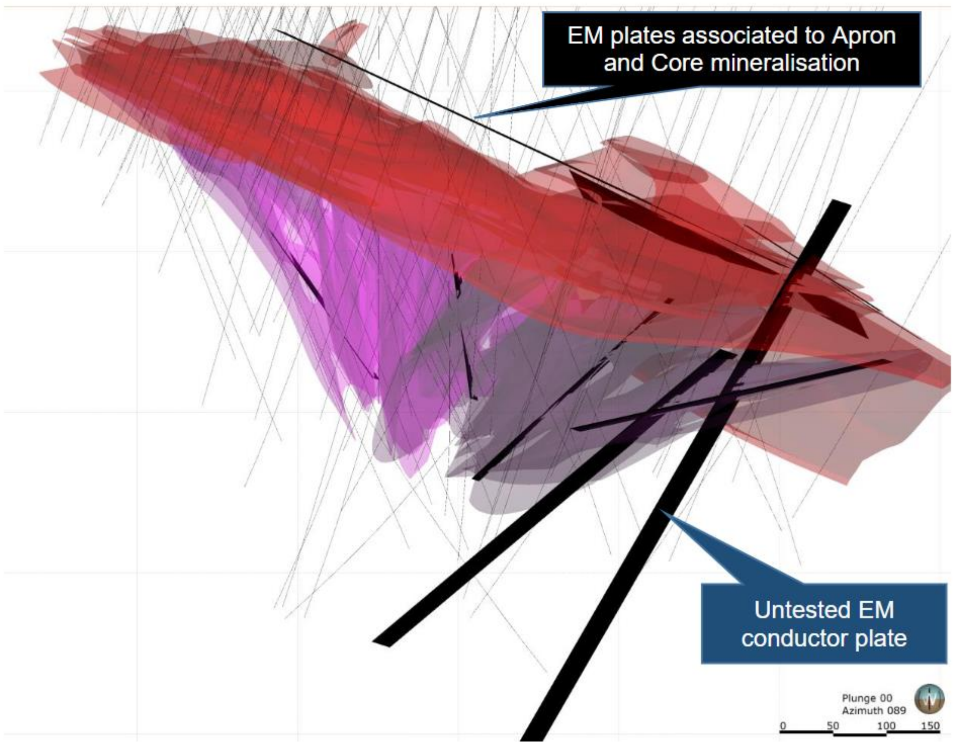


Figure 29. Untested deep EM conductor, which could be a feeder zone for the Abra deposit



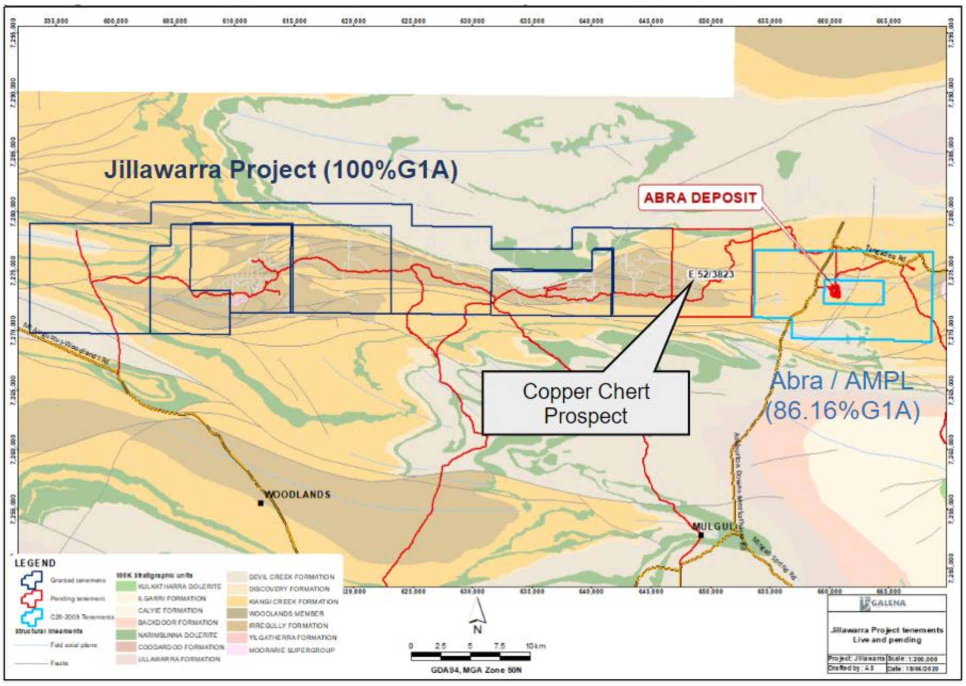
Source: G1A

Regional Upside

G1A has consolidated 76km of strike in the Jilawarra sub-basin, including the recently acquired Copper Chert tenement

G1A has consolidated 76km of strike in the Jilawarra Sub-Basin of the Edmund Basin which hosts multiple mineral occurrences including Abra, Hyperion and Quartzite Well. Infill gravity surveys were recently completed to define targets in the Jillawarra Project. To the west of Copper Chert at the eastern end of the project area, sit a number of coincident magnetic and gravity anomalies at the Fencers and Manganese Range East prospects. Previous drilling is mostly limited to <100m from surface. The Company is currently processing geophysical data to generate exploration targets.

Figure 30. G1A Jillawarra Project showing the newly acquired Copper Chert tenement



Source: G1A

Project valuation

Argonaut's NPV calculations value the Abra project at $330m ($198m for G1A's 60% share)

Argonaut values the Abra project at $330m ($198m for G1A's pro-forma 60% share). Key model assumptions are outlined below.

Table 15. Argonaut's valuation assumptions for Abra

Metric	Unit	Argonaut Est.
Mine Life	Yrs	16
Average Throughput	Mtpa	1.1
Average Pb Grade	%	7.7%
Average Ag Grade	g/t	20
Recoveries	%	94
Pb Price	US$/lb	0.90
Ag Price	US$/oz	18
FX	AUD/USD	0.72
LOM Pb Production	Mt Pb	1.2
LOM Ag Production	Moz	9.7
Pre-production Capex	A$m	170
AISC	US$/lb	0.59
Post Tax NPV_8	A$m	397
Post Tax NPV_{10}	A$m	330
Post Tax IRR	%	32%

Source: Argonaut

Polymetallic

Bawdwin Project	
Asset Valuation	$380m (51%)
Current Share Price	0.074

Ticker:	**MYL**
Sector:	**Metals & Mining**

Shares on Issue (m):		**1,901.1**
Market Cap ($m):		**140.7**
Cash Est. ($m)		**8.7**
Debt Est. ($m)		**Nil**
Enterprise Value ($m):		**132.0**
52 wk High/Low:	**$0.11**	**$0.03**
12m Av Daily Vol (m):		**3,149**

Projects	**Stage**
Bawdwin Project	Definitive Feasibility

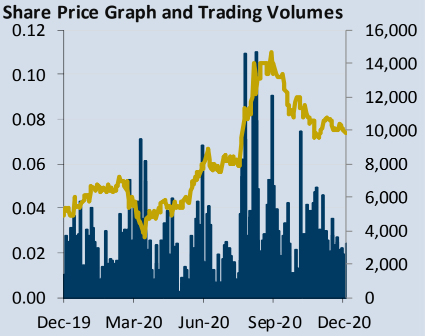
Ore Reserves	**Mt**	**Pb %**	**Ag g/t**
Total	18.4	6.4	169

Cashflows	**2019**	**2020**
Operating Cashflow	-13.9	-16.7
Investing Cashflow	0.0	-0.1
Financing Cashflow	20.2	4.9
Cash Balance	22.9	11.1

Directors:	
John Lamb	Executive Chairman, CEO
Rowan Caren	Executive Director
Jeff Moore	Executive Director
Paul Arndt	Non-Executive Director
Andrew Teo	Non-Executive Director

Substantial Shareholders:	**%**
Shenzhen Zhongjin	16.9%
Yandal Investments	10.7%
Marford Group	1.9%

Share Price Graph and Trading Volumes



Myanmar Metals (MYL)

The big ones just get bigger

Quick Read

MYL's Bawdwin Ag-Pb-Zn project is a behemoth and still largely under-explored. The current Resource stands at 101Mt @ 9oz/t AgEq, but remains open at depth, along strike and regionally. The Company recently raised $9.5m to strengthen the balance sheet and to continue exploration in the Bawdwin province. Targets will include the recently discovered copper rich ER Valley and other regional targets. In the coming months, MYL is awaiting Myanmar Investment Commission (MIC) approval, a key milestone which secures the Company's ability to majority own and operate the Bawdwin JV. Once attained, we expect a high level of corporate interest, particularly from Chinese parties.

Overview

Big: Bawdwin has a current resource of 100.6Mt @ 3.1oz/t Ag, 4.9% Zn+Pb and 0.2% Cu, including a higher-grade component of 47.0Mt @ 5.3oz/t Ag, 10.2% Zn+Pb and 0.2% Cu. The resource also contains discrete zones of high-grade Ni-Cu-Co which remain unquantified due to a lack of drill density. Bawdwin remains open at depth, along strike and parallel to strike. Regionally, MYL has made several new discoveries, such as the ER Valley and Yegon Ridge, with a number of historic workings still untested. We liken Bawdwin to multi-decade Tier 1 polymetallic mines such as Cannington (South 32) and Rosebery (MMG), but unlike these deposits it is outcropping from surface and remains largely unexploited. Bawdwin contains the 9th largest silver resource globally (3rd under an ASX listed company) and the largest global contained lead resource.

MIC the key de-risking event: The MIC approval process is in its final stages and Argonaut expects completion in late-2020 or early-2021. Once attained, MYL will be able to commence development as the operator and majority owner (51%). The MIC outlines the operating and fiscal terms of the Bawdwin concession, including the Profit Sharing Agreement (PSA) with the Government. A BFS will be released following the grant of the MIC, which should show significantly improved economics on the 2019 PFS.

In-play after the MIC? With the MIC is in hand, we believe Bawdwin will become a target for major international miners and integrated metal producers. The project has high strategic value given its scale, long life and low-cost potential, coupled with is proximity to metal refineries and smelters over the Chinese border in the Yunnan Province.

Exploration recommencing: MYL is well funded to recommence exploration in the upcoming dry season (from November). Drilling is likely to target ER Valley (possibly for a maiden resource), and other satellite deposits such as the Chin South copper prospect and Mount Teddy which sits on a splay structure above ER Valley.

Project Valuation

Argonaut derives an un-risked asset level NPV_{12} of $746m (100% basis) and $380m for MYL's 51% interest.

Project Overview

Bawdwin is located in northern Myanmar

The deposit is mineralised from surface

MYL has a 51% controlling stake in the Bawdwin Mining Concession

A key de-risking event will be Myanmar Investment Commission approvals

With timely approvals, first production is expected in 2022

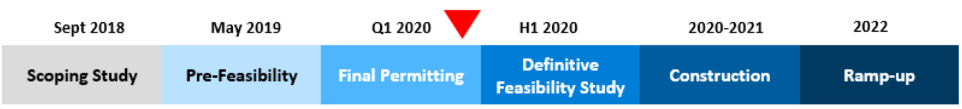
Bawdwin is located in northern Myanmar, >250km by road to the Chinese border to the Yunnan province which hosts multiple Pb/Zn smelters and refineries (negating shipping costs). Chinese artisanal silver mining at Bawdwin started in the 1400s. In 1909, the British commenced the first commercial scale mining with peak production reaching 80kt lead, 64kt zinc and 7.4Moz silver per annum in the late 1920s. The deposit is mineralised from surface and located in a valley. MYL has a 51% controlling stake in the Bawdwin Mining Concession. Major diversified local companies, East Asia Power (Mining) Company Limited (EAP) and Win Myint Mo Industries Co., Ltd (WMM, the vendor), both have 24.5% each. The concession incorporates the mine with associated infrastructure and mineral resources, a 38km^2 land holding, two hydro power plants and access to strategic transport routes and water. Perilya Ltd, which is wholly owned by China's largest integrated zinc producer Zhongjin Lingnan, has a 19.9% stake in MYL. Zoungin is a subsidiary of Guangdong Rising Assets Management's (GRAM), who acquired PanAust (ASX:PNA) in 2009.

Figure 31. Bawdwin mine location map

Source: MYL

Timeline to development

MYL is fast tracking development and aiming to achieve requisite approvals in Q4 2020 to Q1 2021, which will be followed by a DFS, financing and the commencement of construction. First production is expected in 2022.



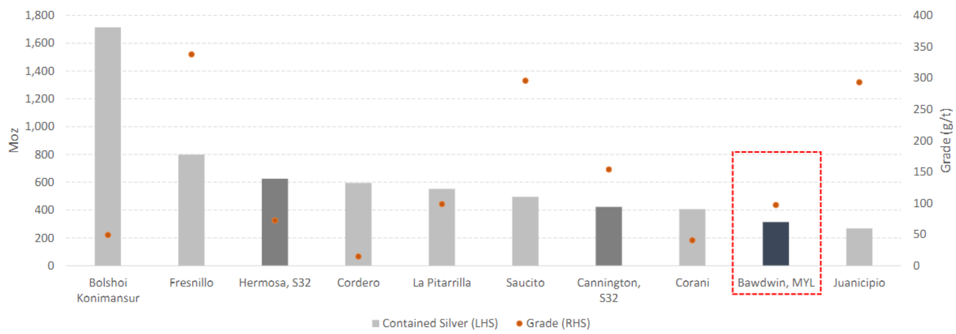
A Giant

The 100Mt resource is open in both directions and along strike

Bawdwin is arguably among the best undeveloped/underdeveloped polymetallic projects globally. The 100Mt resource is only defined down to the depth of historic working and remains open in both directions along strike. Parallel and splay structures remain untested, with many containing historic working with visible mineralisation (i.e. Mount Teddy). Late stage Cu-Ni-Co mineralisation is prominent at depth and in the Meingtha lodes but remains unquantified. The ER Valley and Chin prospects are known to be copper rich from historic workings and recent drilling. Ongoing exploration at Bawdwin is highly likely to lead to further discoveries.

Ongoing exploration is highly likely to lead to further discoveries

Figure 32. World's largest silver deposits (by contained silver excluding other metals)



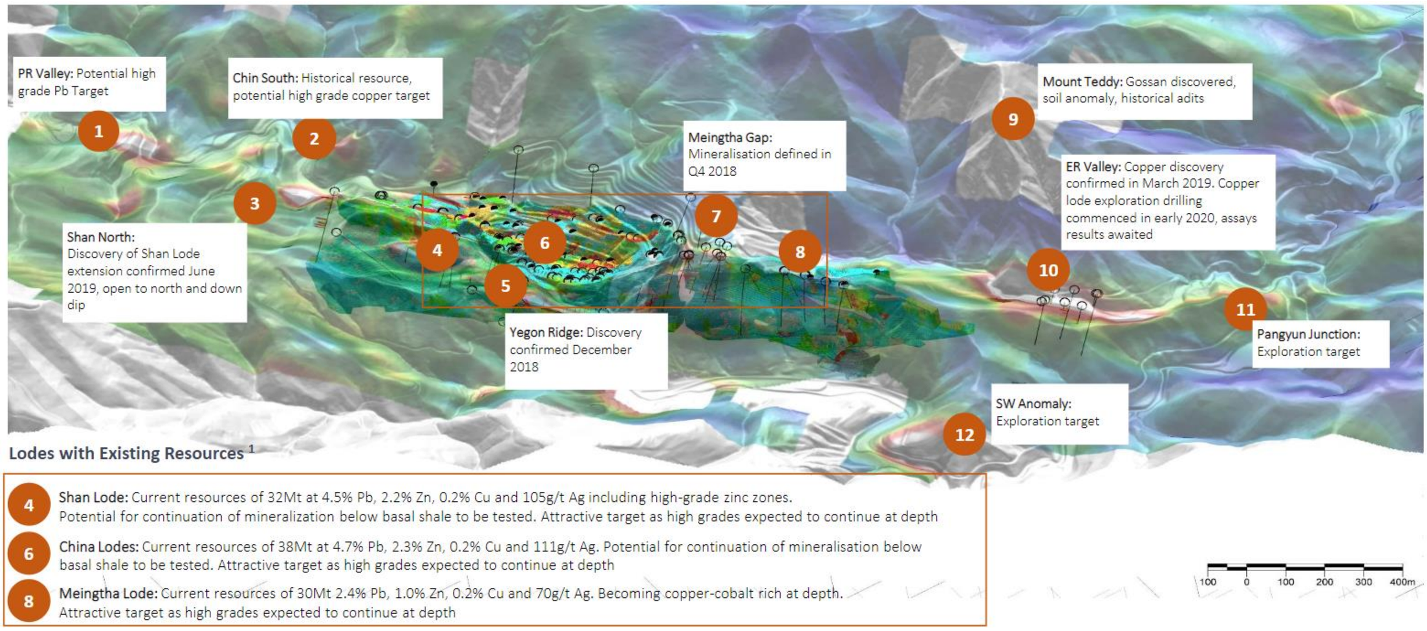
Source: MYL, S&P Global Intelligence

Drilling is due to commence in the coming months and likely to start at the ER Valley discovery

Exploration Due to Recommence

Drilling is due to commence in the coming months, likely to start at the ER Valley discovery. We see potential for MYL to define a copper rich maiden Inferred resource in this area. This may justify the addition of a copper flotation circuit into the processing facility. Other exploration targets are highlighted below.

Figure 33. Schematic long-view of Bawdwin showing deposits and exploration targets



Source: MYL

Upside in the upcoming DFS

The upcoming DFS post requisite approvals is likely to improve on the PFS project economics

The upcoming DFS is expected to significantly improve the project economics by removing conservatism and uncertainty incorporated in the May 2019 PFS. Key areas of potential upside include:

- Potential for a larger 3-stage open pit incorporating a higher proportion of the resource, as put forward in a January 2020 release.
- A larger scale processing facility, possibly 3Mtpa (vs 2Mtpa in the PFS) with potential for further expansion
- Lower capital intensity (pre-production capex divided by annual average production) resulting from efficiencies of scale from a larger processing facility
- The ability to steepen pit walls and reduce strip ratios with increased geotechnical confidence following recent drilling
- The incorporation of lower grade ore and transitional material following successful metallurgical test results. In the PFS, 12% of the material processed was partially oxidised or transitional and assigned a higher cut-off grade and lower recovery assumptions, with no recovery of zinc in concentrate (announcement dated 9/12/19)
- The use of larger haul trucks in the open pit, which will reduce overall mining costs
- The incorporation of additional mineralisation discovered in parallel lodes in the hangingwall and footwall (increasing recovered metal and reducing overall strip ratios)

There are a number of key areas of potential upside

Longer term, the incorporation of underground mining of the Shan Lode and deeper China/Meingtha mineralisation should extend the mine life well beyond 30 years.

Project level valuation

Using PFS assumptions, plus extensive underground additions, we derive an asset level NPV_{12} of \$746m (or \$380m for MYL's 51% interest)

Argonaut assumes 24Mt ore mined from an open pit with 8:1 strip ratio as per the PFS, and then an additional 33Mt mined from three underground mines over 28 years; all processed in a 2Mtpa facility. The resultant asset level NPV_{12} is \$746m, or \$380m for MYL's 51%. Key model assumptions are tabled below. Estimated reserves account for 18.4Mt at 6.4% Pb, 169 g/t Ag and 3.4% Zn.

Table 16. Argonaut's Bawdwin valuation assumptions

Measure	Metric	Argonaut Model
First Production	Yr	2022
Mine Life	Yrs	25
Inventory	Mt	57.2
Strip Ratio	#	8.0
Throughput	Mtpa	2.0
Silver Grade	g/t	160.0
Lead + Zinc Grade	%	10.2
Copper Grade	%	0.2%
Metal Recoveries	%	70-90%
Metal Payabilities	%	85-95%
Silver Production (Ave. LOM)	Moz pa	8.3
Lead Production (Ave. LOM)	kt pa	113.2
Zinc Production (Ave. LOM)	kt pa	46.8
Copper production (Ave. LOM)	kt pa	2.6
Pre-Production Capex	US\$m	300
Sustaining Capex	US\$m pa	1.8-5.0
Average Project Level EBITDA	US\$m pa	150
EBITDA Margin	%	40%
Post-tax NPV_{12} (100% Basis)[2]	A\$m	746
Post-tax IRR[2]	%	28%

Source: Argonaut, [2] MYL level, incorporating Government profit sharing

Gold

Nyanzaga Project

Asset Valuation	$358m
Current Share Price	$0.68

Ticker:		**ORR**
Sector:		**Metals & Mining**
Shares on Issue (m):		**317.3**
Market Cap ($m):		**215.8**
Cash Est. ($m)		**23.0**
Debt Est. ($m)		**Nil**
Enterprise Value ($m):		**192.8**
52 wk High/Low:	**$0.75**	**$0.20**
12m Av Daily Vol (m):		**182**

Projects	**Stage**
Nyanzaga Project	Resource Development

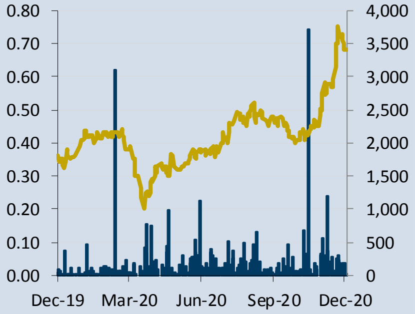
Mineral Resource	**Mt**	**g/t Au**	**koz Au**
Nyanzaga Project	23.7	4.03	3,072

Cashflows	**2019**	**2020**
Operating Cashflow	-4.9	-5.2
Investing Cashflow	-0.1	-5.2
Financing Cashflow	0.0	25.1
Cash Balance	10.0	24.8

Directors:	
Craig Williams	Non-Executive Chairman
Matthew Yates	Managing Director
Alastair Morrison	Non-Executive Director
Mike Klessens	Non-Executive Director
Robert Rigo	Non-Executive Director

Substantial Shareholders:	**%**
Federation Mining	12.8%
Westoz Funds Management	11.0%
Rollason	9.3%
Mitchell Family Trust	6.8%

Share Price Graph and Trading Volumes



OreCorp (ORR)

Leverage to a Tanzania turnaround

Quick Read

OreCorp (ORR) consolidated 100% of the Nyanzaga Project after acquiring Acacia Mining's (Barrick) 49% interest in the project in October 2019. The current resource for Nyanzaga stands at 3.1Moz @ 4.03g/t gold and the 2017 PFS outlined average production of 213kozpa over a 12-year mine life. The key milestone ahead of ORR is the granting of a Tanzanian Special Mining Licence (SML), which will pave the way for development. Tanzania fell out of favour as a mining investment jurisdiction after significant changes were made to the Mining Legislation in 2017/2018. We see opportunity for ORR to significantly rerate if it attains the SML. If successful, it will be the first major gold mining project to be permitted under the new legislation.

Overview

Grade and scale: Nyanzaga is one of the largest and highest grade resources in the hands of a listed junior gold developer in Africa with 3.1Moz @ 4.03g/t Au, applying a 1.5g/t cut-off grade. This resource increases to 5.2Moz by applying a 0.5g/t Au cut-off. The resource was last updated in September 2017 when the gold price was ~US$1,330/oz, leaving scope to re-assess economic parameters given the significant rise in gold.

Opportunity to improve on the PFS: The 2017 PFS outlined a 12-year mine life with a mix of open pit (1.8moz) and underground (1.2Moz) mining feeding a 4Mtpa plant producing an average 213kozpa. Pre-production capex was estimated at US$287m and average LOM AISC was US$838/oz. The plant uses conventional CIL with estimated gold recoveries of 88%. Argonaut sees significant opportunity to optimise the open pit and underground mine designs to extract more metal. With a lower gold price and modest strip ratios of 3.7:1 applied in the PFS, ORR could extend the depth of the open pit (currently 445m). ORR also plans to optimise reagent consumption, pit wall angles and underground backfill methods as well as assess contractor or owner operator mining.

Exploration upside potential: ORR is assessing satellite deposits/prospects to extend the project life. There is an immediate opportunity at the Kilimani deposit with a current inferred resource of 220koz @ 1.2g/t located 450m northeast of Nyanzaga. Within the SML application area at least 12 other targets have been identified.

Project Valuation

Argonaut's project level NPV_{11} valuation is $491m (100% basis). This is based on the metrics published in the 2017 PFS, updating pre-production capex to US$305m to account for inflation and applying the new Tanzanian fiscal terms including 7.3% royalties. Factoring in the 16% Government free-carry interest, ORR's share of the project NPV_{11} is $358m, delivering an IRR of 25%.

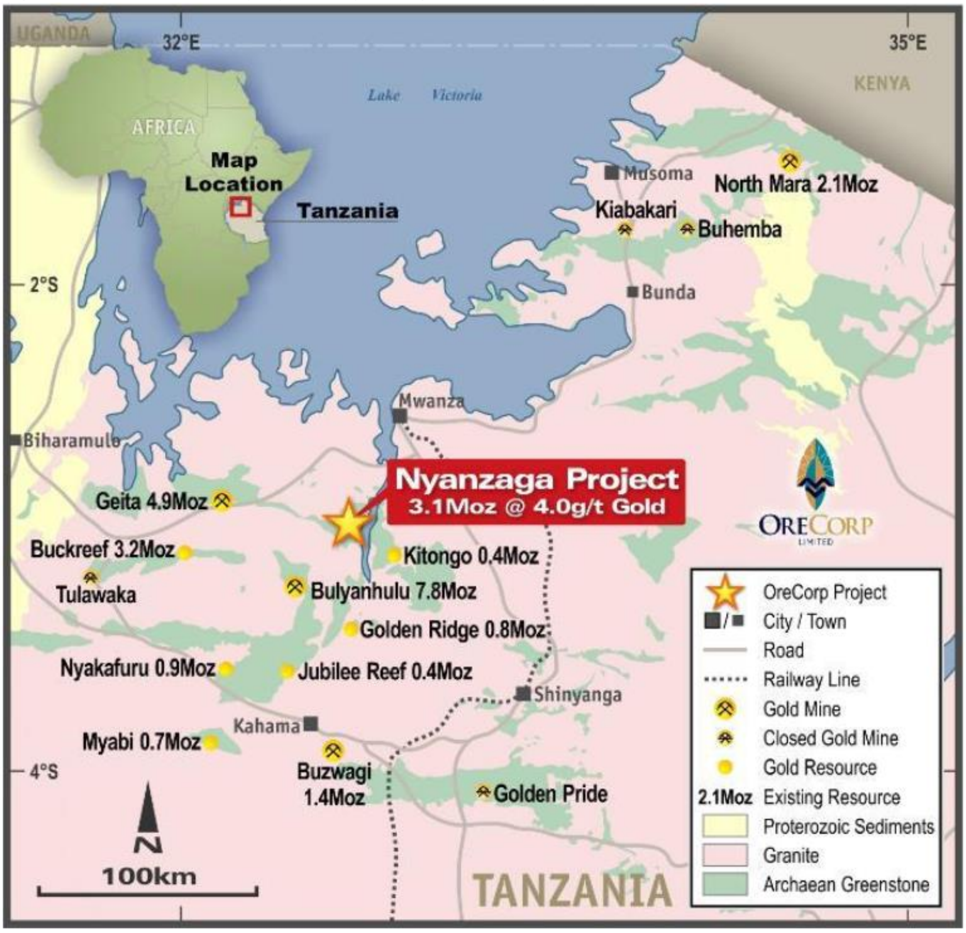
Project overview

The Nyanzaga Project is in north western Tanzania, and located in an Archean greenstone belt

The Nyanzaga Project comprises 23 Prospecting Licences over an area of 210km^2 in north-western Tanzania. The project is located in an Archean greenstone belt within the Lake Victoria Goldfields which has produced >25Moz of gold. With a 100km radius of Nyanzaga there is ~20Moz of gold resources. The major regional centre of Mwanza is ~60km southwest and Acacia's Bulyanhulu gold mine is 35km to the northeast. After Barrick Mining consolidated the Acacia JV (49% of the project), ORR completed an acquisition for 100% ownership and control of Nyanzaga Mining Company Limited. The Company has a payment of US$8.05m upon the grant of a SML by the Tanzanian Government and has agreed to pre-pay capital gains tax to the Tanzanian Government of US$3.45m (subject to confirmation from the Tanzania Revenue Authority).

The Lake Victoria Goldfields has produced >25Moz gold

Figure 34. Location map of the Nyanzaga Gold Project



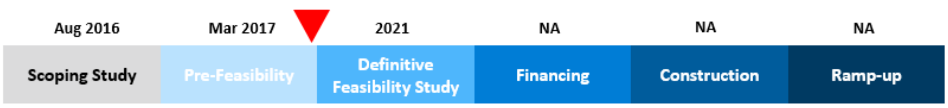
Source: ORR

The key milestone for ORR is the grant of the SML

Timeline to development

Grant of the SML will trigger an outstanding US$8.05m payment to Barrick for the Nyanzaga acquisition and progression of the DFS

The key milestone for ORR will be the grant of the SML. As the timing of this event is uncertain, subsequent milestones for the project are undefined. A DFS is due post the grant of the SML, along with a maiden ore reserve estimate.



Significant production potential

ORR is set to become a +200koz producer

ORR is set to be a +200koz producer. We see scope for upside from a larger processing facility treating a lower cut-off ore feed, taking advantage of current high gold prices. Our model however is based on metrics outlined in the PFS and returns a \$358m NPV_{11} with a 25% IRR. We apply an 11% discount rate to account for fiscal uncertainty which remains around mine permitting given that no major projects have advanced to development following the release of the new legislation.

Our model is based on the metrics outlined in the 2017 PFS

Table 17. Key metrics from the 2017 PFS

Parameter	Value
Development period (Months)	18
Mine life (Years)	12
Total Mill Throughput (Mt) LOM	45.3
Measured & Indicated Resources (% of Mineral Resource)	88%
Inferred Resources (% of Mineral Resource)	12%
Annual throughput (Mtpa)	4
Strip ratio (life of pit)	3.7:1
Steady state UG mining rate (Mtpa)	1.0
Average OP direct feed mineralised material grade mined (g/t gold)	1.5
Average UG mineralised diluted grade mined (g/t gold)	3.7
Average mill feed grade LOM (g/t gold)	2.0
Gold recovery	88%
Production (Average LOM gold koz pa)	213
OP mining costs (US$/t total material moved)	3.66
UG mining costs (US$/t mineralised material moved)	60.76
Processing cost (US$/t milled)	11.53
General and administration (US$/t milled)	3.72
Upfront Project capital (US$M) (including contingency)	287
UG development capital (US$M)	50
Sustaining capital – Above Ground (US$M pa)	3.77
Sustaining capital – UG (US$M pa)	11
Corporate tax and royalty rates	30% and 4.3%
Gold Price (US$/oz)	1,250

Source: ORR

Approvals could ignite corporate interest

Licensing and approvals to proceed could ignite both investor and corporate interest

Tanzania has been off the target list for mid-cap and major African Miners after the change in Mining Legislation. However, once the SML has been attained and the fiscal terms for Nyanzaga are established, the veil of uncertainty will be lifted from the asset, making it a prospective target. The project offers meaningful production, a substantial initial mine life and exploration upside to potential acquirers. However, the granting of necessary licenses and approvals remains a key risk to the project.

Once the SML is granted ORR will embark on the next phase, including implementation of the Resettlement Action Plan (RAP), additional project permitting, and optimisation of mining activities and plant design for the DFS. The grant of the SML will also trigger the payment of the US$8.05m to Barrick Gold to conclude the acquisition of Nyanzaga.

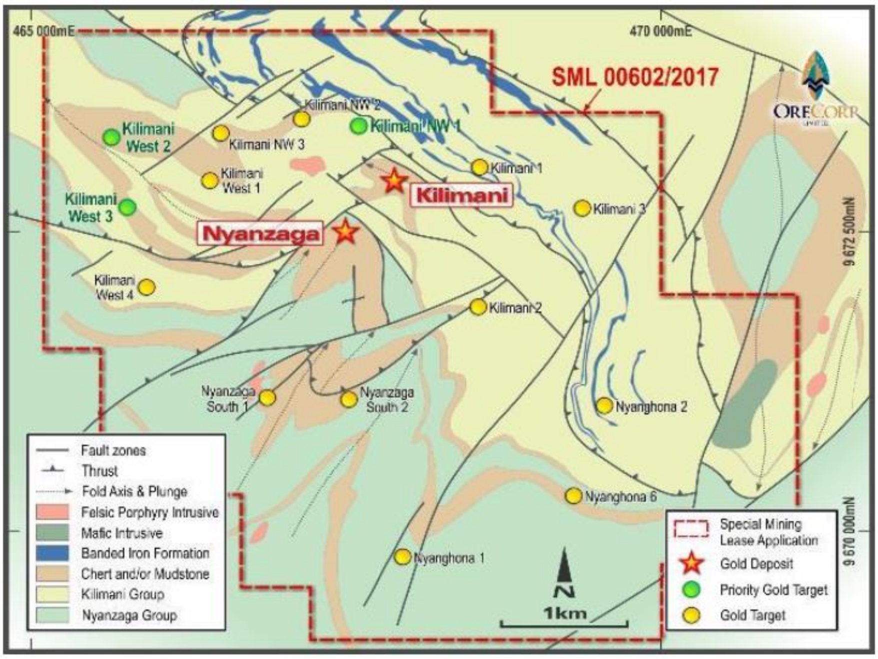
Exploration upside

The greenstone belt in the Lake Victoria Goldfields hosts several large gold mines, including Geita and Bulyanhulu

Nyanzaga is situated in the Archean Sukumaland Greenstone Belt. The greenstone belts of the Lake Victoria Goldfields host several large gold mines, including Geita Gold Mine (~60km to the west) and the Bulyanhulu Gold Mine (~36km to the southwest). The project currently comprises 22 contiguous Prospecting Licences and applications covering a combined area of 210km^2. Recently, a maiden inferred mineral resource estimate was completed on the Kilimani Prospect. The estimate of 5.64Mt @ 1.21g/t Au for 220kozs Au is in addition tot the Nyanzaga deposit, which sits 450m to the southwest. The Company will include the Kilimani resource estimate in the DFS.

The Kilimani Prospect is 450m to the northeast of Nyanzaga

Figure 35. Regional Map of the Nyanzaga Project showing regional exploration targets



Source: ORR

Project valuation

Most metrics for Argonaut's project valuation are in line with the PFS study. We derive a post-tax NPV_{11} of \$358m and a post-tax IRR of 25% (after accounting for the Tanzanian Government's 16% free carried interest).

Our project NPV_{11} is largely based on the PFS, adjusted for new Tanzanian fiscal terms

Table 18. Key assumptions for Argonaut's Nyanzaga project valuation

Metric	Unit	Value
Mining Inventory	Mt	45.3
Open Pit Mine Grade	g/t	1.5
Underground Mine Grade	g/t	3.7
Mine Life	Yrs	12
Recovery	%	88%
Gold Production	Koz pa	213
AISC	A$/oz	1344
Pre-Production Capex	A$m	424
Royalties	%	7.3%
Gold Price	US$/oz	1,750
AUD/USD FX	#	0.72
NPV_{11}	A$m	358

Source: Argonaut

Gold

Norseman Gold Project (PNR 50%)

Asset Valuation	$235m
Current Share Price	$0.21

Ticker:		**PNR**
Sector:		**Metals & Mining**
Shares on Issue (m):		**1,408.4**
Market Cap ($m):		**295.8**
Cash Est. ($m)		**63.2**
Debt Est. ($m)		**Nil**
Enterprise Value ($m):		**232.6**
52 wk High/Low:	**$0.28**	**$0.07**
12m Av Daily Vol (m):		**2,774**

Projects	**Stage**
Norseman	Project Financing
Halls Creek	Production

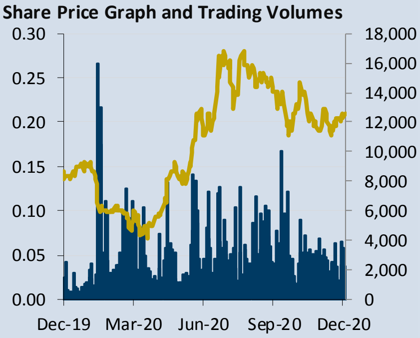
Mineral Resource	**Mt**	**g/t Au**	**koz Au**
Norseman (100%)	35.0	3.8	4,241
Halls Creek	1.6	6.6	339

Cashflows	**2019**	**2020**
Operating Cashflow	19.0	19.5
Investing Cashflow	-30.2	-44.5
Financing Cashflow	53.1	-6.2
Cash Balance	53.7	22.5

Directors:	
Wayne Zekulich	Non-Executive Chairman
Paul Cmrlec	Managing Director
Scott Huffadine	Executive Director
Fiona Van Maanen	Non-Executive Director
Kyle Edwards	Non-Executive Director

Substantial Shareholders:	**%**
Robmar Investments	14.9%
Tulla Resources	7.1%
1832	3.6%
Franklin Resources	1.9%

Share Price Graph and Trading Volumes



Pantoro (PNR)

The last great field

Quick Read

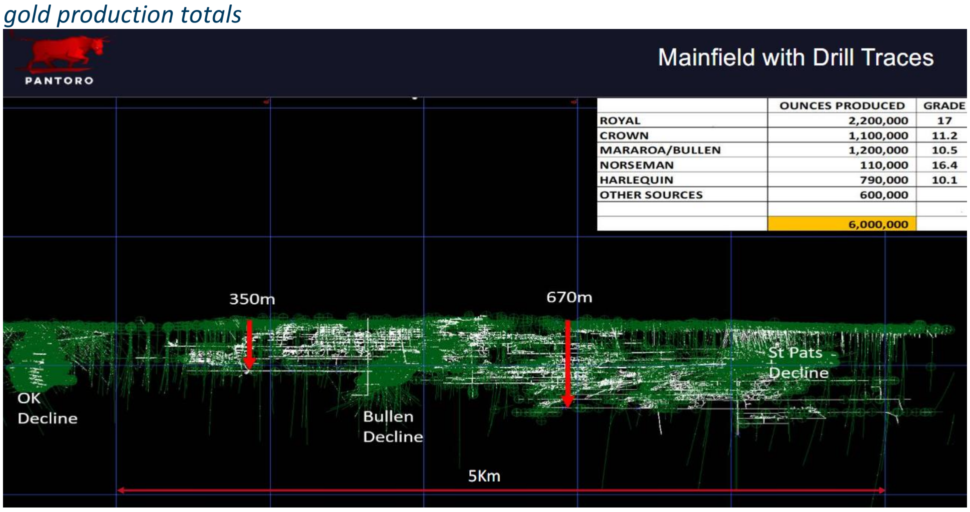
More an exploration play than a short-term cash flow proposition, and one that we think likely to deliver handsomely.

Overview

Kick start to proceedings: Pantoro (50% JV partner and operator) delivered a feasibility study in October 2020. The aim of the plan is to re-establish a +100kozspa operation at Norseman with minimal capital and delay, before launching an exploration assault on the rest of the field.

Rich reef hunt: The restart plan shows good returns on the estimated $89m pre-production outlay, but we think that most of the project's value lies in the potential for discovery of new Main Field and Harlequin type reefs, either beneath the workings or under lake sediment cover. Norseman produced 5.5Mozs in a continuous run from 1936 to 2006, mainly from free milling quartz reefs mined at +10g/t average head grades. The depths are not demanding and exploration stalled from the late 90s until Pantoro's entry in 2019.

Figure 36. Schematic long section, Norseman Main Field, showing historic workings and gold production totals



	OUNCES PRODUCED	GRADE
ROYAL	2,200,000	17
CROWN	1,100,000	11.2
MARAROA/BULLEN	1,200,000	10.5
NORSEMAN	110,000	16.4
HARLEQUIN	790,000	10.1
OTHER SOURCES	600,000	
	6,000,000	

Source: PNR

The restart plan outlined in October 2020 is based mainly on pits and underground mines at Scotia and OK. Reserves total 602kozs. Drilling is ongoing with the aim of doubling the mining inventory by early 2022. The cost of building a new 1Mtpa CIL treatment plant can be kept low through use of existing infrastructure.

Project Valuation

Argonaut's DCF and exploration asset valuation for the Norseman Gold project is $470m (100% basis), at an average realised gold price of US$1,750/oz and AUD/USD 0.72.

Project overview

Field historic production of 5.5Mozs

The Norseman Gold project is responsible for 5.5Mozs of past gold production, mostly from quartz veins exploited over a 10km line of lode from Main Field through North Royal and Harlequin between 1935 and 2006 – a period in which it was Australia's only continuously operating gold field. Pantoro Ltd (operator and 50% owner) entered the Norseman joint venture in May 2019, by agreeing among other terms, to sole fund $50M expenditure on the project. At the time of acquisition estimated resources amounted to 4.4Mozs within 35 separate deposits.

Restart plan includes 9 prospects

Pantoro has selected nine prospects within the Norseman portfolio to form part of a restart plan designed around the strategy of re-establishing 1Mtpa aggregate ore stream and CIL processing facilities in short order for minimal capital outlay. Infill drilling and step-out drilling in FY20 were confined to the chosen prospects. In October 2020 Pantoro completed a "phase one, Norseman restart" feasibility study.

The phase one feasibility study (October 2020)

Restart study is based on six open pit and three underground mine plans

The restart feasibility study is based on six open pit plans and 3 underground mine plans.

1. Scotia. A series of deposits over 2km strike, 45km south of Norseman. Scotia represents the largest estimated resource (271kozs indicated and 176kozs inferred) within the restart proposal. Open pit ore from Scotia will provide most of the mill feed in the first three years of operation. Pantoro drilled 158 RC holes (19,000m) at Scotia in FY20, discovering a new zone at Panda and extending the Green Lantern deposit. More drilling is planned in FY21 with the aim of doubling the pit inventory at Scotia.

2. Pantoro plans to bring the OK underground mine back into production as the principal source of underground ore at Norseman. A vent rise and minor dewatering will precede access to reserve blocks below existing workings. In the phase one Norseman restart, underground ore will come from OK for the first two years, providing 200-250ktpa at 5.3 g/t, at full capacity.

3. Together with Scotia, planned pits at Cobbler, Slippers, Gladstone and Maybell make up total pit reserves of 4Mt at 2.7 g/t (370kozs). Stockpile reserves are 4Mt at 0.8 g/t (100kozs).

4. OK, Scotia and St Pats underground plans are backed by total reserves of 790kt at 5.3 g/t (135kozs).

Pre-production capex is estimated at $69m

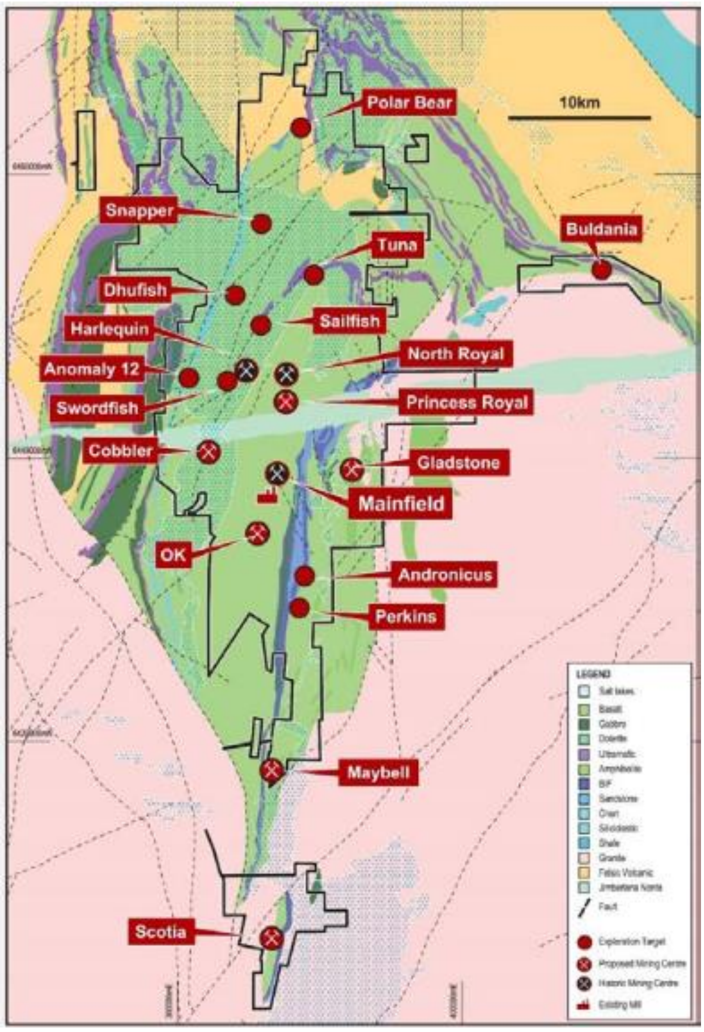
Pre-production capital costs are estimated at $89m, including $43m for 1.0Mtpa CIL process plant.

Pantoro estimates total costs (mining, processing, administration, royalties, sustaining capital and other capital, excluding pre-production capital), will peak at A$210m in the fourth year of operation; equivalent to the revenue from 80kozs at A$2600/oz gold price.

Norseman is a 50/50 unincorporated JV between privately owned Central Norseman Gold Corporation Pty Ltd and Pantoro Ltd

The JV has tenure over more than 1000 square kilometres representing the intact Central Norseman (1936-2002) portfolio.

Figure 37. Tenement plan, Norseman Gold Project



Source: PNR

Risks

The Norseman JV is half owned by private interests with separate funding obligations and arrangements to those of Pantoro. Project returns are sensitive to changes in the gold price. Exploration outcomes are uncertain.

Opportunities

The restart feasibility study was completed October 2020

Most of the value of the Norseman project lies outside the confines of the start-up plan outlined in the restart feasibility study. In small company hands since 2002, Norseman is the last of Western Australia's historic, prolific gold fields to be redeveloped beyond the limits reached prior to the turn of the millennium. Main Field has historically produced more than half of the 6Mozs produced at Norseman, from ore averaging 13 g/t. The Main Field workings extend to a maximum depth of 670m below surface. Harlequin (800kozs past production) is a 1990s discovery under lake cover that kicked off an unfinished search on the western side of the field. Pantoro intersected 8m at 67 g/t Au in July 2020 from 79m down hole at the Sailfish prospect

Development forecasts

Argonaut models first production in June 2022

The final feasibility study is due in the March quarter of 2021. Argonaut models first production in September quarter of 2022.

Table 19. Norseman Gold Project. Argonaut production and cost forecasts – restart plan only.

Year to June 30	2022	2023	2024	2025	2026	2027
Norseman						
Ore processed (Mt)		1.0	1.1	1.2	1.2	1.2
Head grade (g/t)		2.92	3.12	3.30	3.30	3.32
Met. recovery		95%	95%	95%	0.95	0.95
Norseman gold prodn (kozs)		86	102	120	120	118
Cost per milled tonne (A$/t)		128	124	118	119	121
Cash costs pre royalty (A$/oz)		1527	1396	1262	1276	1290
All in sustaining costs (A$/oz)		1624	1493	1359	1373	1387
Growth capital ($M)	73	29	48	28	57	0
CAIC (A$/oz)		2163	2118	1708	1955	1427

Price assumptions	2022E	2023E	2024E	2025E	2026E	2027E
AUDUSD	0.72	0.72	0.72	0.72	0.72	0.72
Gold	1775	1750	1750	1750	1750	1750
Gold	2465	2431	2431	2431	2431	2431

Source: Argonaut Research

Argonaut's project valuation includes the inventory and cost inputs from the FS and a 5% real, after tax discount rate

Asset Level Valuation

Argonaut values the Norseman gold project using the inventory and cost inputs set out in the feasibility study to generate an NPV. The schedules in our model may differ from Pantoro's. The project valuation is based on the after tax NPV of modelled cash flows at a 5% real, after tax discount rate, plus a nominal estimate of the value of exploration prospects outside of the restart plan.

Table 20. Norseman Gold Project. Argonaut cash flow forecasts– restart plan only.

Year to June 30	2021	2022	2023	2024	2025	2026	2027	2028
Sales			208	248	293	293	288	79
Cash cost			123	132	140	142	141	35
Royalty			8	10	12	12	12	3
Mine cashflow			**77**	**105**	**141**	**139**	**135**	**40**
Depreciation & amortisation			18	33	34	53	82	15
PRE TAX PROFIT			**59**	**72**	**107**	**86**	**53**	**25**
Tax			18	22	32	26	16	7
NET PROFIT			**42**	**51**	**75**	**60**	**37**	**17**
Capital expenditure		73	29	48	28	57	0	0
Surplus		-73	48	40	91	50	109	24
NPV	**216**	**300**						

Source: Argonaut Research

At our long-term gold price assumption of A$2,430/oz, Argonaut estimates;

- NPV of the restart plan of $216m (100% basis) at a 5% real, after tax discount rate. (Note: this is equivalent to Pantoro's feasibility study NPV estimate of $384m pre-tax, at a A$2,600/oz gold price.)

- Nominal exploration value of $250m (100% basis), based on belief in the prospectivity of the field and what a willing buyer might pay in cash for the project.

Silica Sands

Arrowsmith & Muchea Projects

Asset Valuation	$400m
Current Share Price	$0.235

Ticker:		VRX
Sector:		Metals & Mining
Shares on Issue (m):		499.0
Market Cap ($m):		117.3
Cash Est. ($m)		9.3
Debt Est. ($m)		Nil
Enterprise Value ($m):		108.0
52 wk High/Low:	$0.25	$0.05
12m Av Daily Vol (m):		602

Projects	Stage
Muchea	Permitting
Arrowsmith North	Permitting
Arrowsmith Central	Permitting

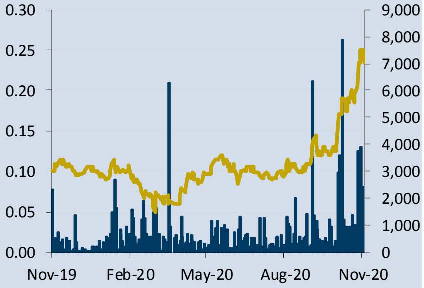
Mineral Resource	Mt	SiO_2 %	Al_2O_2 %	Fe_2O_3 %
Muchea	208	99.6	0.06	0.02
Arrowsmith North	771	98.0	0.86	0.30
Arrowsmith Central	76.5	96.8	1.50	0.40

Cashflows	2019	2020
Operating Cashflow	-1.7	-1.5
Investing Cashflow	-1.6	-1.3
Financing Cashflow	4.5	3.9
Cash Balance	1.5	2.6

Directors:	
Paul Boyatzis	Non-Executive Chairman
Bruce Maluish	Managing Director
Peter Pawlowitsch	Non-Executive Director

Substantial Shareholders:	%
Peter Pawlowitsch	5.8%
Michele Galea	3.9%
Aaron Banks	3.4%
Bruce Maluish	3.2%

Share Price Graph and Trading Volumes



VRX Silica Ltd (VRX)

Built on Sand

Quick Read

VRX Silica Ltd (VRX) has three main silica sand projects north of Perth in Western Australia. These include Arrowsmith North, Arrowsmith Central and Muchea, all located in inland dunes running parallel to the coast. Collective reserves stand at 261Mt with the highest purity at Muchea grading 99.8% SiO_2. Growing demand and diminishing supply for seaborne silica sands has created an opportunity to exploit these reserves. VRX's projects have been selected on silica purity (low inherent deleterious matter), location on vacant crown land and proximity to rail and port infrastructure These attributes decrease permitting hurdles and facilitate low operating costs. Simple processing and access to infrastructure lead to low capital intensity of less than one years' annual EBITDA for a 2Mtpa plant.

Overview

Strong financials: Argonaut estimates a collective NPV_{10} for the three projects of ~A$400m. Arrowsmith North is likely to be the first project to attain permitting, for which we assume first production in late-2021. For Arrowsmith North alone we derive a A$154m NPV_{10} and 57% IRR. The BFS for this project outlined a 25-year mine life producing ~48Mt of clean silica sand with pre-production capex for a 2Mtpa operation of A$28.3m. The BFS used just 24% of the 223Mt Resource, highlighting the potential for a +100-year operation at the 2Mtpa mining rate.

A surprisingly rare commodity: High purity silica sand is becoming an increasingly rare commodity as historic supply sources are curtailed, primarily on the grounds of environmental protection. This includes sands sourced from rivers, deltas or shorelines (i.e. the Mekong Delta). On the demand side, the seaborne market is experiencing high growth rates, particularly from the Asian glass markets (~5-6% CAGR). High demand for lower quality construction sand is also drawing supply away from higher purity markets (glass and foundry) where there is a cost or logistical advantage for suppliers. The total industrial silica market has an estimated value of US$13b in 2020 and is expected to grow at 4.4% CAGR out to 2030.

Permitting progressing: Mining Licences (ML) for Muchea, Arrowsmith North and Central have all been granted. A First Nation Indigenous Land Use Agreement is established for the Arrowsmith projects and final environmental approvals are anticipated for late-2020.

Project Valuation

Argonaut's valuation for the combined Western Australian projects includes the staged construction of three 2Mtpa processing plants at each project area. We derive a collective project level valuation of ~A$400m.

Project Overview

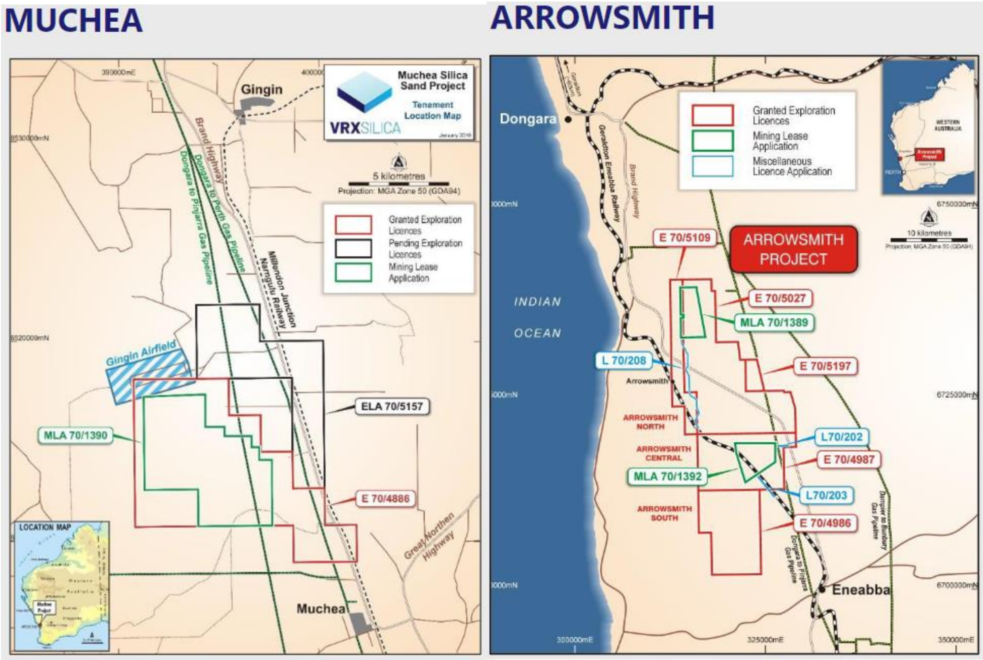
VRX's projects are located within 300km of Perth in WA

Arrowsmith (North and Central) are located 270km north of Perth, just north of the town of Eneabba. Muchea is 50km north of Perth. Silica sands are deposited in a vegetated relict dune system running parallel to the coast ~10km inland. Importantly, all VRX's projects are situated on vacant crown land with negligible residences proximal to the proposed areas of disturbance. The dunes comprise heavily leached sand, with little residual soil nutrients and therefore only vegetated by low scrub heath. The projects are located proximal to rail with spare capacity. VRX also has 100% of the Boyatup and Biranup Silica Projects, east of Esperance and east of Kalgoorlie respectively.

The projects are situated on vacant crown land with negligible residences close to the proposed disturbance areas

The dunes comprise heavily leached sand, with little residual soil nutrients

Figure 38. Arrowsmith and Muchea project locations

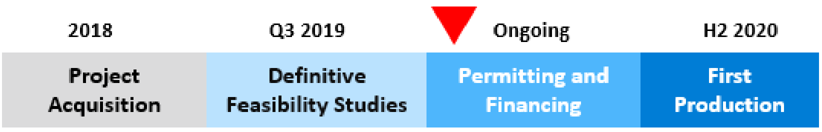


Source: VRX

Timeline to development

Assuming Arrowsmith North and Arrowsmith Central are non-controlled actions under the EPBC Act, both should attain all requisite approvals by the end of 2020. This should enable commissioning by mid to late 2021. Given Muchea's scale and close proximity to the Perth city, we expect a longer dated permitting timeline.

If approvals come through by the end of the year, it should enable commissioning by mid to late 2021



A rare commodity

Unlikely as it sounds, silica sand suitable for glass and foundry markets is a rare commodity

In recent years, a number of silica sand producing regions have been curtailed for environmental reasons. Historically, sand has been sourced from environmentally sensitive coastal, river or deltaic regions, such as the Mekong Delta in Vietnam or the Yangtze River in China. Note that desert sand is generally unsuitable for construction of glass, foundry or glassmaking due to high impurities and carbonate content. With high levels of illegal sand mining and an association with organised crime in countries such as India, VRX's WA projects offer an alternative, low sovereign risk, lower socio-environmental impacting source of silica sands.

Silica sand markets – high growth

Desert sand is not suitable for glassmaking due to high impurities and carbonate content

Sand/gravel is the most extracted natural resource globally, higher than fossil fuels. Global consumption of silica sand is expected to grow by 5-6% pa out to 2022 in the Asia Pacific region, fuelled by infrastructure development. Smaller high-end markets targeted by VRX, such as high purity glass, are reputedly growing at rates greater than 10% p.a.

Silica glass markets are expected to grow strongly in Asian markets

Table 21. Growth of selected silica glass markets in Asia

Use	Spec	Market in Asia	Growth in Asia
Float (Plate) Glass	99.5% SiO2	60 - 65Mt	5% - 6%
Container Glass	99.5% SiO2	70 - 75Mt	5% - 6%
Cover Glass (Solar Panels)	99.5% SiO2 & Low Fe	5 - 6Mt	+30%
Smart Glass (Ultra Clear)	99.5% SiO2 & Low Fe	1 - 2Mt	5% - 6%
Specialist Glass (Thin Screen)	99.7% SiO2	500 - 600 kt	+10%

Source: Stratum Resources via VRX

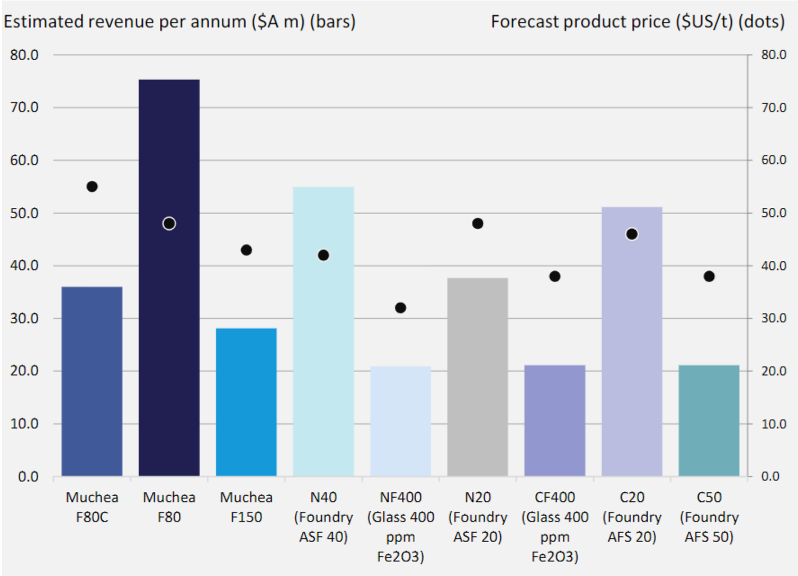
Targeting the glassmaking and foundry markets

VRX will be targeting the glassmaking and foundry markets

VRX will be targeting glassmaking and foundry markets for its products. Silica sand is the primary ingredient for glass. This market is loosely split into two main types including, flat glass for the building and automotive sectors and container glass for food and beverage storage and container wares. Silica sand for the glass market fetches US$38-50 dry metric tonne FOB. Higher end glass products, such as smart glass for electronics and cover glass (solar panels) fetch premium prices up to US$65/t FOB. High purity silica is also used to form moulds for ferrous (iron and steel) and nonferrous (copper, aluminium, brass) metal castings. The former accounts for ~95% of foundry sand. Typically, about one tonne of foundry sand is required for each tonne of iron or steel casting produced. Pricing is currently between US$38-55/dmt. Argonaut estimates VRX will generate a ~A$15/t margin on Arrowsmith products and a ~A$25/t margin on Muchea products. Key contaminant minerals include iron, titanium, aluminium, chromium and calcium.

Little change to revenue expectations as a result of COVID

Figure 39. Breakdown of VRX's expected products showing revenue on a total and per tonne basis (as at 2019 with little change due to COVID-19 impacts in 2020)



Source: VRX

Asset Valuation

We calculate a combined project NPV$_{10}$ of ~$400m and a 60% IRR

We derive a combined NPV$_{10}$ for VRX's silica projects of $402m with a 60% IRR. Key assumptions for our model are tabled below. Among the main risks to our forecasts are price and volume of sales assumptions. Our sales volume assumptions are high multiples of current total exported trade, and require high rates of supply displacement, growth and growth capture.

The three projects range in NPV value from $92m to $156m, and IRR's range between 49% and 78%

Table 22. Argonaut model assumptions

Key Model Assumptions	Arrowsmith North	Arrowsmith Central	Muchea
Mine Life	25 Yrs	25 Yrs	25
Start Construction	2021	2023	2026
Ramp up at 1Mtpa	2021-2023	2024-2026	2026-2027
Steady State Production Rate	2Mtpa	2Mtpa	2Mtpa
Recoveries	90%	77%	93%
Grade	99.7%	99.6%	99.9%
Capex	A$28.3m	A$25.9	A$32.7m
Opex (A$/t FOB incl. Royalty)	30	28	33
Product Mix (of processed sand)			
Glass Sand	17%	20%	20%
Foundry Sand	51%	64%	48%
High End Glass Sand	0%	0%	20%
TiO_2 Concentrate	9%	0%	0%
Average Price (A$/t FOB)	47	41	59
Valuation (post-tax)			
Post-Tax NPV$_{10}$	154	92	156
Post-Tax IRR	57%	49%	78%

Source: Argonaut

Gold

Bellevue Project

Asset Valuation	$1.20m
Current Share Price	$1.36

Ticker:		**BGL**
Sector:		**Metals & Mining**
Shares on Issue (m):		**850.2**
Market Cap ($m):		**1,156.3**
Cash Est. ($m)		**149.4**
Debt Est. ($m)		**Nil**
Enterprise Value ($m):		**1,006.9**
52 wk High/Low:	**$1.49**	**$0.29**
12m Av Daily Vol (m):		**3,805**

Projects	**Stage**
Bellevue Gold Project	Resource Development

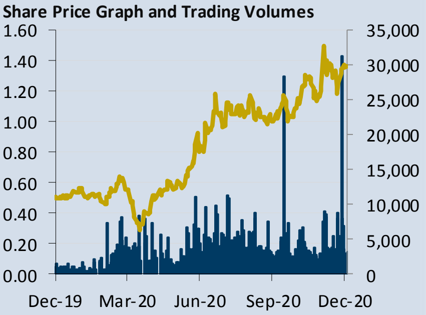
Mineral Resource	**Mt**	**Grade (g/t)**	**Au (Moz)**
	7.46	10.0	2.41

Cashflows	2019	2020
Operating Cashflow	-2.9	-3.7
Investing Cashflow	-20.4	-40.4
Financing Cashflow	34.5	48.6
Cash Balance	19.8	24.2

Directors:	
Kevin Tomlinson	Non-Executive Chairman
Stephen Parsons	Managing Director
Michael Naylor	Executive Director & Co. Sec
Fiona Robertson	Non-Executive Director
Shannon Coates	Non-Executive Director

Substantial Shareholders:	**%**
1832	11.7%
Blackrock	7.4%
Van Eck Associates	4.5%
Tolga Kumova	4.5%

Share Price Graph and Trading Volumes



Bellevue Gold (BGL)

Target or go it alone

Quick Read

The Bellevue Gold Project has the grade and scale to develop a new standalone production centre. However, the project's location and grade make it an attractive feed source for existing producers within a wide radius. The current resource stands at 2.41Moz @ 10.0g/t Au with an indicated component of 1.04Moz @ 11.4g/t Au.

Overview

Grade and scale: Bellevue's 2.4Moz resource is likely to grow beyond 3Moz in time as many lodes remain open, foremost the deeper Deacon Lode. The deposit has a global grade of 10.0g/t Au, with a higher-grade core of 563koz @ 15.2g/t situated near to existing underground infrastructure.

Fast tracking to production: BGL is dewatering and refurbishing existing underground infrastructure with an aim to be drilling from underground by the end of the year. This will enable more efficient and cost-effective drill-out of more distal lodes of the system, such as the Deacon lode. Re-establishing the decline will also reduce the lead-time to first production with both remnant and virgin mineralisation within range of historic working. Final feasibility studies are due early-2021, however the plant scale and mine plans are yet to be finalised. We raise a minor concern that feasibility mine studies may be rushed given the short lead time and lack more comprehensive underground drill data. With ~$149m cash as at September 2020, the Company will be in a position to commence early works and order long lead items ahead of any debt financing. BGL is aiming to commence construction mid-2021.

Exploration potential: BGL has a 15-month exploration budget of $35m. Access to underground drill positions will enable targeted drilling to extend deeper and distal lodes including a sizeable EM plate down-plunge of Deacon and untested southern extensions to Viago. Strong EM signatures in the Southern Belle Lode will be tested once access is granted to drill on the salt lake south of the Mining Licence (current Inferred Resource 100koz @ 10.4g/t from just four historic holes). Recent deep drilling co-funded by the State Government intercepted gold down to 1,000m below surface, which could represent parallel repeats of Deacon. Regionally, BGL has >20km of prospective strike north and south of the Bellevue deposit, much of which remains either untested or only drilled to <100m below surface. The Company has had recent success at the Government Well prospect with an RC intercept of 17m @ 4.2 g/t Au from 19m, including 3 m @ 9.7 g/t Au from 19m and 3m @ 11.6g/t Au from 33m.

Project Valuation

Argonaut's project level NPV_7 valuation for Bellevue is $1.2b. We model an initial 500ktpa mine extraction and mill throughput rate, ramping up to 1Mtpa over four years from 2022. We apply a 9-year mine life with 96% plant recoveries with LOM production of ~2Moz.

Project

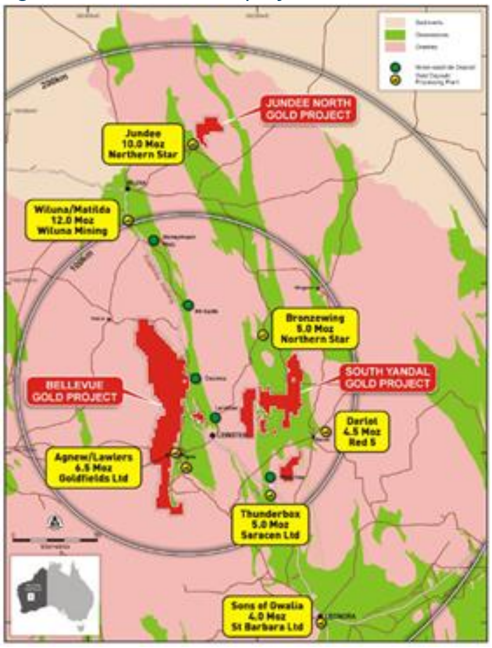
Bellevue is located between Wiluna and Leinster in WA

Bellevue sits on the well-endowed Agnew-Wiluna Greenstone Belt

EM has proven to be a highly effective targeting tool

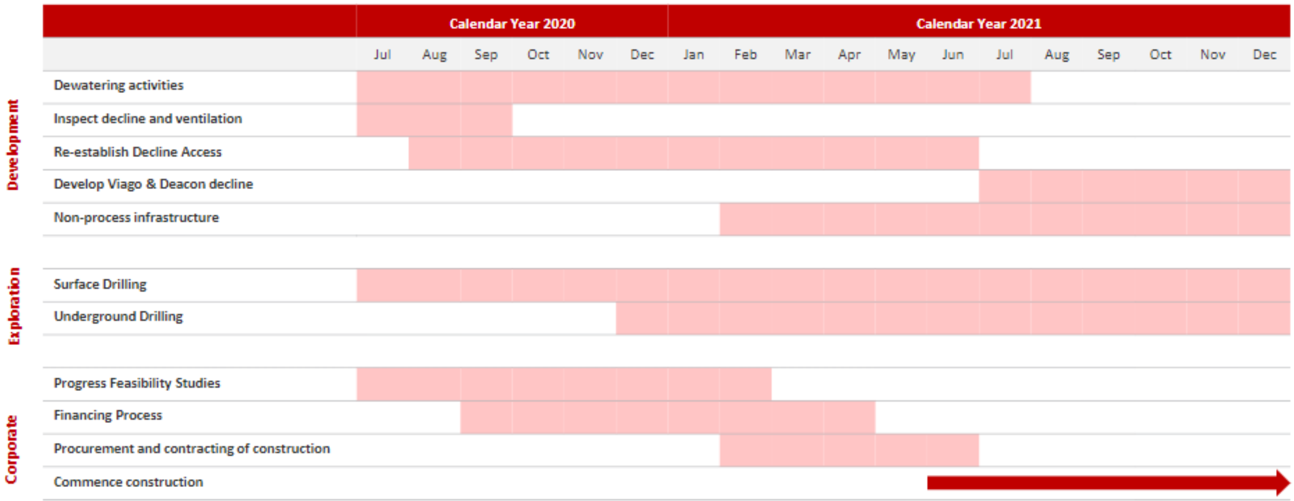
Bellevue is located adjacent to the Goldfields Highway, between the towns of Wiluna and Leinster in Western Australia. The project was historically mined between 1897 and 1997 and produced ~800koz @ 15g/t, primarily from the Bellevue Lode. Mining ceased as a result of a low gold price and very little exploration was conducted thereafter. BGL debunked previously held geological theories which led to the discovery of new lodes in close proximity to existing workings. The first discovery was shallow mineralisation at Tribune then deeper mineralisation at Deacon. Bellevue is located on the well-endowed Agnew-Wiluna Greenstone Belt which incorporates the Lawlers/Agnew complex (6.5Moz produced) and Wiluna deposit (>4Moz produced). Gold is generally found within two generations of quartz veining and has a strong association with massive to semi-massive pyrrhotite. This association with pyrrhotite makes mineralisation highly susceptible to electromagnetics (EM), which has proven to be a highly effective targeting tool.

Figure 40. Location map of Bellevue Gold



Source: BGL

Figure 41. Planned development activities



Source: BGL

Ni-Cu-PGE

Julimar Project

Current Share Price $4.01

Ticker:		**CHN**
Sector:		**Metals & Mining**
Shares on Issue (m):		**335.2**
Market Cap ($m):		**1,344.2**
Cash Est. ($m)		**116.0**
Debt Est. ($m)		**Nil**
Enterprise Value ($m):		**1,228.2**
52 wk High/Low:	**$4.06**	**$0.16**
12m Av Daily Vol (m):		**2,290**

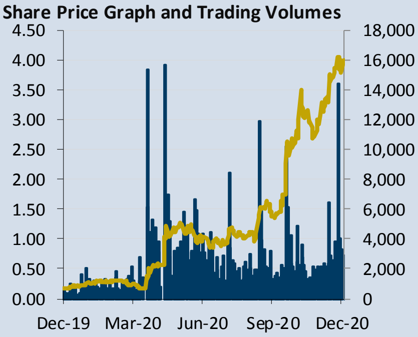
Projects	**Stage**
Julimar (Ni-Cu-PGE)	Exploration
Pyramid Hill Gold Project	Exploration
Hawkestone (Ni-Cu-Co)	Exploration

Cashflows	**2019**	**2020**
Operating Cashflow	-7.8	-10.2
Investing Cashflow	0.5	8.7
Financing Cashflow	-10.8	28.4
Cash Balance	18.6	45.7

Directors:	
Tim Goyder	Non-Executive Chairman
Alex Dorsch	Managing Director
Morgan Ball	Non-Executive Director
Stephen Quin	Non-Executive Director
Garret Dixon	Non-Executive Director

Substantial Shareholders:	**%**
Tim Goyder	12.1%
Franklin	8.7%
Regal	5.1%
Invesco	2.7%

Share Price Graph and Trading Volumes



Chalice Mining (CHN)

Palladium promise

Quick Read

With four rigs currently drilling at the Julimar Project and ~$50m in cash and investments, CHN is well positioned to test the extent of mineralisation at the Gonneville Intrusion and to estimate a maiden Mineral Resource Estimate by mid-2021. Julimar is a rare example of a PGE mineralised, layered mafic intrusive complex. Although early stage, Julimar has potential to play a big role in future palladium supply. Several large EM anomalies have been identified to the northeast of Gonneville and are yet to be tested.

Overview

Background: The Julimar Project, located ~70km northeast of Perth in WA, was staked in early 2018 by CHN. High resolution magnetics identified the possible presence of a mafic-ultramafic intrusive complex at Julimar prospective for platinum group elements, nickel and copper (PGE-Ni-Cu). An initial RC drill program in Q1 2020 on private farmland resulted in the discovery of high-grade PGE-Ni-Cu-Co mineralisation in the newly named Gonneville intrusion. Drilling on the ~1.6km x 0.8km intrusion has established several wide zones of high-grade PGE-Ni-Cu-Co and widespread zones of disseminated sulphide PGE-dominant mineralisation.

Focus on southern end of complex: Exploration has been focused on the Gonneville Intrusion at the southern end of the Julimar complex. Five shallow, high-grade zones defined to date (labelled G1-G5) all remain open, and the new Eastern Contact horizon has several wide spaced intersections along ~1.2km of strike. The G1 and G2 zones are ~5-40m wide, open along strike and down dip and are Pd-Ni dominant. The G3 and G5 zones are ~5-15m wide, are also open along strike and down dip and are Pd dominant.

Preliminary metallurgical results: CHN's preliminary leach and flotation test work results from limited samples were encouraging. The sulphides responded to flotation, and recovery of PGEs and gold from leaching oxides showed positive initial results (there is a portion of oxide mineralisation in the Gonneville Intrusion). Metallurgy and processing economics, along with palladium market dynamics, are likely to play crucial roles in determining Julimar's ultimate value.

Further EM anomalies identified: In late September an airborne EM survey revealed extensive new anomalies (Hartog, Baudin and Jansz) north of the Gonneville discovery, highlighting the additional potential of the district. The Hartog EM anomaly extends ~6.5km beyond the northern limit of the drilling at Gonneville and is the highest priority target given the peak AEM response was significantly stronger than the peak response at the high grade G1 zone at Gonneville.

Project Valuation

Argonaut does not have a project level valuation for the Julimar Project.

Project

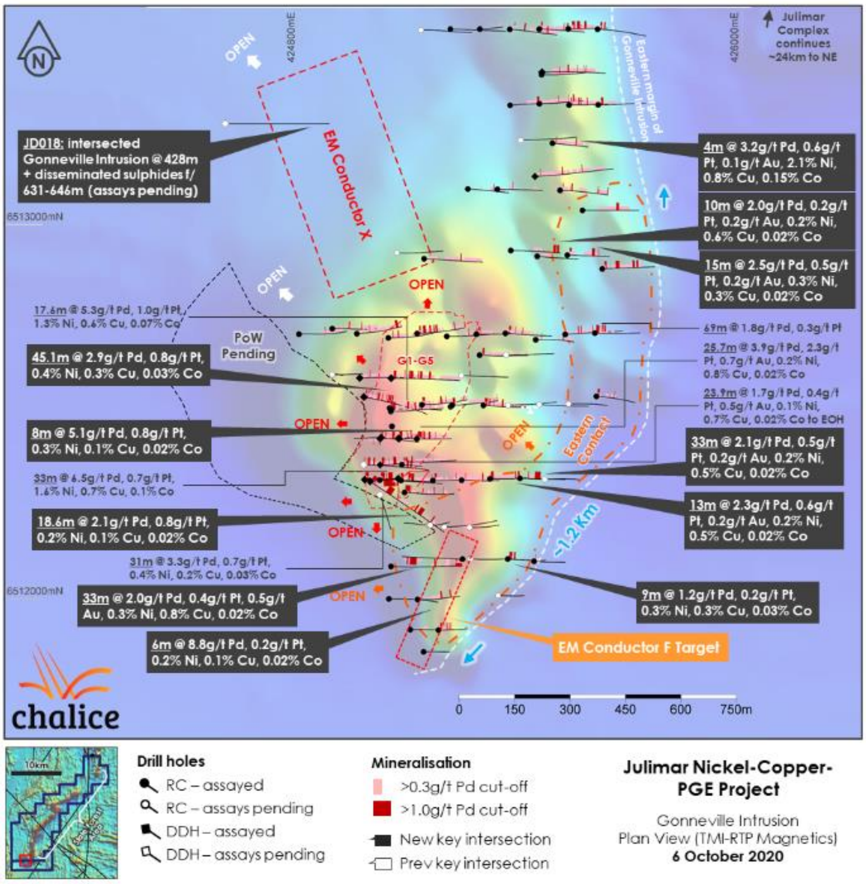
The Gonneville Intrusion is a new PGE-nickel-copper-cobalt discovery with significant potential

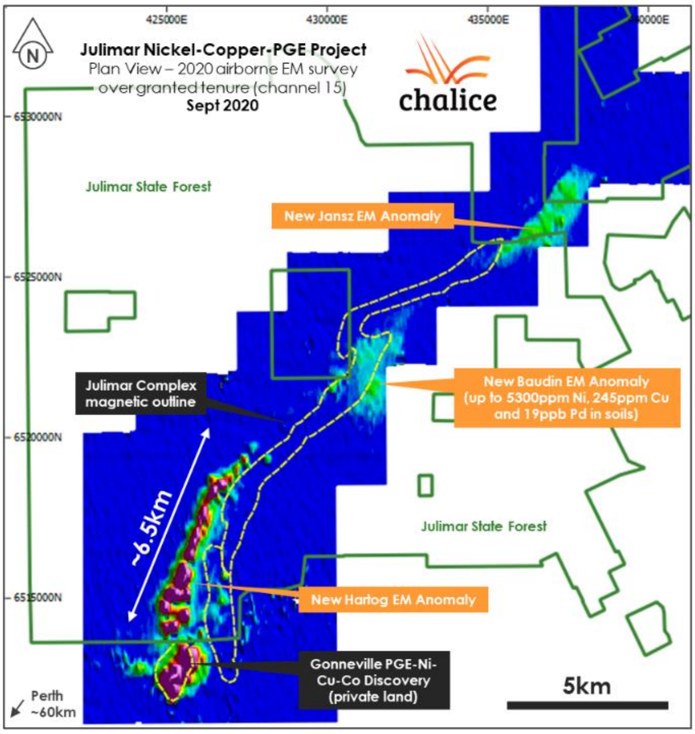
Five high grade zones have been defined to date and are all open along strike and down dip

The G4 zone and the Eastern Contact host wide PGE-Cu intervals associated with the intrusion contact

Several large EM anomalies recently identified are yet to be tested

Figure 42. Gonneville Intrusion Plan View – key drill results over TMI-RTP magnetics (top). Julimar Complex Plan View – Airborne EM survey preliminary mid-time response (bottom)





Source: CHN

Nickel

Jaguar Project

Asset Valuation	$510m
Current Share Price	$0.615

Ticker:		**CTM**
Sector:		**Metals & Mining**
Shares on Issue (m):		**325.9**
Market Cap ($m):		**200.4**
Cash Est. ($m)		**26.9**
Debt Est. ($m)		**Nil**
Enterprise Value ($m):		**173.5**
52 wk High/Low:	**$0.69**	**$0.07**
12m Av Daily Vol (m):		**919**

Projects	**Stage**
Jaguar Nickel Project	Resource Development

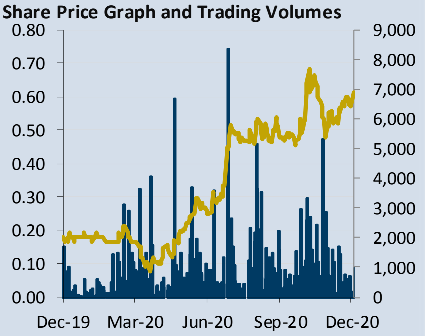
Mineral Resource	**Mt**	**Ni %**	**kt Ni**
Jaguar Nickel Project	48.0	1.08%	517.5

Cashflows	**2019**	**2020**
Operating Cashflow	-4.1	-3.6
Investing Cashflow	0.0	-0.2
Financing Cashflow	4.7	12.2
Cash Balance	1.4	9.7

Directors:	
Didier Murcia	Chairman
Darren Gordon	Managing Director
Bruno Scarpelli	Executive Director
Mark Hancock	Non-Executive Director
Chris Banasik	Non-Executive Director

Substantial Shareholders:	**%**
Dundee Resources	5.1%
Mccusker Holdings	4.6%
Sprott	4.6%
Harman Family Trust	4.3%

Share Price Graph and Trading Volumes



Centaurus Metals (CTM)

Sweet ride in a Jaguar

Quick Read

Jaguar is an advanced nickel development project in the mining friendly Carajás region of Brazil, which is host to several world-class projects. CTM acquired the project from Vale in 2019 with over 55,000m of drilling already completed along with baseline metallurgical studies. After a campaign of infill and expansionary drilling the Company released a maiden JORC resource of 48Mt @ 1.1% Ni for 518kt contained nickel, with a higher-grade component of 20.6Mt @ 1.6% Ni for 321.4kt contained nickel making it the second largest nickel inventory under an ASX listed company after BHP.

Key Points

Rare high grade open pittable nickel: Jaguar is a nickel sulphide deposit with both grade and near surface mineralisation making it amenable to open pit mining. It offers significant development optionality, ranging from a large low-grade bulk tonnage open pit operation to a smaller high-grade open pit and underground operation. CTM is expected to focus on the latter and Argonaut envisages a 1.0-1.5Mtpa concentrator plant processing ~1.5% Ni from open pit ore and up to 2.5% Ni from underground ore, producing up to 20ktpa nickel in concentrate. A Scoping Study is due in Q1 2021.

Positive metallurgy tests: Initial metallurgical testwork shows potential for ~82% nickel recoveries producing a 16% nickel concentrate for the Jaguar South and Onça Preta deposits. CTM is aiming to generate a single flowsheet for all mineralised material to provide flexibility in co-treating ores from various deposits in the project.

Significant exploration upside: Infill and extensional drilling is ongoing with four diamond rigs and one RC rig. All deposits quoted in the 48Mt resource remain open, particularly at depth. Up to 80% of Jaguar's contained nickel is within 200m of surface. Regionally, a number of coincident EM, magnetic and geochemical anomalies remain untested, particularly in the west of the project area (i.e. Fliperama and Leao prospects). Argonaut sees significant potential for resource expansion from CTM's well-funded exploration program.

Project Valuation

Argonaut's NPV_{11} for Jaguar is $510m, applying a US$15,500/t nickel price and 0.72 AUD/USD FX. Our model assumes a mining scenario of 5-years open pit mining at 1.5% Ni grade and 5-years underground mining at 2.5% Ni grade with output of 1.5Mtpa and 1Mtpa respectively. LOM processed ore is 18Mt with recoveries of 80%. Capital and operating cost assumptions (US$160m and US$3.90/lb respectively) are largely based upon other base metal development projects including OZ Minerals' Pedra Branca project also located in the Carajás.

Project Overview

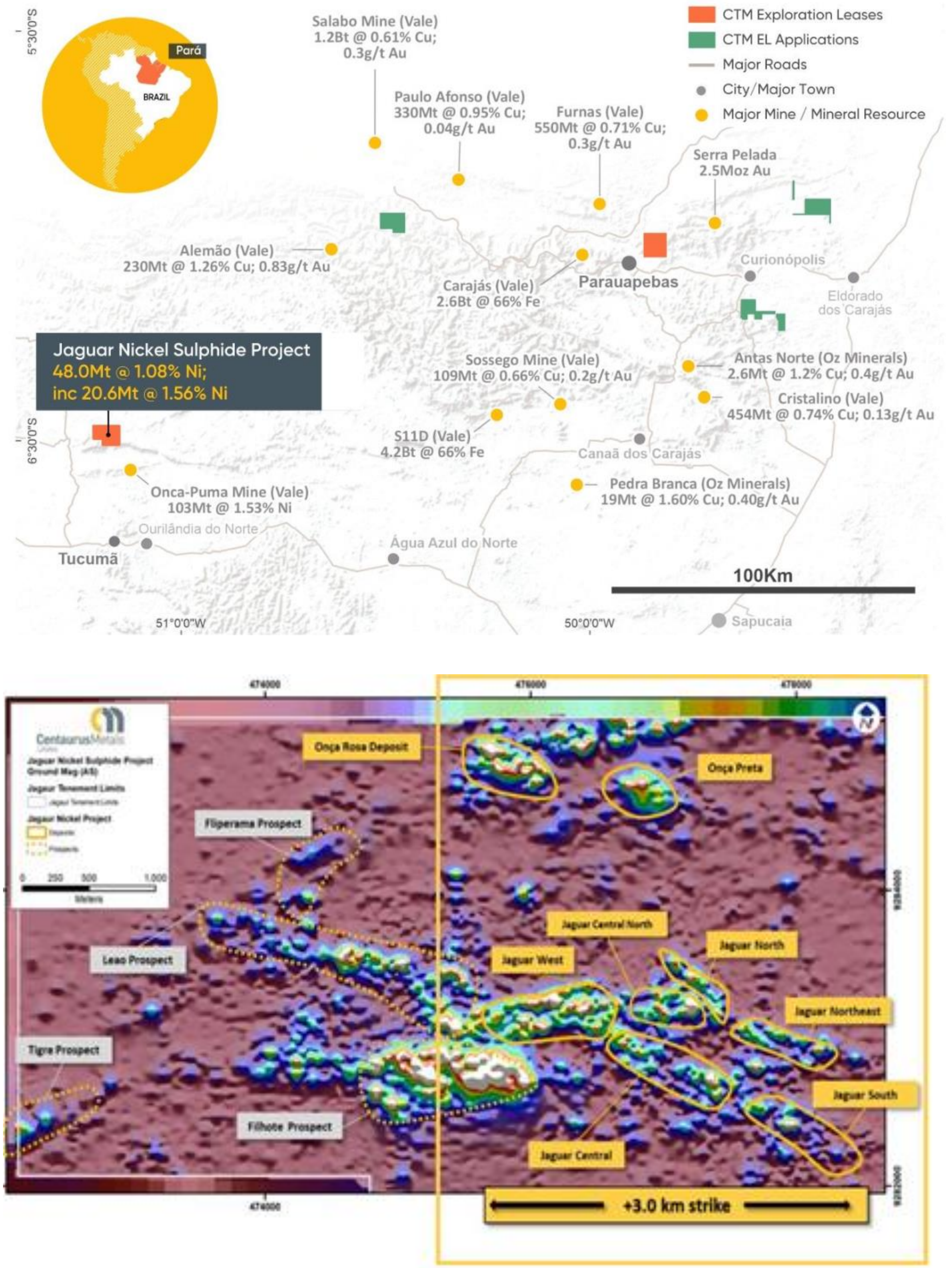
Jaguar is located in the well-established Carajás Mineral Province in the Pará state of Brazil

Jaguar is located on the western side of the well-established Carajás Mineral Province in the Pará state of Brazil. The project was discovered by Vale in 2007. CTM's tenure in the region is >100km^2 incorporating Jaguar, which spans over a prospective strike of ~7km. The project sits on low population density farmland with only four key landowners. The Pará state is a mining friendly jurisdiction and the Carajás region has established transport routes to port (road and rail), power infrastructure, a skilled mining workforce and access to key mining services. A high voltage power substation is located at Vale's Onça-Puma Ferronickel Plant 15km to the north. Water is readily available in the area. Rail is accessible from the iron ore hub of Parauapebas (~350km by sealed roads). Jaguar has a relatively unique style of nickel mineralisation, most akin to Iron Oxide Copper Gold (IOCG) deposits, only with nickel instead of copper.

The region has established transport routes, power, water, a skilled mining workforce, and access to key mining services

It is a rare nickel sulphide deposit with both grade and near surface mineralisation

Figure 43. Location map of the Jaguar Project (top). Magnetic survey with deposits and prospects (bottom)



Source: CTM

Gold

Mallina Project

Asset Valuation	$1.47b
Current Share Price	$1.105

Ticker:	**DEG**
Sector:	**Metals & Mining**
Shares on Issue (m):	**1,288.7**
Market Cap ($m):	**1,424.0**
Cash Est. ($m)	**109.5**
Debt Est. ($m)	**Nil**
Enterprise Value ($m):	**1,314.5**

52 wk High/Low:	**$1.55**	**$0.04**
12m Av Daily Vol (m):		**12,002**

Projects	**Stage**
Pilbara Gold Project	Resource Development

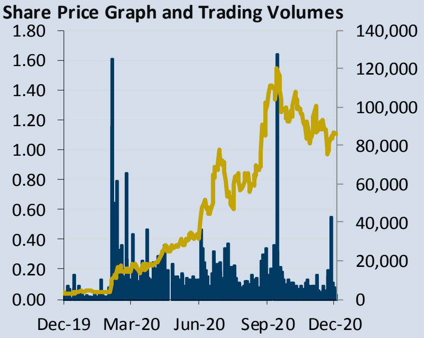
Mineral Resource	**Mt**	**g/t Au**	**koz Au**
Pilbara Gold Project	37.4	1.8	2,164

Cashflows	**2019**	**2020**
Operating Cashflow	-9.4	-17.4
Investing Cashflow	-0.9	-11.0
Financing Cashflow	10.5	55.2
Cash Balance	1.3	28.2

Directors:	
Simon Lill	Chairman
Glen Jardine	Managing Director
Andrew Beckwith	Technical Director
Peter Hood	Non-Executive Director
Eduard Eshuys	Non-Executive Director
Bruce Parncutt AO	Non-Executive Director

Substantial Shareholders:	**%**
DGO Gold	15.1%
Van Eck	5.6%
Invesco	4.2%

Share Price Graph and Trading Volumes



De Grey Mining (DEG)

A new gold paradigm for the Pilbara

Quick Read

The Hemi discovery within the Mallina Project is shaping up to be one of the biggest gold discoveries in Australia in the past decade. Mineralisation is related to sanukitoid intrusions (associated with deep mantle tapping faults) common to the West Australian goldfields, but a new paradigm for the Pilbara. At least four zones of broad, shallow mineralisation have been identified within Hemi with better intercepts including: 64m @ 13.4g/t Au from 141m (Crow Zone) and 45m @ 8.1g/t Au from 111m (Aquila Zone). Argonaut estimates that Hemi could already contain up to 3Moz @ 1.5-1.8g/t Au, based on reported drill intercepts.

Overview

Broad near surface gold mineralisation: Hemi is characterised by broad, shallow mineralisation. Within broad lower grade envelopes there are a number of higher-grade pockets which could provide low strip, high margin ounces under a mining scenario (i.e. eastern Brolga and western Aquila). DEG is expected to release a maiden resource in mid-2021 which should comprise a significant proportion in the indicated category.

Falcon provides another leap in scale: The most recently discovered Falcon Zone has added substantial scale to Hemi. This intrusion has been identified over a ~3km strike with ~800m of proven gold mineralisation up to 80m wide down to +250m below surface. Better intercepts include: 42m @ 5.2g/t Au from 47m and 50m @ 3.3g/t Au from 50m.

Potential for Hemi analogues: Eight intrusions have been identified to date, of which seven are known to contain gold mineralisation and four of these are within a 10km radius of Hemi. DEG is systematically testing nearby prospects such as Scooby, Shaggy and Antwerp to better define RC and diamond drill targets. Historic intercepts include 2m @ 5.2g/t Au (Scooby) and 32m @ 0.4g/t Au (Shaggy). Detailed magnetic surveys highlight more than 20 features with the potential to be intrusions over the greater Mallina Project.

Scale should off-set refractory costs: Gold is related to arsenopyrite and pyrite and is refractory in fresh rock. Initial metallurgical tests achieved 93.0% recoveries for oxide mineralisation using carbon in leach (CIL) and 96.3% for fresh mineralisation using sulphide flotation, pressure oxidation (POX) and CIL. Metallurgical tests are ongoing with a wide range of sulphide treatment processes being explored. While sulphide treatment will require additional processing infrastructure, we believe Hemi will have the scale and mine life to offset upfront capex and the economies of scale to absorb additional opex.

Project Valuation

Argonaut's NPV_8 for Hemi is $1.47b. Our model assumes a 7.5Mtpa plant with a 12-year mine life processing ~2.0g/t in the early stages of the mine life and declining to ~1.0g/t in the latter years. We assume overall recoveries of 90% with upfront capex of $850m, incorporating a POX circuit.

Project overview

Mallina is located in the Pilbara region of WA

Mallina is located ~40km south of Port Hedland in the Pilbara region of Western Australia. The project has an existing resource of 2.2Moz @ 1.8g/t, excluding Hemi. It is a belt-scale project covering 150m of strike with >200km of prospective shear trends covering ~1,200km^2. Hemi was discovered in late-2019 after intrusive-related mineralisation at the Toweranna deposit prompted the Company's geologists to target large-scale intrusive deposits. Gold is associated with pyrite and arsenopyrite mineralisation and generally pervasive in the host rock, rather than concentrated in quartz veins. There are two sealed highways within 10km, a 220kV powerline within 20km and a gas pipelines 5km and ~20km from Hemi.

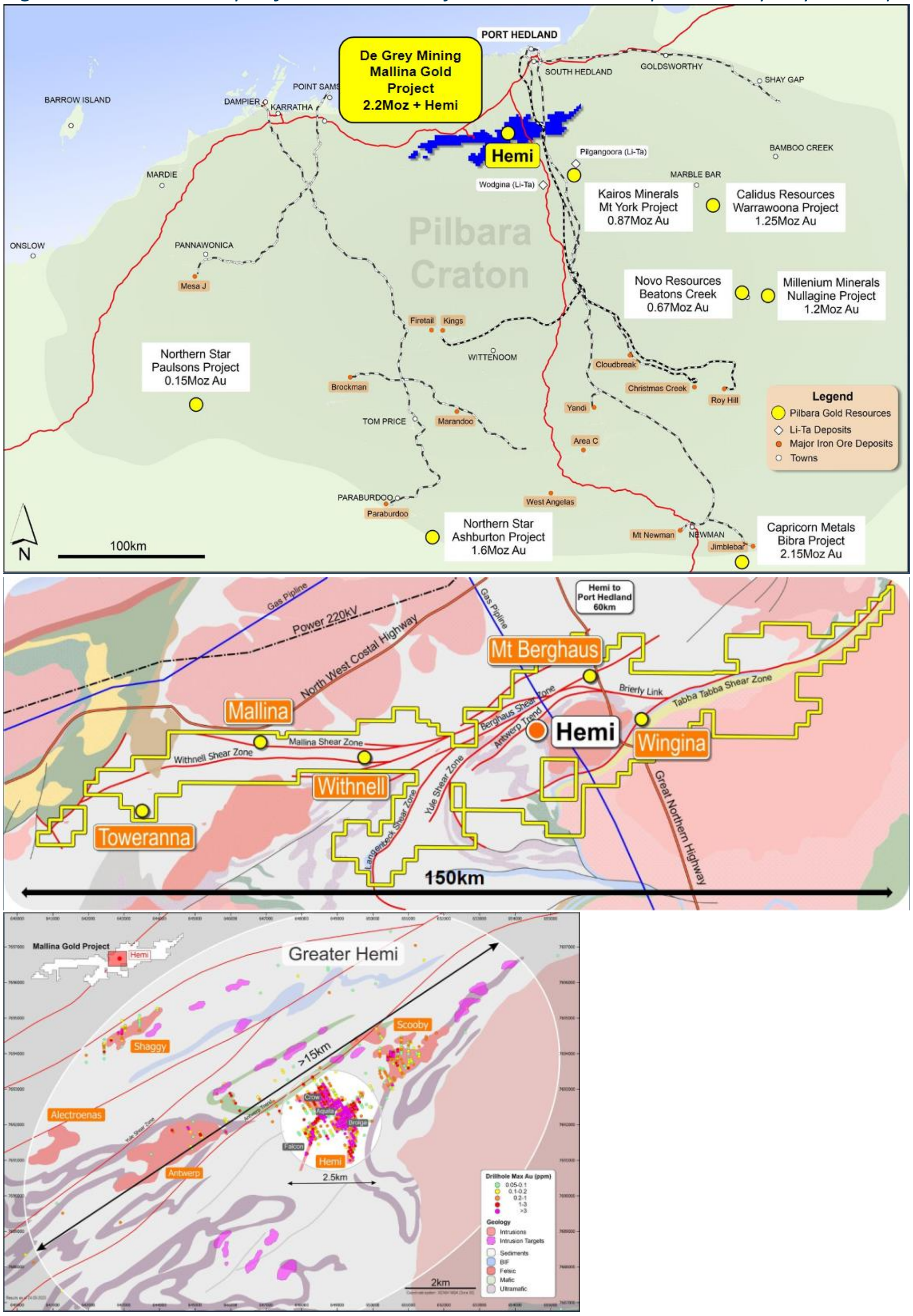
Mineralisation is related to sanukitoid intrusions, common to the WA goldfields, but a new paradigm in the Pilbara

There are sealed highways, powerlines and gas pipelines nearby

DEG is systematically testing nearby prospects within the greater Hemi area

Scale should offset higher capex and opex

Figure 44. Location maps of the Mallina Project and localised deposits and prospect maps



Source: DEG

Nickel

Kambalda Nickel Operations

Current Share Price $1.07

Ticker:	**MCR**
Sector:	**Metals & Mining**
Shares on Issue (m):	**431.4**
Market Cap ($m):	**461.6**
Cash Est. ($m)	**101.5**
Debt Est. ($m)	**Nil**
Enterprise Value ($m):	**360.1**

52 wk High/Low:	**$1.07**	**$0.41**
12m Av Daily Vol (m):		**962**

Projects	**Stage**
Kambalda	Project Construction

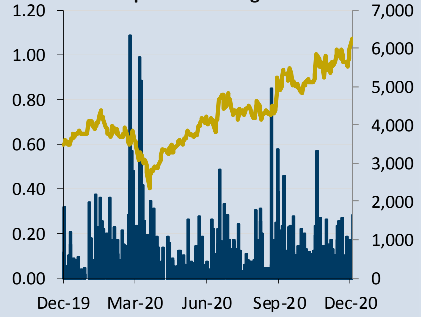
Mineral Resource	**Mt**	**Ni %**	**Ni kt**
Kambalda	5.2	3.8	196

Cashflows	**2019**	**2020**
Operating Cashflow	7.4	-13.3
Investing Cashflow	-14.9	-2.9
Financing Cashflow	22.5	34.0
Cash Balance	29.2	47.0

Directors:	
Brett Lambert	Non-Executive Chairman
David Southam	Managing Director
Michael Bohm	Non-Executive Director
Liza Carpene	Non-Executive Director
Peter Bewick	Non-Executive Director

Substantial Shareholders:	**%**
Squadron Resources	11.7%
IGO	8.1%
Tattarang	3.3%
McCusker Holdings	2.1%

Share Price Graph and Trading Volumes



Mincor Resources (MCR)

Rejuvenated Kambalda Nickel

Quick Read

MCR has commenced construction and development of its Kambalda Nickel Operations (KNO) based around its flagship Cassini mine (a greenfields discovery by MCR) and following execution of a $55m project debt facility in September. Project economics under the DFS are robust with a post-tax NPV_7 of $237m, an IRR of 88%, and capital payback in 12 months. History provides reason to expect mine life growth beyond the initial five years.

Overview

Robust DFS: The March 2020 DFS outlined a five-year operation producing 63kt of nickel in concentrate (14kt annual average grading 14.9% Ni), with first production scheduled for the December quarter 2021. Estimated pre-production capex is $68m, generating a 88% post tax IRR at a forecast nickel price of A$10.20/lb. The DFS indicates life of mine (LOM) all in sustaining costs (AISC) of A$4.47/lb. The flagship Cassini mine is forecast to contribute 56% of the total nickel in concentrate production over the initial LOM at an average AISC of A$3.81/lb. MCR indicates total project EBITDA of $585m.

Financing: The Board approved development in September following credit approved term sheets for a $55m project debt facility. With $60m of the existing cash reserves of >$100m, it will cover peak funding requirements of $97m and standby liquidity, and leave ~$40m in cash reserves. First drawdown from the facility is only expected in the September Q 2021 given equity funding already in place. Construction and development are scheduled for this quarter and the underground mining contractor has been given notice to start mobilising. First ore delivery to the BHP Nickel West Kambalda Nickel Concentrator and first nickel concentrate production is expected in the March Q 2022.

Processing and sales: In August 2019 MCR executed an Ore Tolling and Offtake Purchase Agreement (OTCPA) with BHP Nickel West, replacing an historical agreement. MCR now has the ability to blend ore from various operations to achieve optimum processing and metallurgical outcomes while maximising returns by selling Ni concentrate. The OTCPA offers modern, materially improved offtake terms (payability) for nickel concentrate with a tier 1 miner as a counterparty.

Exploration: As at June MCR has a current combined ore reserve of 2.47Mt @ 2.9% Ni for 71.1kt contained Ni and resources of 5.20Mt @ 3.8% Ni for 196.1kt contained Ni. The Company is actively exploring at Cassini, Cassini North, Durkin-Long and other regional targets, and expects to deliver growth in resources and reserves by the time of first nickel ore production. In the September quarter a significant new intersection of 2.5m @ 6.6% Ni at Cassini North was announced, and subsequently a further intersection of 2.8m @ 3.4% Ni was made 37m down-plunge.

Project Valuation

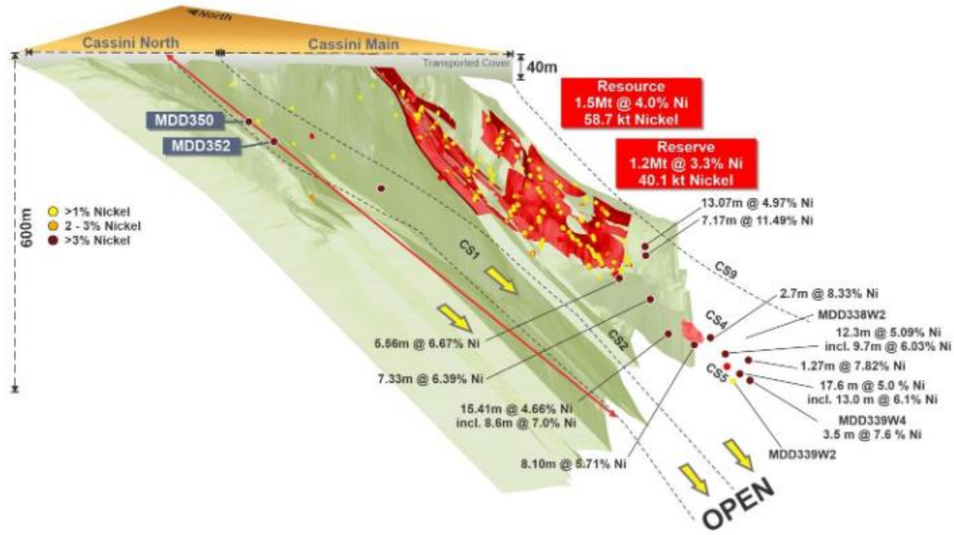
Argonaut has not undertaken a project valuation.

Project

Exploration activities continue, and are likely to extend the life of the operations beyond five years

MCR continues exploration drilling activities and a key highlight in the September Q was a significant intersection at Cassini North (MDD350). The Company has highlighted how Kambalda Ni deposits have tended to exceed initial mine life projections and anticipates a similar outcome for Cassini.

Figure 45. Cassini 3D image showing basalt surface and resource shapes with significant intersections



Source: MCR

Construction and development has commenced following project debt financing obtained in September

The March 2020 DFS outlines robust economics, with a post-tax NPV_7 of \$237m and IRR of 88%, with pre-production capex of \$68m.

The DFS highlighted robust project economics, with low capital intensity and high margins

Table 23. DFS key metrics

Parameter	Units	Project Total	Cassini	Miitel	Northern Operations
Physicals*					
Ore Mined	dmt	**2,468,000**	1,200,000	427,000	841,000
Head Grade	%	**2.9**	3.3	2.5	2.5
Ni in ore	t Ni	**71,300**	39,900	10,500	21,000
Recovery	%	**88.5**	88.6	88.0	88.6
Concentrate Grade	%	**14.9**	14.9	16.0	14.2
Ni in Concentrate	t Ni	**63,100**	35,300	9,200	18,600
Capital Costs					
Pre-Production Capex	A\$m	**68**	27	-	41
Production LOM Capex	A\$m	**111**	51	44	16
	A\$m	**179**	78	44	57
Unit Costs (100% payable basis)					
C1 Cash Cost	A\$/lb	**3.36**	2.71	4.15	4.19
Royalties	A\$/lb	**0.32**	0.46	0.30	0.08
Total Operating Costs	A\$/lb	**3.68**	**3.16**	**4.47**	**4.26**
Sustaining Capital	A\$/lb	**0.80**	0.65	2.15	0.40
All-in-Sustaining Costs (AISC)	A\$/lb	**4.47**	**3.81**	**6.62**	**4.67**
Pre-production Capex	A\$/lb	**0.49**	0.34	0.00	1.00
All-in Costs	A\$/lb	**4.96**	4.15	6.62	5.67
Financial Metrics					
Total Revenue	A\$m	**1,187**	669	179	339
Project Cash flow (pre-tax)	A\$m	**407**	291	31	85
NPV (7%) (pre-tax)	A\$m	**305**	**223**	**19**	**63**
EBITDA	**A\$m**	**585**			
IRR (pre-tax)	%	**98**			
Tax Paid	A\$m	**(91)**			
Project Cash flow (post-tax)	A\$m	**315**			
NPV (7%) (post-tax)	A\$m	**237**			
IRR (post-tax)	%	**88**			
Capital payback period	Months	**12**			

Source: MCR

The DFS indicated a post-tax NPV_7 of \$237m and IRR of 88%

Gold

Cue Gold Project

Current Share Price $0.41

Ticker:	**MGV**
Sector:	**Metals & Mining**
Shares on Issue (m):	**477.6**
Market Cap ($m):	**195.8**
Cash Est. ($m)	**8.2**
Debt Est. ($m)	**Nil**
Enterprise Value ($m):	**187.6**

52 wk High/Low:	**$0.76**	**$0.07**
12m Av Daily Vol (m):		**3,474**

Projects	**Stage**
Cue Project	Resource Development

Mineral Resource	**Mt**	**g/t Au**	**koz Au**
Cue Project	6.4	3.2	659

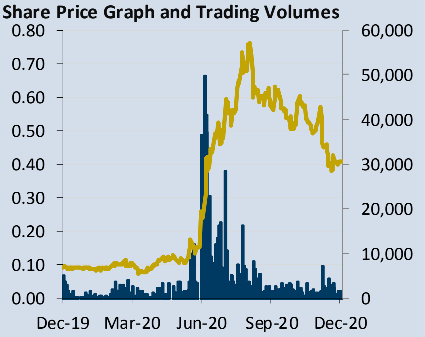
Cashflows	**2019**	**2020**
Operating Cashflow	-0.6	-0.2
Investing Cashflow	-6.2	-1.5
Financing Cashflow	5.2	7.2
Cash Balance	3.5	9.1

Directors:

Graham Ascough	Non-Executive Chairman
Robert Waugh	Managing Director
Kelly Ross	Non-Executive Director
John Percival	Non-Executive Director

Substantial Shareholders:	**%**
1832	7.8%
Invesco	5.0%
Jetosea	4.4%
Evolution	3.9%
Westgold	3.4%

Share Price Graph and Trading Volumes



Musgrave Minerals (MGV)

Right on Cue

Quick Read

MGV's Cue Gold Project lies within the Murchison Province in WA just north of Mt Magnet. A recent re-estimate of resources at Break of Day confirmed it as one of the highest grade (10.2g/t Au) undeveloped near surface deposits in Australia. It is close to infrastructure and other mines, adding to the appeal. Ongoing drilling newsflow is anticipated.

Overview

Resource estimates: Musgrave recently re-estimated resources at Lena and Break of Day, including Starlight drilling data for the first time. Break of Day indicated resources are estimated at 176kozs, with a further 86kozs in the inferred category. With Lena, total indicated resources are now estimated at 297kozs, with a further 290kozs inferred for a total of 587kozs. The Break of Day resource estimate comprises 25 individual lodes, with 85% of the gold interpreted to be within five main lodes. The regional drilling program is ongoing with a focus on defining further high-grade, near surface gold deposits.

Shallow, high grade: The indicated and inferred resources at Break of Day grade 10.2g/t Au for 262kozs. When combined with Lena (2.3g/t Au), the deposits grade 3.6g/t Au. Break of Day is one of the highest grade undeveloped near surface deposits in Australia, with drilling here extending to a maximum depth of 350m below surface. The mineralisation has been interpreted and estimated to a maximum depth of 370m and the mineralisation remains open in several parts of the deposit. A significant portion of the inventory should be amenable to open pit mining.

Infrastructure: The Cue Project lies next to the Great Northern Highway and is close to gold producers like Ramelius (RMS), Westgold (WGX), Gascoyne (GCY) and Silver Lake (SLR). The high-grade ore is amenable to trucking (MGV notes that RMS trucks ~6.5g/t ore 300km from the Vivien mine), which adds to the strategic and corporate appeal.

Upcoming newsflow: At the Cue Gold Project planned drilling and assay activities for new Starlight analogue targets as well as other regional drilling during the current quarter should ensure ongoing newsflow. MGV is well funded to continue exploration activity, with $8.2m cash at the end of the September Q (following outflow for exploration activities in the September Q of $2.3m).

Evolution JV: In September 2019 MGV and Evolution Mining (EVN) entered an earn-in and JV agreement centred on the Lake Austin Area of the Cue Project. EVN has committed to a minimum exploration spend of $4 million over the first two years and can earn a 75% interest in the JV area by sole funding $18m in exploration over a five-year period. Results are pending from an MGV-managed drilling campaign in this underexplored area.

Project Valuation

Argonaut does not have a project level valuation for the Cue Gold Project.

Project

MGV is focused on gold exploration and development at the Cue Gold Project near Mt Magnet in WA

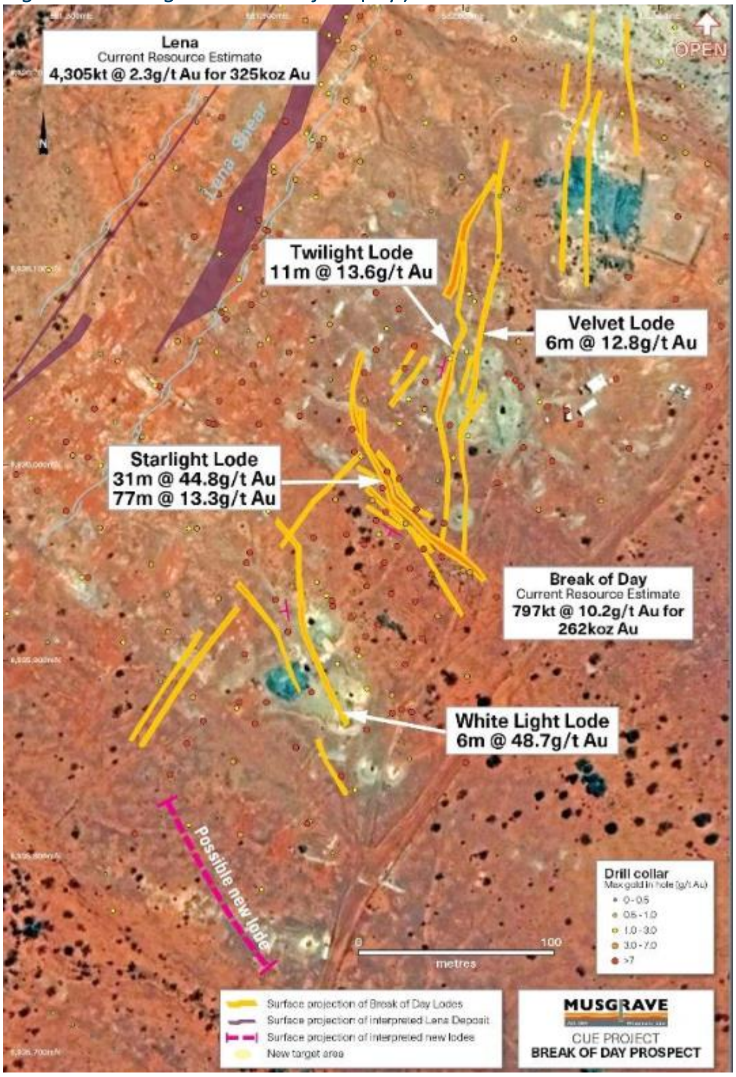
MGV is focused on gold exploration and development at the Cue Gold Project in the Murchison Province in WA. The new high-grade Starlight discovery at Break of Day has been the focus of a significant recent drilling campaign, which also led to the discovery of the White Light lode. Both lodes have a strike length of ~100m.

Recent drilling and a resource re-estimate have confirmed Break of Day as one of the highest grade undeveloped near surface deposits in Australia

The Project is located close to infrastructure and other producing mines

Preliminary metallurgical test work has been carried out on Break of Day mineralisation, with recoveries in excess of 95% indicated using conventional processing

Figure 46. Musgrave Cue Project (top). November 2020 resource estimate (bottom)



Deposit	Indicated Resources Tonnes '000s	Indicated Au g/t	Indicated Ounces Au '000s	Inferred Resources Tonnes '000s	Inferred Au g/t	Inferred Ounces Au '000s	TOTAL RESOURCES Tonnes '000s	Total Au g/t	Total Ounces Au '000s
Moyagee									
Break of Day	450	12.1	176	350	7.7	86	797	10.2	262
Lena	2,253	1.7	121	2,053	3.1	204	4,305	2.3	325
Leviticus	-	-	-	42	6.0	8	42	6.0	8
Numbers	-	-	-	278	2.5	22	278	2.5	22
SUBTOTAL	2,703	3.4	297	2,723	3.7	320	5,422	3.5	617
Eelya									
*Hollandaire	2,179	0.3	21	605	0.4	8	2,784	0.3	29
Rapier South				171	2.2	12	171	2.1	12
SUBTOTAL	436	0.3	4	292	1.4	13	728	0.6	13
Tuckabianna									
Jasper Queen	-	-	-	175	2.6	15	175	2.6	15
Gilt Edge	-	-	-	96	3.1	9	96	3.1	9
SUBTOTAL	-	-	-	271	2.8	24	271	2.8	24
TOTAL	3,138	3.0	301	3,286	3.4	358	6,421	3.2	659

Source: MGV

Uranium

Arrow Project

Current Share Price C$2.77

Ticker:	**NXE.TSX**
Sector:	**Metals & Mining**

Shares on Issue (m):	**376.9**
Market Cap (C$m):	**1,044.1**
Cash Est. (C$m)	**78.6**
Debt (conv. debentures) (C$m)	**176.9**
Enterprise Value (C$m):	**1,142.4**

52 wk High/Low:	**$2.77**	**$0.80**
12m Av Daily Vol (m):		**661**

Projects	**Stage**
Arrow	Feasibility Study

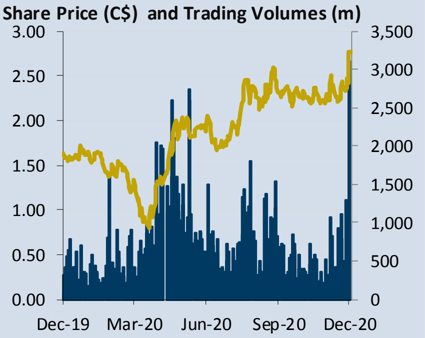
Mineral Resource	**Mt**	**U308%**	**U308 lb**
Indicated	2.9	4.0	257
Inferred	4.8	0.9	91.7

Cashflows	**2019**	**2020**
Operating Cashflow (C$m)	-16.4	-20.8
Investing Cashflow (C$m)	-37.8	-57.7
Financing Cashflow (C$m)	10.3	6.6
Cash Balance (C$m)	125.1	52.1

Directors:	
Christopher McFadden	Chairman
Trevor Thiele	Non-Executive Director
Richard Patricio	Non-Executive Director
Warren Gilman	Non-Executive Director
Sybil Veenman	Non-Executive Director
Karri Howlett	Non-Executive Director

Substantial Shareholders:	**%**
Mega Uranium	5.2%
Li Ka Shing Foundation	3.7%
Queen's Road Capital	3.2%
Falcon Edge Capital	2.1%

Share Price (C$) and Trading Volumes (m)



NexGen Energy (NXE-TSX)

Arrow in flight

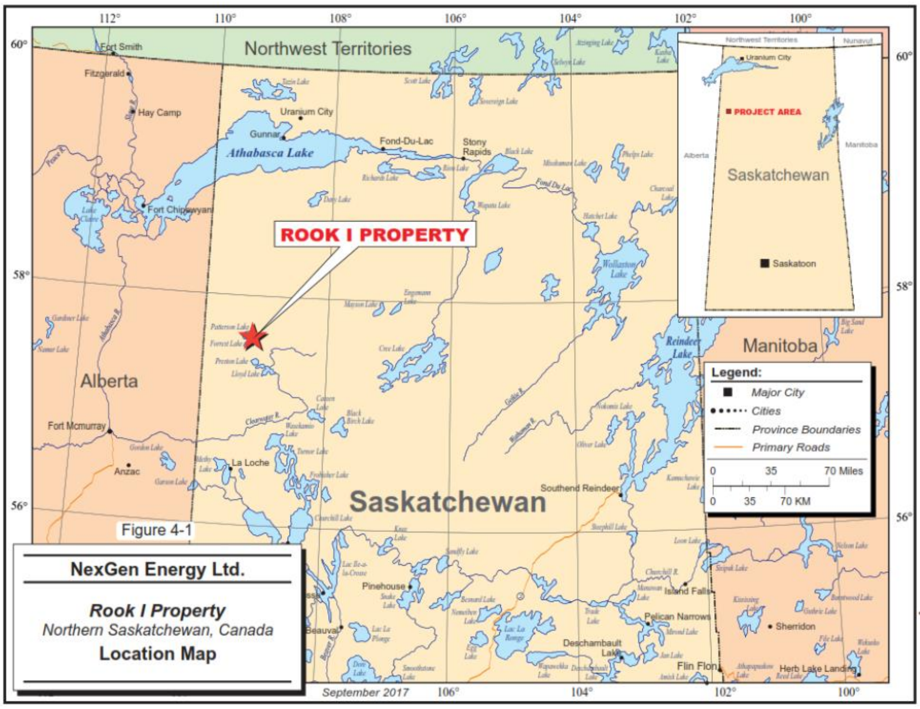
Quick Read

NexGen Energy's (TSX:NXE) Arrow deposit, part of the Rook 1 Property, is undoubtedly the best undeveloped uranium project globally. The reserve of 3.4Mt @ 3.09% U_3O_8 for 234.1Mlb U_3O_8 is the highest grade globally (resource 348.3Mlb @ 2.0% U_3O_8). On an analogous basis, the recoverable reserve equates to ~4Moz of gold (at spot U_3O_8 and gold prices). At steady state, the project will be the 2nd or 3rd largest uranium mine. While NXE is TSX listed, it is included in this report as the Company has stated an interest in dual listing on another exchange such as the ASX.

Overview

Outstanding PFS: The 2018 Arrow PFS outlined a 9-year operation processing ~455ktpa and producing 25.4Mlbpa U_3O_8. Development capex is estimated at C$1.2B and average LOM AISC will be amongst the lowest of any uranium mines globally at US$11.77/lb. At US$50/lb price, the project generates ~91% operating margins and C$909m in post-tax cashflow. At this price, the company derives a C$3.7B NPV_8 and a 57% IRR with a 1.2-year payback on capital. At the current spot price (~US$30/lb), a level at which most uranium projects are unprofitable, Arrow still generates a positive NPV_8 and IRR. There is significant upside to the mine life which only incorporates indicated resources from the A2 and A3 lodes. Circa 91Mlb U_3O_8 remains in inferred resources, including the lower grade A1 and A4 lodes with 40Mlb U_3O_8 @ 0.79% U_3O_8. Regional targets along the ~15km mineralised trend include the Harpoon, Bow and Cannon prospects. Closer to the mine, the A0 prospect is proving to contain considerable mineralisation on a parallel shear.

Figure 47. Location map for Rook 1



Source: NEX

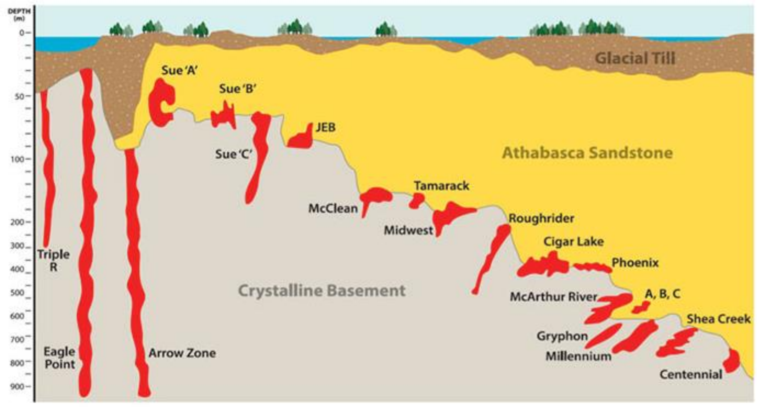
Shallow, high grade

The Athabasca Basin is host to many of the world's highest grade uranium deposits

The Athabasca Basin is host to many of the world's highest grade uranium deposits including Cameco's (TSX:CCO) McArthur River, the largest mine globally. Apart from high-grade, Arrow has a number of de-risking advantages over its Athabasca peers. These include: (1) shallow depth, within 100m of surface; (2) not located under a lake; and (3) hosted entirely within basement rocks, favourable for underground mining. Deposits such as CCO's Cigar Lake are hosted in the poorly consolidated Athabasca Sandstone which provides poor underground mining conditions and complications from groundwater. This mine employs highly sophisticated ground freezing, adding to mine complexity and cost.

Apart from high grade, Arrow has a number of advantages over peers, including shallow depth, not being under a lake, and hosted entirely within basement rocks

Figure 48. Comparison of uranium deposit setting in the Athabasca Basin



Source: NEX

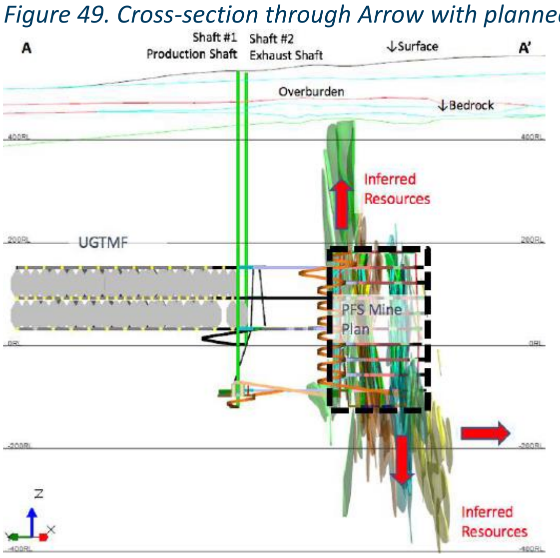
Permitting will be key

A key risk is the expected long-dated permitting process

The key risk to Arrow is a long dated permitting process. While Saskatchewan has a history of uranium mining, permitting a new mine is expected to be lengthy. To facilitate/expedite this process, NXE has developed strong relationships with local traditional owner groups and designed an innovative Underground Tailings Management Facility (UGTMF) which limits the project's surface footprint. In late 2019, the Company entered into Study Agreements with four local communities within the project area, enabling formal engagement with the communities to identify potential impacts, treaty rights and socio-economic interests to identify potential avoidance and accommodation measures.

NXE has developed strong relationships with traditional owner groups and innovative methods to limit the project's surface footprint

Figure 49. Cross-section through Arrow with planned underground infrastructure



Source: NEX

Gold

Dandoko Project

Current Share Price $0.205

Ticker:		**OKU**
Sector:		**Metals & Mining**
Shares on Issue (m):		**503.6**
Market Cap ($m):		**103.2**
Cash Est. ($m)		**19.7**
Debt Est. ($m)		**Nil**
Enterprise Value ($m):		**83.5**
52 wk High/Low:	**$0.37**	**$0.13**
12m Av Daily Vol (m):		**805**

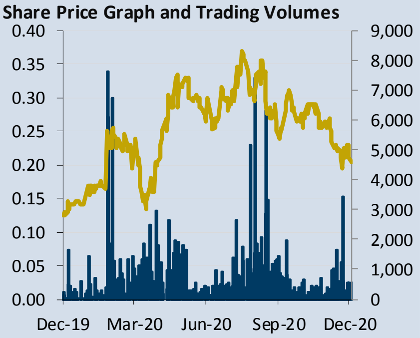
Projects	**Stage**
Dandoko Gold Project	Resource Development

Cashflows	**2019**	**2020**
Operating Cashflow	-0.9	-1.4
Investing Cashflow	-11.2	-9.8
Financing Cashflow	0.2	17.5
Cash Balance	6.5	12.7

Directors:	
Mark Connelly	Non-Executive Chairman
Simon Taylor	Managing Director
Madani Diallo	Executive Director

Substantial Shareholders:	**%**
BlackRock	12.1%
Resolute	10.8%
Ruffer	9.7%
1832	5.0%

Share Price Graph and Trading Volumes



Oklo Resources (OKU)

Cracking the code

Quick Read

OKU is slowly unlocking the geological code of its Dandoko Project in west Mali. The project sits in the Senegal-Mali Shear Zone in the shadow of a number of major gold deposits including B2 Gold's Fekola (7.1Moz) and Barrick's Gounkoto (5.4Moz). The key focus within Dandoko is the Seko prospect which comprises five auger gold trends (SK1-5) with a combined strike length of ~7km.

Key Points

Deep oxide gold at SK1: The best mineralisation to date is in the SK1 prospect with intercepts such as 47m @10.97g/t Au and 32m @ 10.57g/t. The area is deeply weathered to a depth of ~200m. Unlike the SK2 prospect, OKU is yet to vector in on the underlying fresh rock gold zone. A 5,000m program is currently underway targeting primary mineralisation.

SK1 – Koko corridor: OKU discovered shallow mineralisation at the Koko prospect, 2km south of SK1 in early-2020 with intercepts of 37m @ 3.24g/t Au from 11m and 29m @ 3.52g/t Au from 36m. This has opened up a prospective corridor with auger drilling identifying other potential shoots between the two prospects.

Favourable metallurgy: Initial testwork from Seko showed CIL leach recoveries up to ~94% in oxide material and ~88% in fresh rock (75µm and 54µm grind respectively). Leach kinetics are excellent with 96% of extractable gold recovered in ~8 hours and gravity recovery was 30-53% at a 75µm grind.

Next steps: A maiden resource estimate is due imminently, which will likely be followed by a Scoping Study. The current drill program comprises 15,000m including 10,000m along the SK1 to Koko trend. Metallurgical test work is also ongoing.

View

Argonaut does not have a project level valuation for Dandoko. Recent transactions for West African gold projects have had EV/Resource valuations ranging between A$60-100/oz. We estimate that the maiden Resource could contain between 600-800koz.

Project Overview

Dandoko is located in west Mali

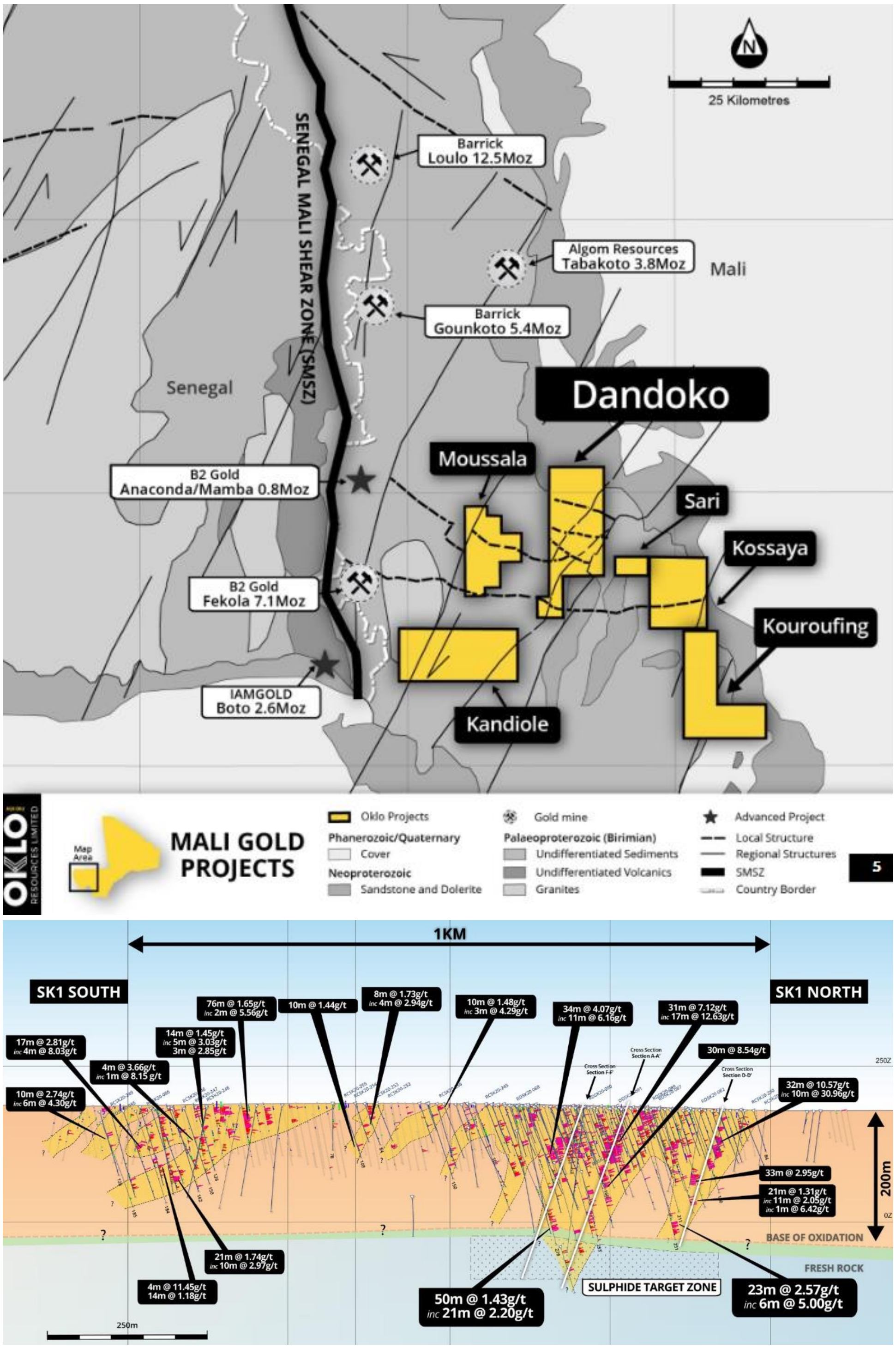
Dandoko is located in west Mali on an interpreted splay fault off the prolific gold Senegal-Mali Shear Zone which has an endowment of +40Moz. The project covers an area of 134km^2 and is just 30km from the Fekola deposit. The Seko prospect consists of five gold trends, with the largest being SK1.

The Seko prospect consists of five gold trends, with the largest being SK1

A maiden resource estimate is expected soon, which will likely be followed by a Scoping Study

A key risk is the political risk in Mali

Figure 50. Regional map of west Mali (top). Long section through SK1 (bottom)



Source: OKU

Rutile (TiO_2)

Kasiya Project

Current Share Price $0.38

Ticker:		**SVM**
Sector:		**Metals & Mining**
Shares on Issue (m):		**394.2**
Market Cap ($m):		**149.8**
Cash Est. ($m)		**3.2**
Debt Est. ($m)		**Nil**
Enterprise Value ($m):		**146.6**
52 wk High/Low:	**$0.45**	**$0.08**
12m Av Daily Vol (m):		**535**

Projects	**Stage**
Kaysia Rutile Project	Resource Development

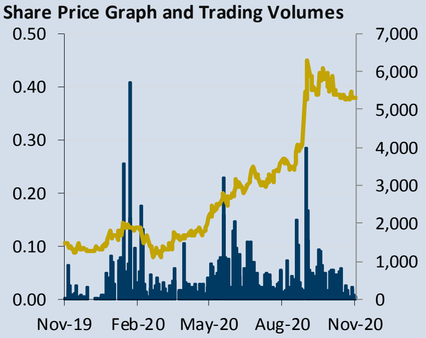
Mineral Resource	**Mt**	**% TGC**	**TGC Mt**
Kaysia	150.9	7.2	10.8

Cashflows	**2019**	**2020**
Operating Cashflow	-4.9	-4.1
Investing Cashflow	0.0	-0.1
Financing Cashflow	5.2	2.3
Cash Balance	4.2	2.4

Directors:	
Ian Middlemas	Non-Executive Chairman
Julian Stephens	Managing Director
Mark Pearce	Non-Executive Director

Substantial Shareholders:	**%**
Ian Middlemas	4.1%
Mark Savage	3.8%
Julian Stephens	2.9%
Grant Paterson	2.7%

Share Price Graph and Trading Volumes



Sovereign Metals (SVM)

Rare Rutile

Quick Read

While Sovereign Metals' (SVM) Kasiya Rutile Project is still very early stage, it is shaping up to be a globally significant discovery. Kasiya's uniqueness is derived from the dominance of high TiO_2 comprising rutile, as opposed to most mineral sands projects which are primarily lower grade ilmenite products. Rutile is considered to be in structural deficit with traditional mine supply declining. Rutile as a TiO_2 feedstock has a substantially lower environmental impact than high energy and chemical consuming synthetic rutile and chlorite slag products.

Overview

Something different: As opposed to most mineral sands deposits which form via the concentration of heavy particles via wind or wave action in dune or strandline, the Rutile in SVM's Malawian Projects has formed in situ via the mass reduction/weathering of a titanium rich parent rock. Mineralisation starts from surface and covers vast areas. The Company has focussed in on one of the highest-grade accumulations at the Kasiya deposit.

Maiden resource due imminently: SVM is due to release a maiden resource in the December quarter 2020. The project is most likened to Iluka's Sierra Rutile which has a resource of 739Mt @ 1.1% rutile (based on recoverable rutile) and produces ~137ktpa of product. While the Company has not released a resource target for Kasiya, we believe it has the potential to rival Sierra Rutile in scale (though not in the initial resource estimate). Rutile grades based on reported drill intercepts look to be on par or slightly lower than Sierra Rutile.

Favourable metallurgy: Argonaut's initial concern was the recovery impacts of Kasiya's angled and poorly sorted rutile grains, versus traditional mineral sands projects which contain rounded grains. However, initial testwork by Allied Mineral Laboratories (AML) in Perth has shown Kasiya to be amenable to traditional mineral sands separation, namely screening, desliming, spirals and/or shaking tables. Tests have been able to produce a 96% TiO_2 product with very low deleterious matter, such as iron and chromium. Kasiya produces very favourable product sizing at d_{50} of 145µm (+75µm is typically preferred by pigment producers). The raw feedstock has very high slimes of 45%, of which ~15% is clay. First stage slimes removal will be one of the biggest operational challenges for the project.

Project Valuation

Due to the early stage nature of the project, Argonaut has not compiled a DCF valuation.

Project overview

SVM's Malawian tenure covers >3,700km^2

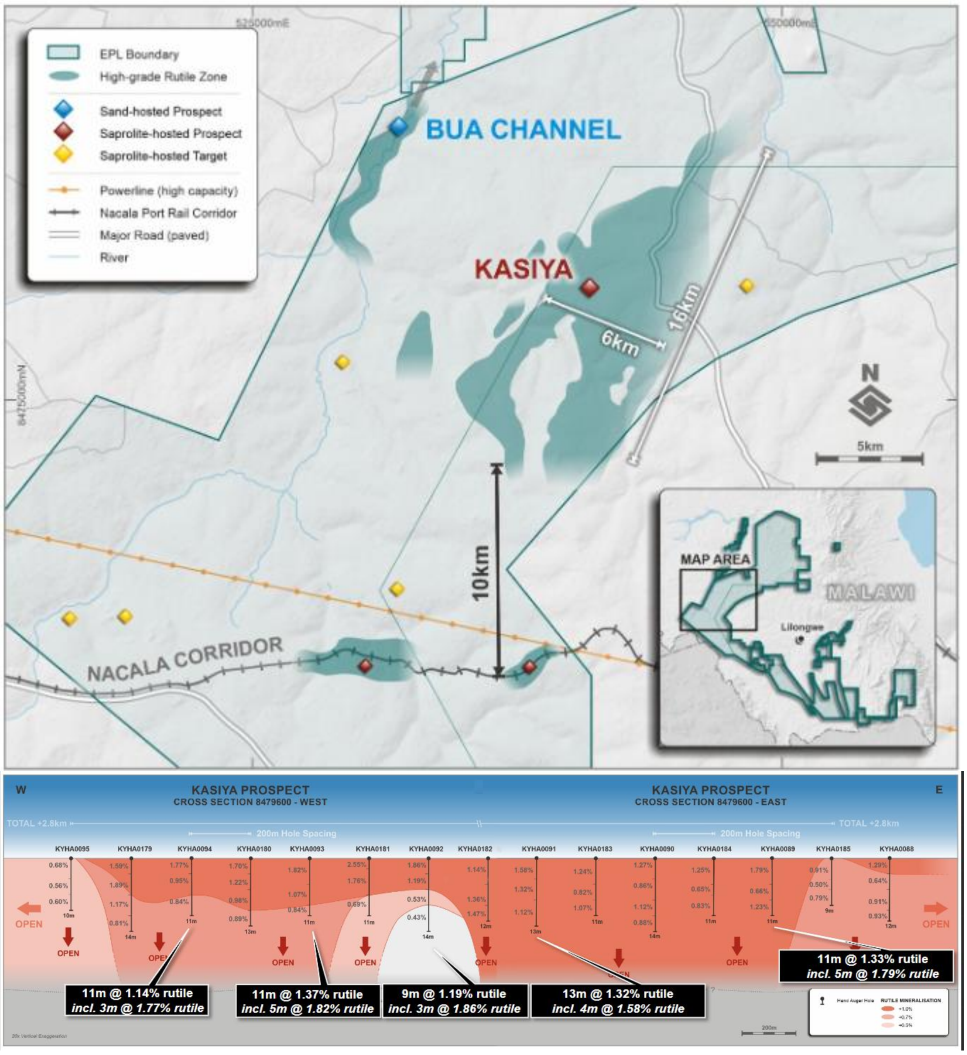
SVM's Malawian tenure encircles the country's capital Lilongwe and covers >3,700km^2. Kasiya has been identified as a higher-grade area which extends over an area of 16km with widths up to 6km equating to ~66km^2. Thicknesses range from ~6m to 16m, and most commonly mineralised from surface. Rutile is hosted in quartz-rich free-digging saprolite material. Most drilling to date has been conducted by auger and terminated at the water table. SVM was originally focussed on graphite exploitation which is also enriched in saprolite. A PFS on the Malingunde Graphite Project was released in 2018. This study has provided key details and relationships for logistics from landlocked Malawi which can be applied to mineral sands products. The Company has established an MOU with Mitsui and Vale for product transport via rail (from Tete coal mine) to the Nacala Port in Mozambique. There are sealed roads within 2km of the project and a rail spur within 10km. Grid power is expected to be available in the future and the capital Lilongwe can provide labour and key services. Water is abundant in the region.

Kasiya is a higher-grade area which extends over an area of 16km with widths up to 6km equating to 66km^2

Figure 51. Location map of the Kasiya Rutile Project (top) and cross section of typical mineralisation (bottom)

Rutile is hosted in quartz-rich free-digging saprolite material

A prior study on a graphite project provided details on the potential logistics chain which can be applied to mineral sands



Road and rail access is nearby, water readily available, and grid power expected in the future

Source: SVM

Copper -Gold

Stavely Project

Current Share Price $0.95

Ticker:		**SVY**
Sector:		**Metals & Mining**
Shares on Issue (m):		**261.0**
Market Cap ($m):		**247.9**
Cash Est. ($m)		**31.4**
Debt Est. ($m)		**Nil**
Enterprise Value ($m):		**216.5**
52 wk High/Low:	**$1.01**	**$0.28**
12m Av Daily Vol (m):		**696**

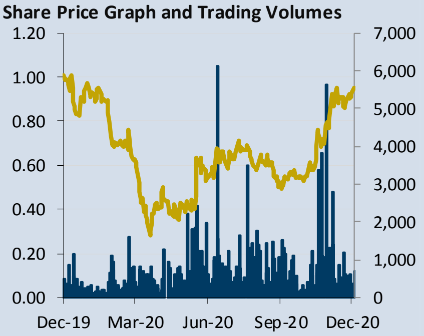
Projects	**Stage**
Thursday's Gossan	Exploration

Cashflows	**2019**	**2020**
Operating Cashflow	-7.3	-11.3
Investing Cashflow	-0.4	-0.3
Financing Cashflow	4.0	18.2
Cash Balance	2.9	9.5

Directors:	
Christopher Cairns	Executive Chairman, MD
Jennifer Murphy	Technical Director
Peter Ironside	Non-Executive Director
Amanda Sparks	Non-Executive Director

Substantial Shareholders:	**%**
Peter Ironside	12.2%
Greenstone Property Pty Ltd	4.2%
Christopher Cairns	3.1%
Jennifer Murphy	2.0%

Share Price Graph and Trading Volumes



Stavely Minerals (SVY)

Thursday has Arrived

Quick Read

SVY has been methodically exploring its namesake Stavely Project since IPO in 2014. While targeting a high-grade porphyry core to a large near-surface copper blanket, drilling uncovered lode-style mineralisation. The discovery hole in the Carley Lode intercepted 32m at 5.9% copper, 1.0g/t gold and 58g/t silver, from 62m downhole, including 12m at 14.3% copper, 2.3g/t gold and 145g/t silver.

Key Points

A big system: The Cayley Lode has been defined over a 1.5km strike and down to ~300m below surface. The average thickness is estimated at 10-50m. At least three mineralised structures have been identified to date. Thursday's Gossan has been likened to the Butte and Magma deposits in the US. These deposits have high-grade structurally controlled lode-style Cu-Au-Ag mineralisation (as per the Cayley Lode) with a porphyry metal source at depth. Cayley is structurally complex, with offsetting low angle faults such as the LAS fault, and in places mineralisation looks to be stopped out by later intrusions. Deep intercepts from previous porphyry targeted drilling, such as 38.3m at 1.6% Cu, 0.27g/t Au and 8g/t Ag from 890m, show that the system has deep plumbing.

Ongoing work: SVY is currently drilling with four diamond rigs for resource definition of the Cayley Lode. An additional two drill rigs will be on site in November to undertake deep (~1,500m) holes to test underlying porphyry potential. A recent seismic survey interpreted the top of the main porphyry system to be 1-1.2km below surface. A maiden resource for the Cayley Lode is due Q1 2021, which will be followed by a Scoping Study. A large section of the prospective strike to the south remains untested due to land access issues. As such, the resource is likely to encompass only the northern 600-700m of strike.

Development scenario: While the project is pre-study, we envisage an initial open pit followed by an underground operation into the Cayley Lode. Given the strike extent and ore widths, a 1-1.5Mtpa underground operation looks achievable. Permitting can be an onerous process in Victoria, therefore we would not expect production within a four-year timeframe.

View

Argonaut has not completed a DCF valuation for the Stavely Project, however we recognise it is a rare large-scale copper discovery, located in a first world jurisdiction. We note that copper is classified as a strategic commodity for a number of mid to large cap miners, and most quality copper projects have been subject to acquisitions in recent years (examples include Mod Resources' Botswana Project, Finder Resources' Wear Project and Avanco Resources' Brazilian projects).

Project Overview

The Stavely Project is located in western Victoria

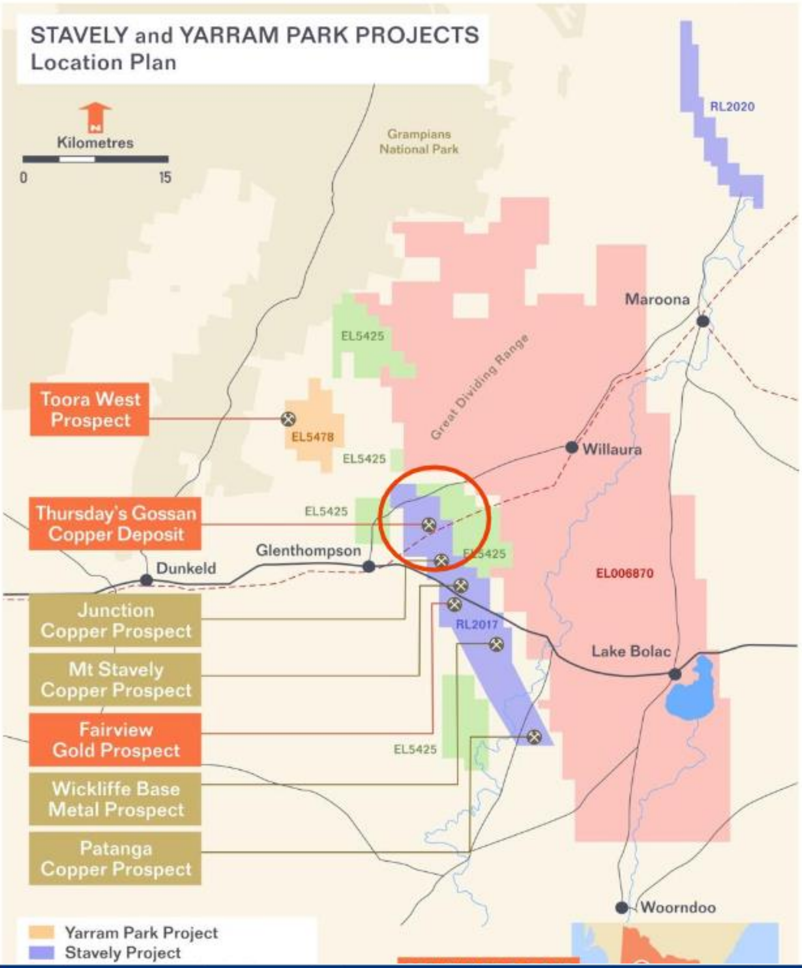
The Stavely Project is located in western Victoria in Australia and the Company's tenure covers 1,461km^2. The Thursday's Gossan prospect has a current resource of 28Mt at 0.4% copper for 110kt of contained copper within a large chalcocite blanket ranging from 30-80m below surface. The project is situated on broadacre farmland with rail running through the project with a gazetted rail siding. This rail leads to ports in both Victoria and South Australia, in close proximity to Hillgrove Resources' Kanmantoo copper processing facility.

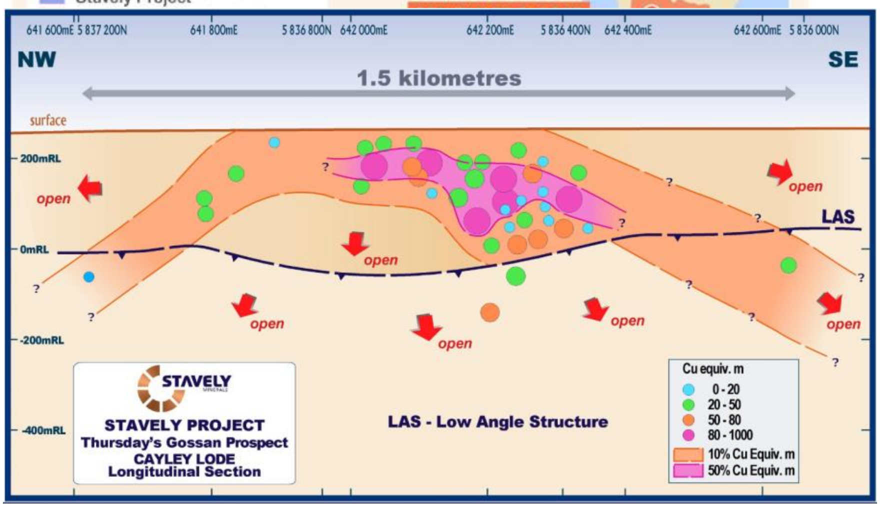
The Thursday's Gossan prospect has a current resource of 28Mt at 0.4% Cu for 110kt contained Cu

SVY is currently drilling for resource definition of the Cayley Lode

It is a large-scale copper discovery in a first world jurisdiction, although we note permitting can be an onerous process in Victoria

Figure 52. Location map of Stavely Project (top). Long section of the Cayly Lode (bottom)





Source: SVY

Gold

Abujar Project

Asset Valuation	$696m
Current Share Price	$0.44

Ticker:		**TIE**
Sector:		**Metals & Mining**
Shares on Issue (m):		**451.8**
Market Cap ($m):		**198.8**
Cash Est. ($m)		**60.4**
Debt Est. ($m)		**Nil**
Enterprise Value ($m):		**138.4**
52 wk High/Low:	**$0.74**	**$0.13**
12m Av Daily Vol (m):		**858**

Projects	**Stage**
Abujar Project	Resource Development

Mineral Resource	**Mt**	**g/t Au**	**koz Au**
Abujar Project	81.2	1.20	3,020

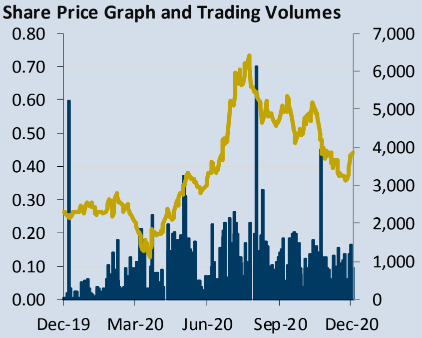
Cashflows	**2019**	**2020**
Operating Cashflow	-5.3	-9.0
Investing Cashflow	0.0	-0.9
Financing Cashflow	4.2	16.4
Cash Balance	4.9	11.4

Directors:

Francis Harper	Non-Executive Chairman
Caigen Wang	Managing Director
Mark Strizek	Executive Director
Hanjung Xu	Non-Executive Director
Paul Kitto	Non-Executive Director

Substantial Shareholders:	**%**
Hongkong Ausino	9.9%
1832	7.2%
Inner Mongolia Geological	5.2%

Share Price Graph and Trading Volumes



Tietto Minerals (TIE)

Got Momentum

Quick Read

TIE recently released an updated resource for its Abujar Project in Cote d'Ivoire with 3.0Moz @ 1.2g/t. The resource has grown rapidly from 0.7Moz when the Company listed in 2018. A final investment decision is targeted by H2 2021, which could see the project in production by late-2022 to early-2023.

Key Points

Largest undeveloped gold project in Cote d'Ivoire: Abujar is currently the largest undeveloped gold project in the hands of a listed company in Cote d'Ivoire. Following a spate of M&A in West Africa earlier this year, we believe the project could be a target for a number of mid-cap gold miners active in the area, including Endeavour Mining (TSX:EDV), Nord Gold (private unlisted), Zijin Mining (HK:2899), RoxGold (TSX:ROXG), Shandong Gold, Perseus (PRU) or Resolute Mining (RSG). As Abujar contains a high proportion of its ounces in narrow, pinching and swelling quartz veins Argonaut (and potential acquirers) will be looking for grade consistency as the drill density is increased.

Higher grade sub resource: The resource is currently split over three deposits, the higher grade Abujar Gold (AG: 2.3Moz @ 1.5g/t) to the north, the lower grade Abujar-Pischon-Golikr (APG: 0.7Moz @ 0.7g/t) and the recently defined South Gamina (SG: ~20koz @ 1.4g/t). There is a high-grade sub-resource in the northern AG deposit of 1.6Moz @ 2.2g/t. We see potential to exploit this zone in the early years of the potential mine to produce +150kozpa and expedite payback on development capital.

Excellent metallurgy: One of the strongest attributes for Abujar is its favourable metallurgical properties. This includes 96% gold recoveries at a 180 µm grind size, with up to 84% recovery from gravity alone and a low Bond Work Index of 12.02 in fresh rock. This should lead to simple, low power drawing, low cost processing with modest upfront capital requirements (smaller comminution circuit and less leach capacity than comparable throughput gold plants).

Exploration upside: Abujar encompasses a prospective structural corridor over 70km long with the AG and APG deposits covering just ~5km. Less than 10% of the tenement package has been explored to date, although TIE recently commenced a 70,000m drilling program across the Project. Over 20 additional targets have been identified north and south of AG-APG and along parallel structures, many of which have artisanal workings. TIE is one of the most efficient explorers in the gold sector with five self-owned and operated diamond rigs. Drilling costs are ~US$35/t lowering discovery cost per resource ounce.

View

Argonaut models a 2.5Mtpa operation treating ~23Mt @ 1.8g/t Au over a 10-year mine life. We incorporate a high grade, low strip starter pit in the northern area of the AG grading 2.0g/t with a 5:1 waste:ore strip ratio producing ~155kozpa. We decrease our head grade and increase our strip ratio over time to achieve life of mine (LOM) averages of 1.8g/t feed and 8:1 strip. We achieve a post-tax project level NPV_{10} of $696m.

Project Overview

Abujar is located in western Cote d'Ivoire

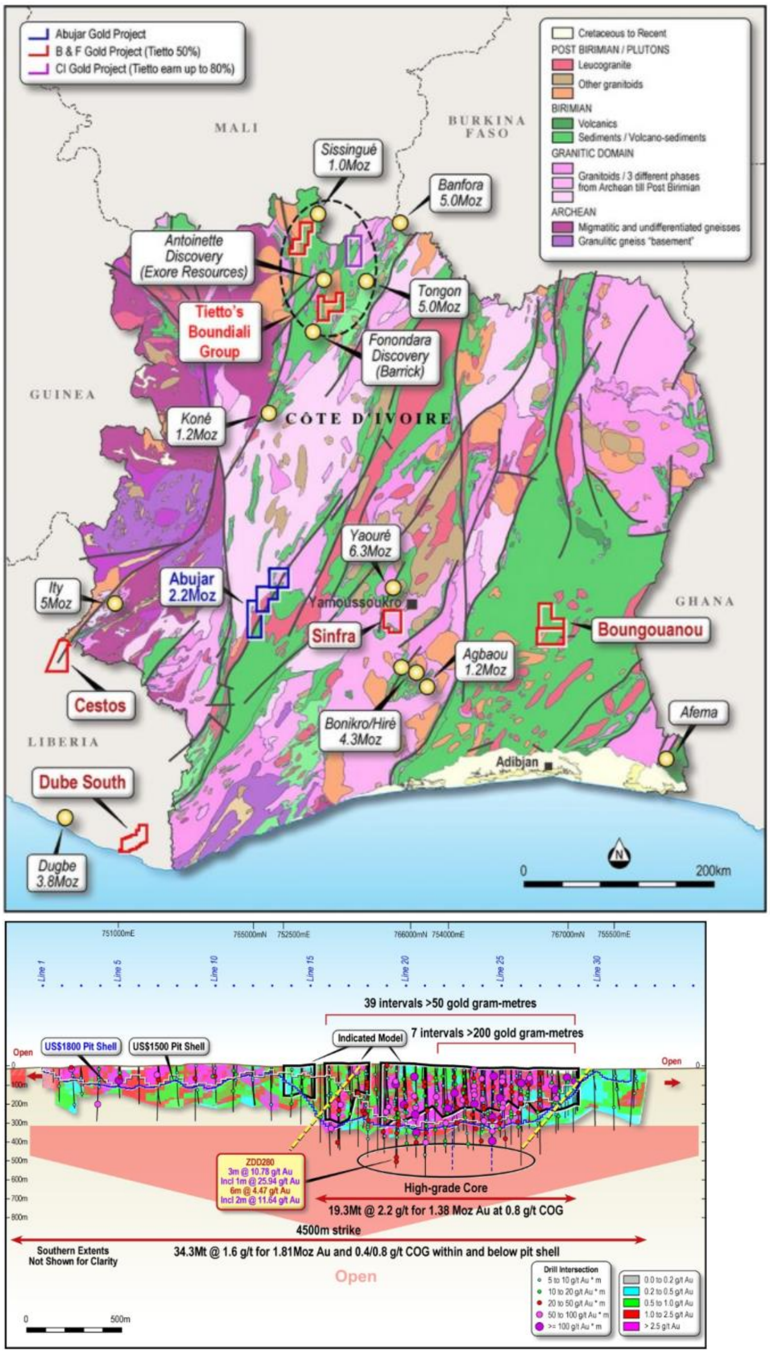
Abujar is located approximately 30km from the major regional city of Daloa in Western Cote d'Ivoire (population ~245k). The project is 18km from a major highway and ~30km from a 90kV substation to access low cost grid power (US$0.12/kWh). TIE is working towards a PFS which is due for release Q1 2021. Argonaut expects a 2.5-3.0Mtpa standalone operation with potential for up to 3.5Mtpa from open pit mining. The deposit comprises 5-6 structurally hosted stacked lodes mineralised from surface, with high-grade gold occurring in narrow quartz veins with a broad low-grade halo. This should allow for low strip, bulk open pit mining. Mineralisation has been defined to +500m below surface which may support later stage underground mining. Over 61,000m has been drilled to date.

TIE is working toward a PFS due for release next quarter

Figure 53. Map of the Abujar Project (top). Long section of the high-grade AG lode (bottom)

The deposit comprises 5-6 structurally hosted stacked lodes mineralised from surface, with high-grade gold occurring in narrow quartz veins with a broad low-grade halo

This should allow for low-strip, bulk open pit mining



Source: TIE

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This report was largely authored by Matthew Keane in his capacity as Director, Metals & Mining Research, while he was in Argonaut's employ.

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- Located in Perth, Western Australia a regional centre for metals & mining and energy industries, and Hong Kong, the Asia Pacific financial centre.
- Technically driven and focused on Metals & Mining, Energy, Agricultural and businesses that service the natural resource sector along with selected industrial companies with market capitalisations of A$50 million to A$5 billion.
- Led by an experienced executive team with deep industry knowledge, who have previously held senior executive roles at leading international investment banks and securities houses.
- Recognised, in our target markets, as a trusted advisor with a strong track record of success.
- Provider of high quality integrated services across the full capital spectrum - from senior debt to ordinary equity.

Argonaut is focused on providing clients with high quality integrated services across the full capital spectrum and entire company life cycle

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<tr><td>› Focused on providing independent advice and customised capital raising services across the full spectrum of equity and debt products
› Significant cross border expertise and proven execution capabilities
› Extensive global relationships with leading equity and debt providers and specialist financiers
› Strong ECM capability with Argonaut leading and/or participating in raisings totalling more than $4 billion since 2009
› Advised on or arranged project finance and structured debt of approx. $3 billion since 2009</td><td>› Focused on providing trusted, unbiased advice to private and public companies and boards
› Specialist resources, agribusiness and resources services M&A advisor, most active in Australia for the sector
› Delivering dedicated senior-level attention relative to larger investment banking firms
› Ability to think creatively and successfully execute challenging transactions
› Considerable cross-border experience and expertise
› Advised on M&A transactions in excess of $5.0 billion since 2009</td></tr>
<tr><td rowspan="2">Market Activities</td><td>Stockbroking & Research</td><td>Special Situations</td></tr>
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› Focused on institutional, corporate and high net worth investors
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› Active company road show and site visitation programme
› On-going after market support for corporate ECM clients
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› Strong relationships with other special situation investors, providing the capability to complete transactions ranging in size from $1 million to in excess of $100 million
› Leveraging upon Argonaut’s strong advisory and equity market expertise</td></tr>
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