Research as a Service

Galileo Mining Limited

Scoping Paper

Riding the Cobalt wave

Mining and exploration

12 November 2018

Galileo Mining (GAL.ASX) is a junior minerals company exploring for nickel-cobalt-copper in Western Australia. The company listed on the ASX on May 29 2018 after raising $15m at $0.20/share. Galileo has commenced evaluation programmes on its Norseman and Fraser Range assets with Norseman activity aiming to move this project through a scoping study phase towards development. Importantly Norseman has been ascribed a JORC MRE of 20Mt containing some 22.5kt Co and 106kt Ni as the basis for economic evaluation. The demand for cobalt looks strong over the medium to long term with prices having surged over 2018. Although metal pricing may be volatile over the next 12-18 months, the economic opportunity appears robust with favourable industry metrics.

Scope

This report has been commissioned by Chapter One Advisory to present investors with an explanation of the opportunities presented by Galileo Mining Ltd's WA nickel-cobalt evaluation opportunities.

Business model

Galileo Mining is a junior minerals company established with the purpose of exploring and developing nickel, cobalt and copper in Western Australia. Although the Fraser Range projects are at an early exploration stage, the company's Norseman project is progressing its preliminary economic evaluation. The Company plans to further progress Norseman through a Scoping Study whilst continuing to explore and progress its other assets.

Scenario analysis

We have used applied a comparative methodology in our considerations based on an analogue pre-development model broadly defined under scoping parameters. Given the strong similarities of Norseman to the analogue model we are comfortable in applying the same data inputs. We note the Norseman project has a smaller MRE at this stage but adjust for that through a risk overlay. With GAL working through its own scoping study we highlight that our current assumptions could be subject to significant adjustment as more project specific data comes to hand.

Valuation of $0.32/share

Valuing pre-production assets is a subjective exercise, particularly when the resource is in a continuing evaluation phase. We use a discounted cashflow methodology to assign a 'likely' value to the resource where possible, applying a discretionary probability weighting as a secondary overlay to determine a Net Present Value (NPV). On this methodology we assign a base case valuation of $0.32/share to GAL ($0.24 ex-cash and corporate costs). **On a look-through basis, the reference share price ($0.185) would suggest the market is weighting the asset base at a commercial probability of ~10%** which does reflect an exploration outlook as appropriate but rather understates the potential upgrading and progress that can be delivered on Norseman over the next 6 months.

Share details

ASX Code	GAL
Share price (9-Nov)	$0.185
Market Capitalisation	$23.6M
Shares on issue	120.3M
Net cash at 30 Sep 2018	$10.1M
Free float	43.7%

Share performance (since listing)

Upside Case

- Potential for GAL to consider a smaller scale, higher grade, shorter-lead time development than modelled
- Resource potential could significantly expand on further positive exploration outcomes
- Co price (in particular) significantly higher than modelled through med-long term

Downside Case

- Capital, operating and financing assumptions maybe higher and more dilutive than modelled
- Co price (in particular) significantly lower than modelled through med-long term
- Timing of start-up could be later than modelled, particularly given the still early nature of the evaluation programme

Board of Directors

Brad Underwood	Managing Director
Simon Jenkins	Non-Executive Chairman
Noel O'Brien	Technical Director

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Galileo Mining Limited – Cobalt: a new (old) metal

Galileo Mining Ltd (GAL) is a recently (29-May) ASX-listed, mineral exploration company holding interests in various mining tenements situated near Norseman and the Fraser Range in Western Australia. Whilst still in an early evaluation stage, GAL is making progress with its Norseman Cobalt Project having defined two prospects (Mt Thirsty and Mission Sill) with JORC compliant resource estimates. Recently RC drilling has outlined a potential extension to these prospects and the company is working towards a scoping study for a cobalt development. Cobalt has become a new (old) commodity of choice on the back of projected expanding demand for the metal in the rechargeable battery industry which has underpinned a rapid rise in Co prices, peaking at US$43/lb (US$95,250/t) in late-March, 2018. There is no real consensus view (a wide range) on the demand and supply outlook for cobalt but the demand drivers do look dominantly positive and first pass economics on a mine development scenario look favourable at cobalt and nickel prices as low as US$21/lb and US$6.50/lb respectively.

Exhibit 1: GAL NAV – the share price reflects a <10% probability of commercial success

		Risked						
		Pr	A$mn	A$/sh	FY20	FY21	FY22	
Norseman	100%	15%	$23	$0.20	$0.26	$0.33	$0.22	Unwinding of risk diluted by scenario equity issue
Fraser Range	100%		$5	$0.04	$0.04	$0.05	$0.03	We assume only incremental progress
Other Exploration	100%	10%	$1	$0.00	$0.01	$0.01	$0.01	
			$29	**$0.24**	**$0.31**	**$0.39**	**$0.26**	
Net Cash/(debt)			$10	$0.08	$0.05	$0.02	$0.13	
Corporate costs			($1)	($0.01)	($0.01)	($0.02)	($0.01)	
TOTAL			**$39**	**$0.32**	**$0.36**	**$0.39**	**$0.38**	
Shares issued (mn)*	120				120	120	470	

Source: RaaS analysis; Issued capital adjusted for modelled equity raising on a scenario Norseman development

Valuation Considerations

We estimate the value of the Norseman Project to be ~A$23mn or A$0.20/share based on an average US$33.65/lb life of project cobalt price, ungeared and risk weighted (Pr=15%) development scenario.

Whilst the project is cum final resource definition, pre-feasibility and perhaps 'critical mass' resources, it is located in a province with an analogous project heading well into the PFS stage and in a strongly similar geological setting. Operating and capital costs should be reasonably well known and predictable within a small error margin.

Our analysis is based on the assumptions contained in the Scoping Study report of the **Mt Thirsty Cobalt Project** released by the Barra Resources Ltd (BAR.ASX), Conico Ltd (CNJ.ASX) JV (BAR JV) which is currently subject to PFS evaluation studies and projected to move through a PFS in 1Q19.

The most critical variable is the cobalt price and **we model the project scenario as being NPV positive at ~US$27/lb** (average over life of project scenario) but note given the modelling uncertainties (cost/timing) the project has the potential to be economic on a lower Co price deck**.**

Galileo has no currently producing assets so will be reliant on existing cash balances through the early stage of the evaluation process and equity financing in development phase. We assume a Norseman cobalt project would be funded, approximately 65% debt:35% equity.

Risk adjusted DCF Valuation at $0.24/share (ex-cash)

We value GAL using a combination of the estimated NPV of producing and development assets; and unit values on contingent resources adjusted for our discretionary project probability weighting (1-risk %), to derive a value per share. Probability weightings are subject to change as the company delivers key milestones.

Putting a value on GAL at this point in the evaluation of its assets is a subjective exercise with timing and capex estimates; and assuming successful progress on the Norseman cobalt project(s) leads to a development decision. Our estimates are underpinned by a significant number of assumptions and a probability weighted confidence assessment of ultimate commercial outcomes. The assignment of probability weightings is subjective, but initial data can be benchmarked against published scoping studies in the immediate (adjacent licences) based on an initial JORC certified resource estimate.

We use the project data of an analogue project, the Barra resources Mt Thirsty Cobalt project as a guide to determining the notional value on Norseman noting the differences in progress of both assets and the lower MRE defined at Norseman, which we account for in our risk (discount) overlay.

Our development scenario model delivers a value of ~A$23mn (A$0.20/share) on an ungeared basis (NPV(10) and Pr-15%).

We note the project is at an early stage and our development scenario and assumptions are subject to potentially significant change but intuitively we suggest our ascribed value is not unreasonable given the asset is located in a strongly similar geological setting and the error margins associated with scoping study analyses.

There's intrinsic upside from the next phase of exploration

Additional drilling conducted through the September quarter has delineated significant resource potential in prospects adjacent to the Mt Thirsty and Mission Sill project areas, with the potential for defined resources to grow up to and possibly beyond our base assumptions.

Ascribing a value to assets at a conceptual stage can be somewhat arbitrary, but this is often the nature of small-cap stocks.

We ascribe nominal values only against the remainder of the portfolio given the still dominantly exploratory nature of the work programmes and small budgeted spend over FY19, despite these being the legacy assets from listing. We do not imply there is no intrinsic value but rather reflect on the early stage activity and focus of capital and management effort towards the Norseman Project in the short-medium term.

A quick SWOT

More strengths than weaknesses we suggest.

Exhibit 2: SWOT Analysis and Comments

Strengths	Comments
Risk mitigation through experience	We suggest the company's experience and expertise across these specific assets represents an operating advantage not typical of smaller resources companies, built from prior management (particularly at Fraser Range) under the Creasy group, through the exploration phase.
* deeply embedded IP	
* management is hands on and focussed with a deep understanding of the assets	
Proximity and similarities of Mt Thirsty (BAR.AX) analogue	
* 'look and learn' with the potential for capex reductions and shortening lead times	We should know very rapidly where the development and operating synergies or advantages at Norseman lie. We have assumed conservative timing to start-up but recognise the potential for significantly reducing lead times through the 'look and learn' experiences of the Mt Thirsty project (where it applies).
Weaknesses	**Comments**
Norseman project is the only significant short-medium term event driver	…and the rationale for investment. Share price performance will likely be dependent on continuing positive results on Norseman irrespective of the outcomes on the prospective Fraser Range asset.
Capital constraints/financing and reliance of equity markets in the short term	Not unusual for small-cap resource stocks
'KEY man' risk	'Strengths can also be weaknesses' - strong embedded IP resides in the management team not necessarily at the corporate level and places a significant reliance on a few. It will be critical for the company to have management plans in place.
Uncertainty of Co project economics based on commodity price outlooks	Not unusual in a commodity sense when there has been a massive re-rating in the metal price…it is usually succeeded by commodity price volatility and potentially a pull back before trending to a long run outcome.
* 'Bear cases' with the potential to impact project timing	…there are always bear cases
Opportunities	**Comments**
Broad macro support on demand drivers through changes in technology and drive to increase battery use	Consensus analyses suggest the macro environment is strong and sustainable. Demand scenarios suggest there is significant opportunities for new suppliers to enter the market.
Dominant position of DRC as Co supplier	Does the market want to be at risk from a dominant supplier?
* buyers likely to support additional supply sources	Buyers like diversification of supply - less risk and more pricing pressure.
Potential to fast track Norseman project	Refer above - we have taken a conservative approach to timing assuming end-FY23. Could that be end-FY22(?)
Threats	**Comments**
Opaqueness of demand drivers	
Alternate battery technologies	
Dominant position of DRC as Co supplier	A dominant supplier can somewhat control supply growth.
* DRC and expansion capacity of existing mines (brownfields v greenfields)	Can expansion opportunities be fast-tracked at low cost?
Rush to market - there's a band-wagon effect at play from new entrants	Strong demand and a quantum change in metals prices lead to a rush to market with rising pressure on capital costs and availability of labour. Australia is pushing through a new wave of mining developments across the spectrum - there will likely be some capacity and capital constraints to emerge.

Source: RaaS analysis

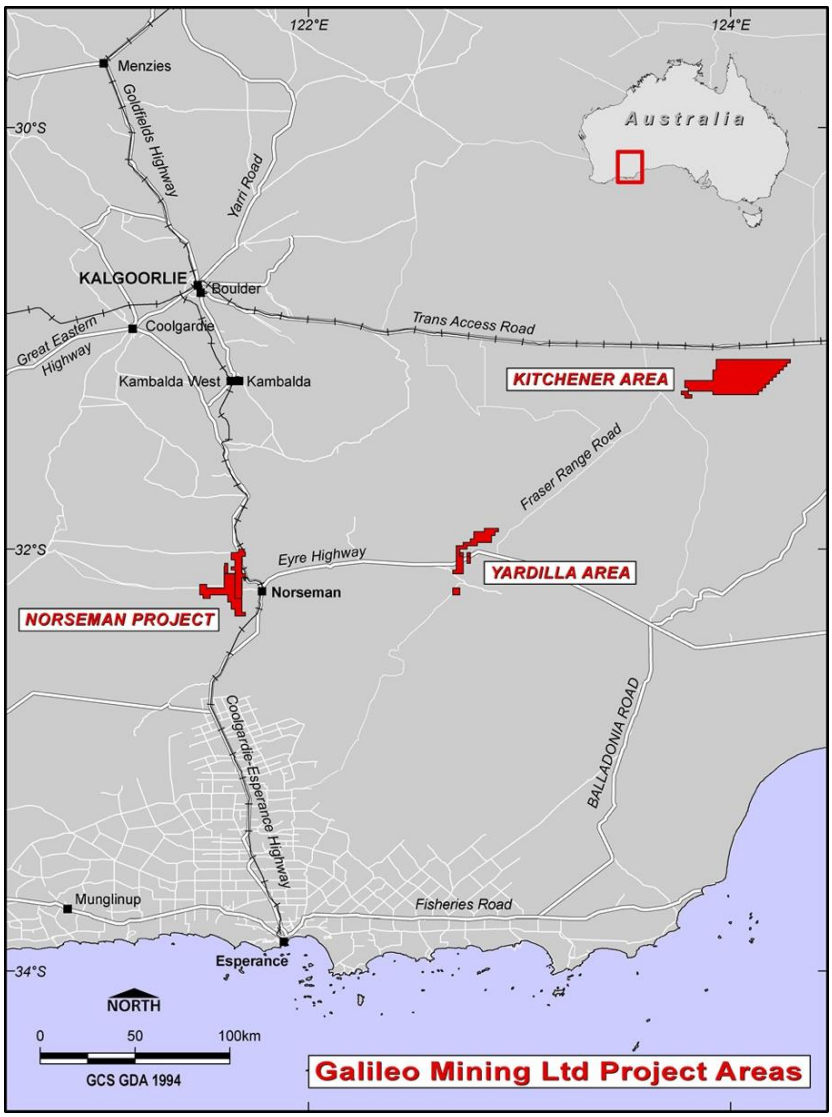
The first step – looking at the assets

Galileo has two highly prospective West Australian resource and exploration projects being:

- **The Norseman Cobalt Project**, being the most advanced of the company's projects with a JORC compliant cobalt-nickel resource (at the inferred/indicated category) and subject to more advanced evaluation post the recent RC and diamond drilling campaign; and
- **The Fraser Range Project** with exploration tenements prospective for nickel-copper-cobalt deposits…an early stage but prospective play. We recognise the potential for accelerated value accretion through exploration built upon the extensive embedded IP (particularly of the Managing Director) over a number of years working the assets, initially as GM of the Creasy group.

Putting a value on early stage exploration assets is somewhat problematic and is best done with reference to analogue scoping or pre-feasibility studies, particularly in adjacent tenements, certainly within the same geological setting.

Exhibit 3: In a highly prospective part of WA, in the midst of supportive infrastructure network and with access to an experienced workforce…a good place to start



Source: Company data

Norseman

The Norseman Project area is located adjacent to the regional town of Norseman within an extensive regional infrastructure-network including gas and water supply pipelines with easy access via sealed roads, rail and air to the major regional centres of Kalgoorlie and Esperance (and Norseman).

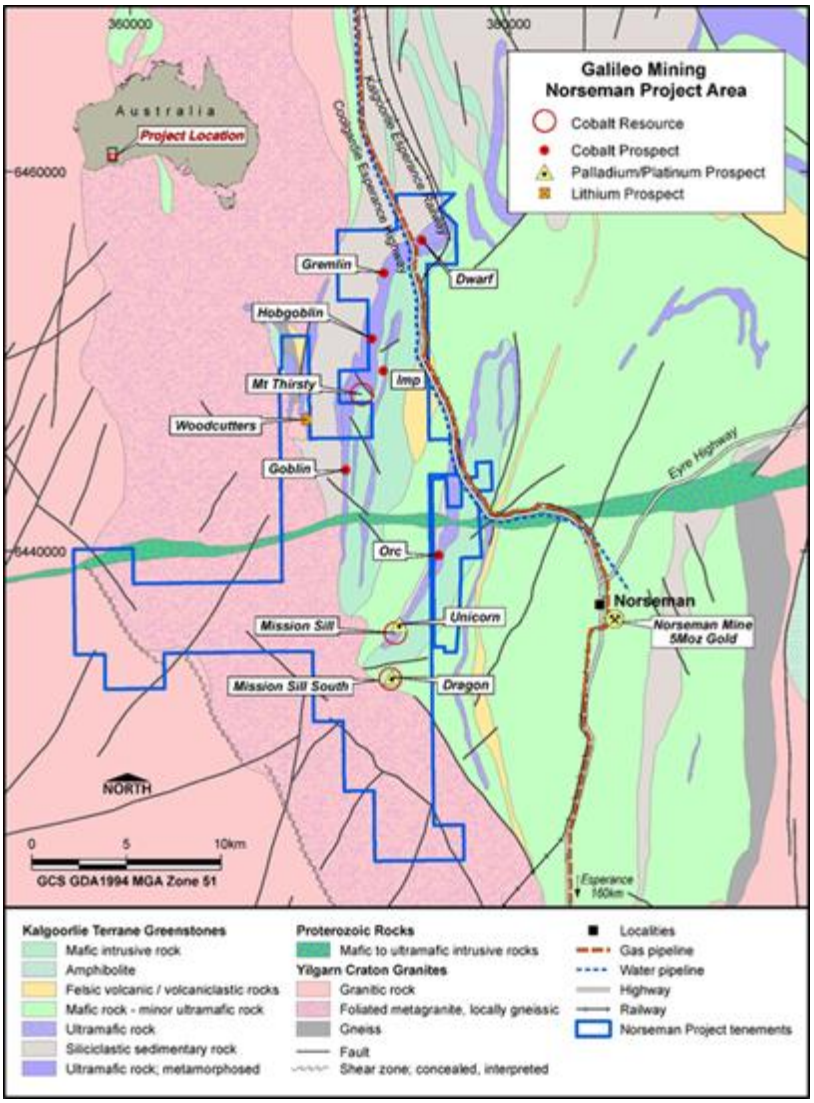
These population centres also provide access to a local and experienced workforce and support networks. This is important for building an economic case, particularly in a start-up situation.

The company has delineated two initial project areas based on the primary target (mineralised) zone of the Mt. Kirk Formation. Within the tenement area, the Mt Kirk Formation is intruded by two major mafic-ultramafic differentiated sills, the Mt Thirsty Sill and the Mission Sill.

The principal feature of the Norseman Project is cobalt, nickel and manganese oxide mineralisation overlying the Mt Thirsty and Mission sills forming a blanket-style deposit from *in situ*, lateritic weathering of olivine-rich peridotite rocks.

Mineral Resources for cobalt have been estimated for Mt Thirsty and Mission Sill and the company has indicated that *"…metallurgical concept studies have shown a potential processing route for cobalt extraction using agitated vat leaching with SO_2 as a reagent".*

Exhibit 4: Aero-mag data and recent drilling point to additional cobalt plays



Source: Company data

We note that aero-magnetic data has indicated the potential for further cobalt-nickel targets, which has been somewhat verified by recent RC exploration drilling results which has broadly defined cobalt mineralisation over 2km of strike length at the new Goblin and Mission Sill South prospects.

The development potential is unlikely to be limited to the Mt Thirsty/Mission Prospects and we see a high likelihood of significant extensions to the existing declared mineral resources estimates.

We also note the company has tendered a Mine Lease application (M63/671) covering 654ha in the September quarter with environmental surveying and other permitting work ongoing.

More than just cobalt?

Whilst the primary focus of the company is on progressing the Norseman Cobalt Project, GAL has outlined additional mineral potential although the prospectivity is based on very early stage exploration results.

- **PGM mineralisation** has been reported in the Mission Sill prospect, based on a series of soil anomalies, mapped over ~6km of strike length and designated Unicorn (associated with the Mission Sill Co resource) and Dragon (Mission Sill South) refer Exhibit 3.

  The company has indicated that further drill testing is warranted based on the evolving geological model for the area.

- **Nickel sulphide potential** based on drilling results from the Barra-Conico JV on the western margin of the Mt Thirsty Sill. Grades up to 6m @ 3.4% and 2m @ 5.9% nickel were reported. This play, in the same stratigraphic horizon has not been tested on Galileo's licences but lying only some 1.3km to the south, it's likely the sulphide mineralisation extends into the company's holdings.

  Electromagnetic data has delineated four targets for drilling but subject to further geophysical evaluation. Another round of EM surveying of is planned for the December (current) quarter.

We mention these exploration opportunities only to highlight upside in the portfolio. Further evaluation work will be conducted on these prospects over the forecast period, but we assume expenditure will be allocated dominantly towards progressing the Norseman Co Project.

Fraser Range

The Fraser Range Project covers two zones along the 400km Fraser Range geological belt which is proven to be prospective for nickel mineralisation by the discovery of the Nova-Bollinger nickel-copper-cobalt mine in 2012 and Silver Knight deposit in 2015.

The Kitchener project is the northern tenement, ~230km east of Kalgoorlie with easy access along the main, heavy vehicle Trans-Access Road and numerous four-wheel drive tracks into the licences.

The Kitchener area is considered to be prospective for Ni-Cu-Co mineralisation.

The Yardilla project area comprises three tenements located ~100km east of Norseman straddling the Eyre Highway, with good quality station tracks providing easy access throughout the licence areas.

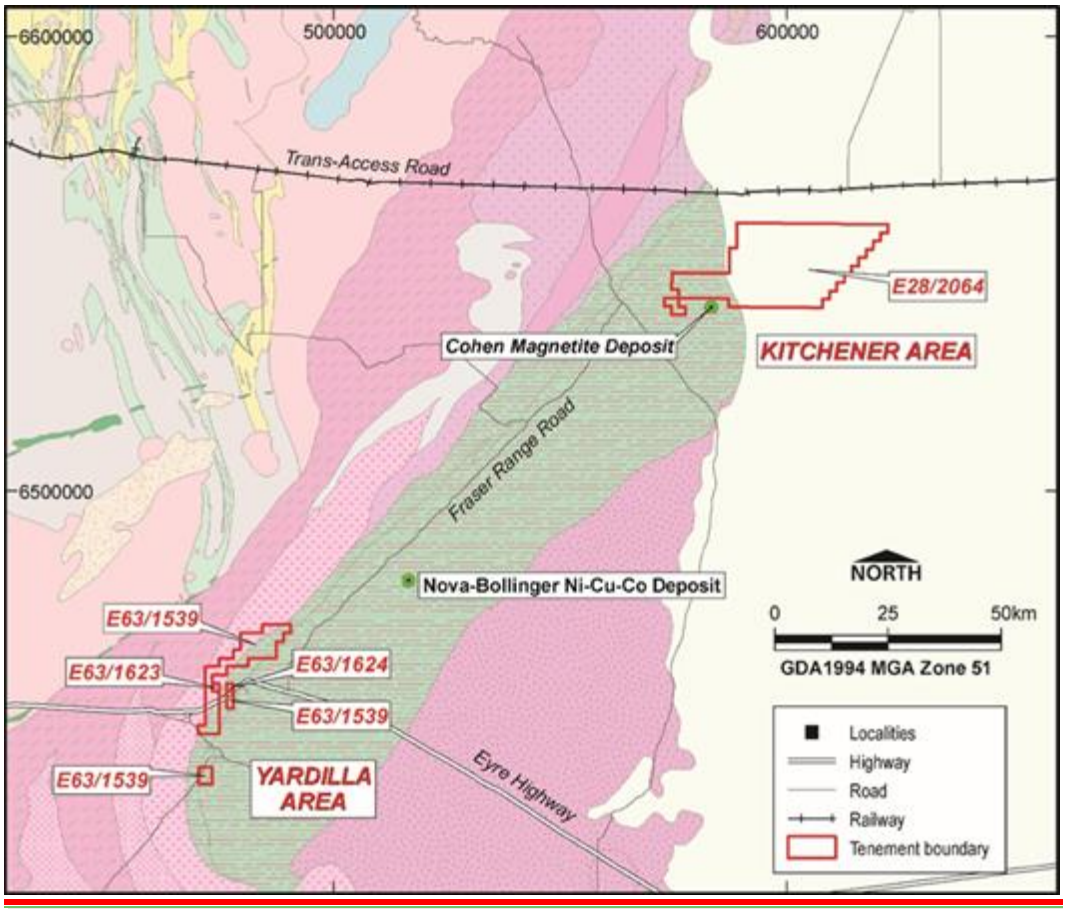
The Yardilla tenements encompass the Fraser Zone geological complex which is the host domain of the Nova-Bollinger massive Ni-Cu sulphide deposit, only ~35km northeast of Yardilla. Historical drilling in the southernmost Yardilla block intersected 0.2-1% Ni in a number of drill holes and elevated Cu and Co indicating potential for Ni sulphides. The Yardilla area is also considered to be prospective for gold.

The company has noted that although both the Kitchener and Yardilla areas can be considered prospective for Ni-Cu-Co, the extensive overburden and saline groundwater *"…provide challenging conditions for surface detection of conductive bodies, requiring careful and methodical application of modern scientific methods during exploration."*

The company has announced that recent drilling in the Empire Rose prospect (Yardilla area) has identified "*…anomalous zones of nickel in rocks similar to the those hosting the Nova and Silver Knight deposits*". It is worth highlighting that the discovery of the Silver Knight deposit was during the tenure of the GAL MD, Brad Underwood, then GM of the Creasy Group company that owns the deposit.

The initial results are not considered to be of economic grade, but geophysical data strongly suggests the potential for sulphide mineralisation at depth. A follow up IP geophysical survey is planned to refine targets prior to further drill testing.

Exhibit 5: Fraser Range permits – in prospective Ni-Cu-Co country



Source: Company data

We would add, however, that the prospectivity of the Fraser Range tenements appears points to be high (albeit somewhat speculative) at this early stage. There have been discoveries that could provide the basis for analogue analysis at a future date. We noted as commented to us by management, that 'Ni-sulphide deposits are hard to find but if found the value is exceptional'.

The address is attractive and the difficulty in 'finding' is somewhat offset by the experience and previous success of the management team and senior technical staff in these specific areas.

The attraction and prospectivity of the area can also be inferred from a recent Independence Group (IGO.AX) acreage transaction, whereby 70% of a parcel of tenements contiguous with the Nova development were purchased for $21mn on what can only be considered very early stage exploration results.

However, we need to be careful imputing the value of a transaction on acreage some 50km distant and 'contiguous' with a discovery as having more than an indirect look through for GAL at this point.

Based on market transactions and peer group capitalisation there is a case to be made for upside to our ascribed valuation. It's likely that upside will only be crystallised by positive results through the next phases of exploration and evaluation. Although somewhat conservative, we are comfortable with our carrying value.

A first cut on mineral resources

The company has declared a first pass Mineral Resource Estimates (MREs) of the lateritic Co-Ni mineralisation pertaining to the Mt Thirsty and Mission Sill prospects. The resources are reported at two cut-off grades, 600ppm Co and a 'high grade' component at 1,000ppm Co.

The total Indicated and Inferred MRE (JORC compliant) is:

- **20.2Mt grading 0.11% cobalt, 0.53% nickel and 0.74% manganese** at a cut-off of 600ppm cobalt, containing 22.5kt of cobalt and 106kt of nickel and:
- A higher-grade component of **8.8Mt grading 0.15% cobalt and 0.57% nickel** at a cut-off of 1000ppm cobalt.

Exhibit 6: 20Mt on a first pass basis is sufficient to underpin valuation scenarios

Cut-off Co, ppm	Class	Tonnes Mt	Co %	Co Kt	Ni %	Ni Kt	Mn %
MT THIRSTY SILL							
600	Indicated	10.5	0.12	12.1	0.58	60.8	0.71
	Inferred	2.0	0.11	2.2	0.51	10.2	0.71
	Total	**12.5**	**0.11**	**14.3**	**0.57**	**71.1**	**0.71**
1,000	Indicated	5.2	0.15	8.0	0.64	32.9	1.01
	Inferred	0.8	0.15	1.2	0.52	4.1	1.09
	Total	**6.0**	**0.15**	**9.2**	**0.62**	**37.0**	**1.02**
MISSION SILL							
600	Inferred	**7.7**	**0.11**	**8.2**	**0.45**	**35.0**	**0.80**
1,000	Inferred	**2.8**	**0.15**	**4.4**	**0.47**	**13.4**	**1.20**
TOTAL JORC COMPLIANT RESOURCES							
600		**20.2**	**0.11**	**22.5**	**0.53**	**106.1**	**0.74**
1000		**8.8**	**0.15**	**13.6**	**0.57**	**50.4**	**1.08**

Source: Company data; estimates by CSA Global in 2017 under the JORC Code (2012 Edition)

A Mt Thirsty look through from…Mt Thirsty

The best way to gauge the potential value of the cobalt opportunity for GAL is by reference to an analogue project, which, in this case, is located in immediately adjacent licences.

Our analysis is based on the assumptions contained in the **Mt Thirsty Cobalt Project – Scoping Study** released by the Barra Resources Ltd (BAR.ASX), Conico Ltd (CNJ.ASX) JV (BAR JV) which is currently subject to PFS evaluation studies and projected to move through a PFS in 1Q19. We outline the initial scoping parameters and assumptions in Appendix 1.

Whilst the GAL project is cum final resource definition and economic evaluation, it is located in a highly mineralised region in a strongly analogous geological setting where operating and capital cost assumptions should be transferable and predictable within the current scoping study error range (± 30-35%).

We don't suggest the Mt Thirsty (BAR JV) Project will be the definitive template for a GAL project, there are sufficient uncertainties, for example in the extraction phase, to indicate the study should only be used as a working hypothesis…a defined GAL Norseman cobalt project could be materially different.

Notably, recent announcements from both GAL and BAR highlight differences in potential cobalt extraction methodology with GAL reporting significant benefits from pre-concentration of ore before leaching, generating an average grade of 0.3% versus primary ore grades of 0.11% and scoping study assumptions of 0.12% (for BAR).

Metallurgical work conducted by BAR as part of the PFS point to 'whole ore leaching' as the optimal method, eschewing an initial concentration phase.

A GAL project could be a lower throughput, higher-grade operation, with potentially significant capital and operating cost savings – we would add though that GALs metallurgical results are preliminary and subject to follow up testing.

We could replace it with a note on the dominant ground position of GAL vs BAR and the fact that in order to develop their project BAR will need to reach an agreement with GAL to access their ground. BAR have no access to their project that does not go over GAL tenure. GAL is in the box seat when it comes to negotiating access agreements for roads and infrastructure.

In some ways, being a little behind the curve versus the BAR JV Mt Thirsty Project provides GAL with look through benchmarking and an evolving development template. We are comfortable to do that given the adjacent locations and similar geological parameters (refer Exhibit 7, page 12).

On a preliminary assessment we can't see a strong reason at this stage to suggest capital and operating costs should be significantly different from those in the scoping study, particularly as the study indicates a range of A$190-230mn and preliminary metallurgical results support recovery and cost assumptions.

We have assumed a 'working case' for GAL of 30Mt to match the scoping study rather than scale down the project opportunity, where we have no guidance and would avoid compounding uncertainty in the scenario.

Although GAL has only a preliminary MRE of 20.2Mt at similar grades, we are reasonably confident given recent drilling results that the resource base can increase but the timing and magnitude of any upgrades to volumes is speculative at this stage.

As reported by management *"…extensive sections of the Mt Thirsty and Mission Sill ultramafic sills along strike of the lateritic mineralised zones have not been drilled. The occurrence of potentially mineralised lateritic regolith is indicated where bedrock is not exposed at surface."*

We account for the uncertainty of the magnitude of the MRE through adjustments to our probability weighting as applied to the NPV.

The company has indicated the next phase of work to be undertaken in the December quarter will include:

- Ongoing concentration and leach test work on cobalt concentrate and resource samples. This should refine the metallurgical process and provide operating data in support of a scoping study;
- Scoping study level estimation of capital and operating costs;
- Metallurgical domaining of the current JORC compliant resources;
- Mineral Resource Estimation of the Goblin prospect (dependent on an independent geological review). This should also help support the contention of upside to the existing resource base and potentially underpin our development scenario assumptions;
- Environmental surveys within the Mine Lease Application area…another step on the development pathway.

In some respects, our analysis may be rapidly superseded by new data as it comes through from the current activity.

It should be noted that given the proximity of the GAL opportunity to the BAR JV project there may be the potential for infrastructure sharing or even toll treating of ore, although this is also speculative in nature and would likely be a low probability outcome given the timing differences on the project curves between the ventures.

It's not unknown for identical or near identical projects, in close proximity to be developed as stand-alone operations, but to deliver optimal economic outcomes we would suggest, at least the principal of 'infrastructure sharing' be considered…a process for a later date.

The BAR JV analogue study was completed in late-2017 and working back from an expected two-year construction and commissioning period, with GAL some 12-18months behind the BAR JV curve (RaaS estimate), we assume a GAL project start-up date of end FY23.

We use the study cost assumptions as a base and escalate at 2% p.a. to align with our development timeline. We acknowledge our assumptions contain a high degree of uncertainty and our estimates should be considered as 'one' scenario in a large range of potential outcomes, subject to definition and adjustment.

Whilst the numbers are very preliminary at this stage, indicatively we suggest GAL has significant embedded value within the resource base without recourse to the potential of the PGM (platinum group metals) opportunities evident in the Mission Sill Prospect.

We would highlight that our timing assumptions are very conservative and subject to significant change with timing ultimately in the delivery of GAL management. We base our timing against assumptions made on the BAR (Mt Thirsty) project and the equivalent progress of the Norseman project, which is subjective.

We have noted the potential for Norseman to be brought forward, particularly if a GAL scoping study can be delivered around the end of 2018. **On that timeline a DFS could be completed by end-FY20 and project start-up potentially by end-FY22 assuming a 24-month construction period.**

We model a development scenario, which delivers an NPV(10) of A$171mn on an unrisked, ungeared basis, using a starting cobalt price of US$26.80/lb (US$59,100/t). The NPV maximises at >A$450mn in the first year of full nameplate production. We model production commencing from the end of FY23 but set our NPV calculation from the date of notional project sanction, being the end of FY21 (as Year '0').

Intrinsically, the key sensitivity for any project is the commodity price – if a project doesn't make any revenue, discussions on capital and operating costs are largely irrelevant. We set our base cobalt price against the current contract rate (Exhibit 12, Risks section) as a realistic 'reset' of the commodity heading into a period of potentially strong growth against uncertain supply side responses. This represents an increase of some 75% from the beginning of 2017 and represents a key risk to the economics, particularly given our timing to start-up.

We run sensitivities to ± 20% on our price deck and the scenario analysis indicates at the low end of the price deck at an average cobalt price of ~US$26.90/lb (US$59,350/t), the modelled scenario would still deliver an IRR of 11% - effectively a breakeven scenario after financing costs.

We discuss pricing scenarios further under the Risks section of this report.

Exhibit 7: Variance of project scenario metrics under a range of cobalt prices – breakeven pricing at around US$27/lb

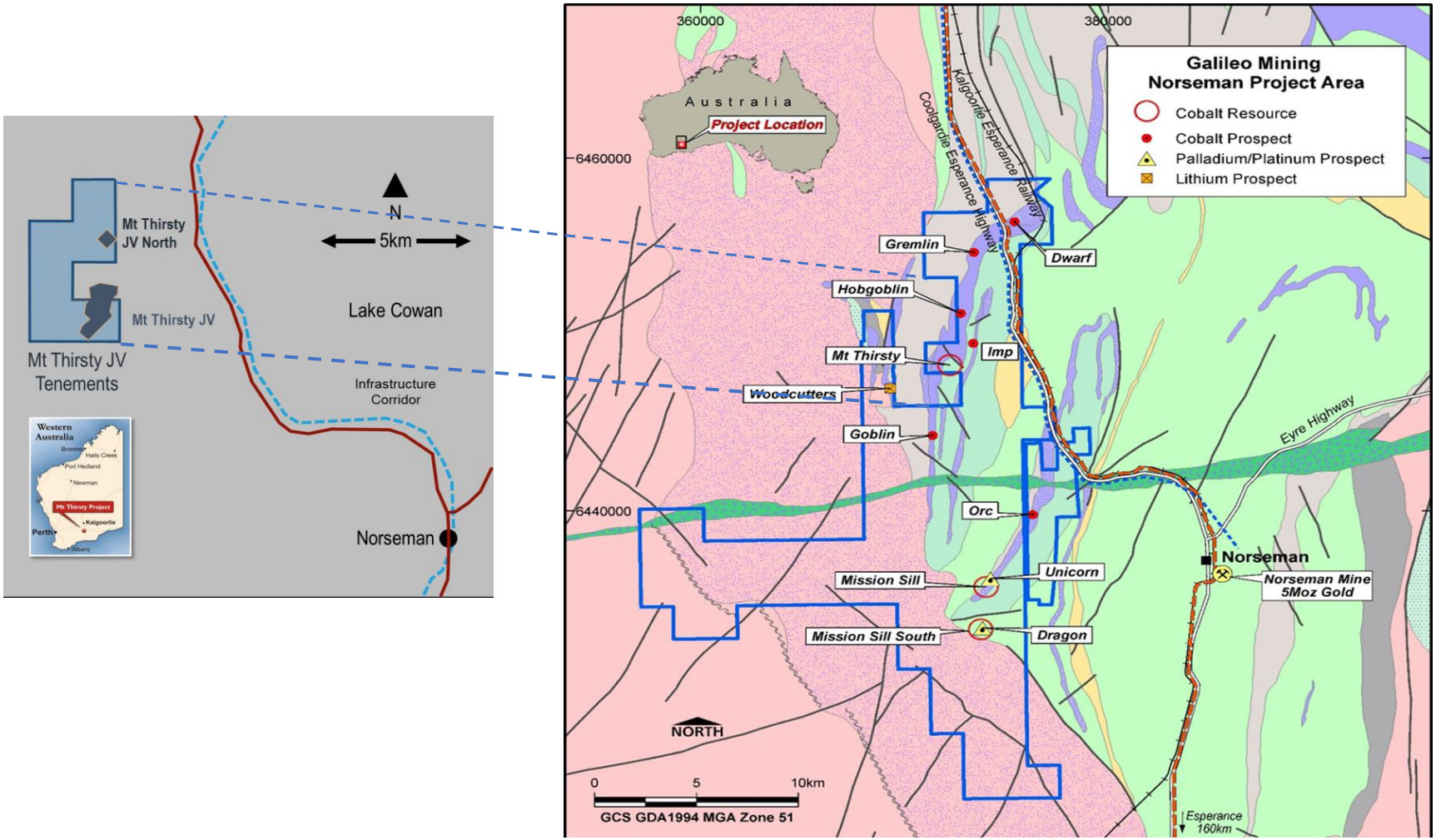
Co price	US$/lb	-20%	-10%	Base Case	+10%	+20%	Bear Case
		26.90	30.30	33.65	37.00	40.40	29.15
Gross Operating Margin	A$mn	38.3	54.4	70.5	86.5	102.6	55.3
NPAT	A$mn	19.1	30.4	41.6	52.8	64.1	31.0
Gross Operating Margin	%	29%	36%	42%	47%	51%	37%
NPAT Margin	%	14%	20%	25%	29%	32%	20%
NPV @ 10%	A$mn	10	88	167	245	324	93
IRR		11%	15%	19%	23%	26%	15%

Source: RaaS analysis – 100% Project basis; Cobalt prices are life of project averages

On a sensitivity basis, bringing a Norseman development one-year forward would indicatively increase our NAV to A$62mn or $0.41/share (A$0.33/share on a non-cash/corporate basis). The 'early' scenario value of Norseman would rise to ~A$35mn or A$0.29/share based on an average US$33.65/lb life of project cobalt price, ungeared and risk weighted (Pr=15%) development scenario.

There is value to be captured in crystallising the timing of a Norseman project.

Exhibit 8: BAR JV Mt Thirsty Project nestled in a crook; GAL Norseman Project (RHS)…supports our contention of a look-through analogue



Source: Company data

RaaS
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Exhibit 9: Broad operating economics of a potential GAL Norseman cobalt project based on the BAR JV Scoping Study – scenario only.

Project Life		21.0																
YEAR			(2)	(1)	0	1	2	3	4	5	⟷	16	17	18	19	20	21	Aggregates
CAPEX																		
Development		**A$mn**																
Pre-feasibility	drilling and studies																	
Mining				0	0													
Infrastructure		8	6	1														
Mineral Processing		224	191	34														
Abandonment and rehab																	50	
TOTAL		**232**	**197**	**35**	**0**													
Cobalt price	US$/t		61,795	62,722	**63,662**	64,617	65,587	66,570	67,569	68,582		80,787	81,998	83,228	84,477	85,744		**74,183**
	US$/lb		28.03	28.45	28.88	29.31	29.75	30.20	30.65	31.11		36.64	37.19	37.75	38.32	38.89		**US$/lb 33.65 Life of project ave**
Nickel Price	US$/lb		18,544	18822	**19,105**	19,391	19,682	19,977	20,277	20,581		24,243	24,607	24,976	25,351	25,731		**22,262**
	US$/lb		8.41	8.54	8.67	8.80	8.93	9.06	9.20	9.34		11.00	11.16	11.33	11.50	11.67		**US$/lb 10.10 Life of project ave**
AUDUSD			0.7340	0.7356	0.7432	0.7500	0.7500	0.7500	0.7500	0.7500		0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	
Sales Revenue		**A$mn**			**146.1**	**147.0**	**149.2**	**151.4**	**153.7**	**156.0**		**183.7**	**186.5**	**189.3**	**192.1**	**162.5**		
Op Costs		**A$/t**																
Royalty					5.8	5.9	6.0	6.1	6.1	6.2		7.3	7.5	7.6	7.7	6.5		
Mining		4.60			7.9	8.1	8.2	8.4	8.6	8.8		10.9	11.1	11.3	11.5	9.8		
Mineral Processing		31.60			54.4	55.5	56.6	57.8	58.9	60.1		74.7	76.2	77.8	79.3	67.4		
Corporate		4.10			7.1	7.2	7.3	7.5	7.6	7.8		9.7	9.9	10.1	10.3	8.7	0.0	
Maintenance		2.70			4.7	4.7	4.8	4.9	5.0	5.1		6.4	6.5	6.6	6.8	5.8	0.0	
Revenue					146.1	147.0	149.2	151.4	153.7	156.0		183.7	186.5	189.3	192.1	162.5	0.0	**A$mn 167.2 Life of project**
Op Costs					(79.9)	(81.5)	(83.1)	(84.7)	(86.3)	(88.0)		(109.1)	(111.2)	(113.4)	(115.6)	(98.2)	0.0	**A$mn (96.8) Life of project**
D&A					(15.4)	(15.4)	(15.4)	(15.4)	(15.4)	(15.4)		0.0	0.0	0.0	0.0	0.0	0.0	
Profit before tax					**50.8**	**50.1**	**50.7**	**51.3**	**51.9**	**52.5**		**74.7**	**75.3**	**75.9**	**76.5**	**64.3**	**0.0**	**A$mn 59.4 Life of project**
Tax		30%			(15.2)	(15.0)	(15.2)	(15.4)	(15.6)	(15.8)		(22.4)	(22.6)	(22.8)	(23.0)	(19.3)	0.0	**A$mn (17.8) Life of project**
Valuation		**US$mn**																
Revenue			0	0	146	147	149	151	154	156		184	187	189	192	163	0	
Cash Op Costs			0	0	(80)	(81)	(83)	(85)	(86)	(88)		(109)	(111)	(113)	(116)	(98)	0	
Capex			(197)	(35)	0	0	0	0	0	0		0	0	0	0	0	(50)	
Cash Tax					(8)	(15)	(15)	(15)	(15)	(16)		(22)	(22)	(23)	(23)	(21)	(10)	
	A$mn		**(197)**	**(35)**	**59**	**50**	**51**	**51**	**52**	**52**		**52**	**53**	**53**	**54**	**43**	**(60)**	
NPV	A$mn	10%	167	380	453	440												

Source: RaaS analysis; 100% Project basis; ungeared (we assume debt at the corporate rather than project level)

Financials – not much to see yet

The financials reflect the state of a company in a pre-development phase with further work required for a scoping study ahead of detailed feasibility. Although as noted throughout the report, GAL will benefit from a look through into the BAR JV Mt Thirsty project and perhaps benefit from a shorter lead time through the evaluation process.

For valuation purposes we assume GAL will achieve critical mass reserves in the same order of magnitude as the reference scoping study, but with timing somewhat lagged and as a scenario, first production around end-FY23. On that basis we estimate significant development expenditure would only begin accruing at the end of forecast window and would need to be financed through a mix of debt and equity.

However, assuming a project is sanctioned at the end of FY21, financing would need to be in place which would likely require equity finance to be secured as part of any debt negotiations. We model an equity raising in FY21. Our timing is speculative and a project sanction (with resultant expenditure) is more likely to be later than earlier at this stage, we suggest.

Exhibit 10: Summary profit/loss results (reporting currency AUD, balance date 30-June) – we anticipate the company to remain in a loss-making position through the forecast period

P&L	FY19e	FY20e	FY21e	In A$000's
Revenue				
Other revenue/income	19	18	55	
Employee expenses:	(878)	(1,044)	(1,044)	'Project' related employee costs are capitalised
Proforma EBIT	**(859)**	**(1,026)**	**(989)**	
Finance costs				We model an equity financing event beginning in FY21 ahead of significant development expenditure from FY22
Tax benefit				
Net Loss	**(859)**	**(1,026)**	**(989)**	
EPS (cps)	(0.7)	(0.9)	(0.2)	Reducing EPS losses on an expanded share base as modelled

Source: RaaS analysis

Capital requirements accelerate post FY21 before the heavy capex commitments for a Mt Thirsty project as modelled.

As a company with no current revenue streams, GAL will be dependent on equity markets for financing through the initial development phase.

Exhibit 11: Summary Balance Sheet – growing net assets heading towards a development

BALANCE SHEET	FY19e	FY20e	FY21e	In A$000's
Cash & Equivalents	6,449	2,446	65,108	Low working capital assumptions suggest bigger equity raises
PP&E & Development	0	0	3,800	
Exploration	9,572	12,948	14,348	
Total Assets	**16,021**	**15,395**	**83,256**	
Debt	0	0	2,680	Includes capitalised interest
Total Liabilities	**415**	**815**	**3,685**	
Total Net Assets/Equity	**15.606**	**14,580**	**79,571**	**Building an equity base**
Net Cash/(Debt)	6,449	2,446	62,248	
Gearing ($d_n/(d_n+e)$			na	

Source: RaaS analysis

A strong cash position to chase a project

The company is in a strong cash position only operating some five months from listing and holding $10.1mn as at 30-Sep against an expected expenditure commitment for 4Q18 of $1.1mn. We see the company as adequately funded at this stage through field programmes and studies to progress its Norseman Project and to continue to evaluate the Fraser Range opportunities.

Our assumptions include continuation of the work programmes in the portfolio over the forecast period, but with exploration expenditure trailing off as the company focusses more on evaluation and development activity.

We have made no assumptions with respect to further funding requirements for the remainder of the portfolio beyond the current period.

Exhibit 12: Summary cashflow statement noting commencement of debt drawdown and further equity raisings

CASHFLOW	FY19e	FY20e	FY21e	In A$000's
Operational Cash Flow	**(561)**	**(644)**	**(644)**	
Net Interest	19	18	55	
Net Operating Cashflow	**(542)**	**(626)**	**(589)**	
Exploration	(4,285)	(3,376)	(1,400)	We assume investment at Norseman will be categorised as Exploration and Evaluation until a project is formally sanctioned
Development	0	0	(3,800)	Commencement of development expenditure
Net Investing Cashflow	**(4,285)**	**(3,376)**	**(5,200)**	
Net Debt Drawdown	0	0	2,470	We assume a development will be 65% debt funded
Equity Issues/(Buyback)*	0	0	65,800	We assume all equity contributions will be raised for project sanction
Other	0	0	0	
Net Financing Cashflow	**0**	**0**	**68,450**	
Net Change in Cash	**(4,827)**	**(4,002)**	**62,661**	

Source: RaaS analysis; we assume equity issues at a reference share price of A$0.20/share in parity with the exercise price of listed options

A risk assessment

The most critical factor in determining and delivering any resources project is, in our view the prevailing commodity price. The recent strength in cobalt prices, we suggest, indicates a sector and opportunity in transition, generally reflecting growing demand against supply uncertainties.

Until we see more definitive data on consumption growth and supply responses, particularly from mines in the DRC, price forecasts will remain subjective and the price itself likely to be somewhat volatile.

Cobalt Prices

Commodity (product) pricing is the most obvious area of risk for any resources company and we would note there is no overwhelming consensus on the direction or long-term pricing of the metal.

We present bull and bear cases, but it is beyond the scope of this report to enter into a detailed analysis of the cobalt market and price outlook. We highlight some broad themes and proffer a price outlook as the basis of our valuation.

Exhibit 13: Historical cobalt prices (US$/t) showing a flattening off recent highs and a potential 'start point' for economic evaluation

Source: www.tradingeconomics.com

Cobalt prices have surged from the beginning of 2017, peaking at US$95,250/t in March 2018 before the current retracement to prices around US$60,000/t at October end. The surge in prices has been driven in most part by strengthening demand for cobalt as a key metal in the lithium-ion batteries and anticipated growth in demand power electric vehicles (EVs).

Commensurately, the recent retracement of prices can largely be attributed to issues related to supply rather than substitution and we suggest that will be the driver of price volatility through the short-term.

With >60% of global cobalt production coming from a single country - the Democratic Republic of the Congo (DRC), any expectations that production can be cranked up (brownfields growth) can have a significant impact on price sentiment. Certainly, recent data suggests the Katanga mine may be able to produce 34,000t of cobalt in 2019, well above previous expectations.

There has been also been an acceleration of in-ground activity amongst Australian junior miners with a number progressing through to the DFS stage and expected to come into production from 2019 but in some ways, we are experiencing a rush to development, and economics are still to be proven in many projects that are currently in the evaluation phase.

There have been a number of demand studies on cobalt over the last 12 months or so, all pointing to strong growth in consumption dominantly based on a breakout in the battery market as a supplement to base load power supply and a massive expansion in the use of EVs.

"Based on average growth rates in consumption of cobalt over the last 11 years, we estimate demand could reach ~144ktpa by 2025, a 31% increase from the 2017 reference point of ~110kt."

(source www.statista.com)

Whilst this could be considered moderately bullish, there are more bullish views, with Wood Mackenzie reportedly seeing cobalt demand at least 'doubling' by 2025 and the market remaining tight due to the difficulty in sourcing cobalt, with the potential for further acceleration.

The challenge is likely to be supply – with every increase of 1.5-2ktpa representing the equivalent of a significant 'new mine' every year.

We note that in 2016, ~60% of cobalt mined was as a by-product of copper, 38% was as a by-product of nickel and the remaining 2% from primary cobalt mines.

So, unlike most base metals, changes to global copper and nickel production are a strongly significant (if not the primary) determinant of changes in cobalt production rather than the supply-demand dynamics and pricing of cobalt itself.

https://www.globalenergymetals.com/cobalt/

For every bull – a bear: an alternate view

The rocket trajectory behaviour of the recent price rise, fuelled in part by stock-building activity is considered to have been impacted most significantly by the changes in Chinese Government policy towards EV subsidies, which led to a wave of destocking. Although demand from the battery sector is expected to continue to grow, consolidation in China's battery industry and increases in supply are cited as sufficiently negative to put a cap on any re-stocking activity.

Supply is forecast to ramp up significantly with output from the large DRC producers (Katanga, ERG and Chemaf) expected to lift the DRC's mine supply to >175ktpa by 2025 despite the recent decision to class cobalt as a 'strategic mineral', raising the royalty to 10% (from 2%). This increase would represent growth in output of >86% from current (2018) levels.

Exhibit 14: Typical 'bear case' cobalt pricing

	2018	2019	2020	2021	2022	2023
US$/lb	33.7	30.0	25.0	23.0	24.0	25.0
US$/t*	74,327	66,166	55,166	50,706	52,911	55,166

Source: Various industry and financial publications

Geology and engineering

Much of the technical risk associated with any new resources venture should be uncovered and eliminated through the resource definition and feasibility evaluation stages (by definition). But geology, mining and metallurgy can surprise when scaled up from testing and simulations; and have done so on numerous projects in the past. Generally, these risks though are small and like most engineering problems can be solved by the application of capital.

There are risks associated with the optimal producibility of the Norseman project with no immediate producing analogue. Testing results from the on-going Mt Thirsty feasibility activity indicate mineralogy very amenable to common extraction techniques but we note potential differences between Mt Thirsty and Norseman with respect to the application of a concentration phase before leaching, in what is essentially the same geology.

The risks likely lie, not in the extraction of cobalt but in the recovery efficiencies used in project evaluation analysis, however, we see this as a low risk event at this point.

Resource growth and mine life extensions

The viability of a start-up on Norseman in practical terms may be reliant on delivering additional economic reserves, as may be the ultimate value through an extension to mine life which would be dependent upon resource and reserve growth.

That effectively comes back to exploration success which is on a wide range of factors and can deliver a wide range of results. Even once 'technical' reserves have been delineated there is always the risk that the economic viability could be marginal or at least subjective.

Operating costs

Due to its location with a major mineral province and proximity to significant regional centres, GAL is likely to benefit from access to an experienced and skilled work force. We note though a number of new projects within a reasonable proximity of Kalgoorlie, all heading into a narrow development window (2-3 years) which could generate a tightness in push up the cost of skilled labour.

Although each project has its own specific requirements in mining and processing terms, in broad terms analogue projects can provide look-through support to project set-up, capital and operating costs, certainly sufficient enough to confidently underpin our modelling assumptions, but scoping study assumptions do contain an error margin of ±30% or so.

Financing

Financing issues will always overhang small resources companies with no existing revenue streams., which ultimately leaves the company with recourse only to equity markets for working capital in a pre-development phase. This can also be exacerbated when there are multiples exploration programmes and assets to be worked.

Although a financial quick-look suggests the company is likely adequately financed under our cash burn assumptions, this is dependent on a reduction in overall exploration expenditure and concentration on Norseman feasibility activity.

There is always the potential for the company to seek additional equity capital through the early conversion of options (15mn at 20c) ahead of project financing, particularly if capital programmes at Norseman or Fraser Range need to be accelerated. We have modelled the exercise of listed options, raising A$3mn as part of a project equity financing requirement in FY21.

Delivery of further positive results in drilling and metallurgical evaluation, with the potential to increase the MRE, could provide a strong platform for re-rating and capital raising.

We would also highlight the retail investor nature of the share register and at some point, the need to attract long-term, institutional investors with stronger financing capacity, particularly as capex commitments ahead of debt negotiations and through FY21 increase significantly for development as modelled.

The critical issue regarding the availability and cost of debt to the company is that with no current offset revenue streams to support debt servicing, any finance facilities will be dependent on the continuing success of operations after start-up.

On this basis, debt could be relatively expensive with strict debt ratio (interest cover) covenants and full recourse to project cashflow. Although we have assumed a DER for the project of ~65:35, debt availability may be lower and require cash 'bonds' or escrow accounts on an initial basis – likely financed through equity markets.

Board and management

Galileo Mining has a small Board of Directors, fitting for a small capitalisation company with technical expertise provided by the Managing Director (Brad Underwood) the Technical Director (Noel O'Brien). We view the technical and commercial expertise of the Board as one of its strongest features, particularly given the depth and breadth of experience through the exploration phase and into project development. For a small company this ensures management has a clear and up-to-date view on progress and risks. **A key strategy of the company will be to leverage off the experience and skills of its Directors and senior management**.

Whilst this is a heavy work load in combination with the administrative functions of a listed company, we feel this is appropriate for the position the company is in – the technical evaluation of a pre-development asset that will eventually require both debt and equity financing through a construction and start-up phase.

Simon Jenkins, Non-Executive Chairman

Mr Jenkins is a lawyer and has been a director of corporate law firm Price Sierakowski Corporate since 2005. with experience across a broad range of corporate transactions including takeovers, mergers and capital raisings both in Australia and internationally. He has acted for Australian and internationally listed companies as well as for a number of large private enterprises; and held directorships in both ASX listed and private client companies.

Mr Jenkins has a Bachelor of Laws from the University of Western Australia and is a recommended Mergers and Acquisitions Lawyer by Doyle's Guide.

Mr Jenkins was appointed as a Director on 13 September 2017.

Mr Jenkins holds 500,000 Ordinary Shares and 2,500,00 options

Brad Underwood, Managing Director

Mr Underwood is a geologist with over 15 years' experience in exploration, prospecting and mining across a range of commodities along the evaluation spectrum. Since 2010, Brad has been associated with Mark Creasy, in project management roles and more recently as General Manager of several private exploration companies. During this time Mr Underwood has been intimately associated with the exploration and prospect development of the Fraser Range tenements surrounding the Nova mine site as well as the development of the Company's projects near Norseman**. In that regard he brings strong embedded IP to the company.**

Mr Underwood played a key role in the discovery of the Silver Knight nickel-copper deposit in the Fraser Range and the discovery of Galileo's Mission Sill cobalt resources.

Mr Underwood has a Bachelor of Science in Geology and a Post Graduate Diploma in Geology from the University of Auckland and a Master of Science (Distinction) in Mineral Economics from Curtin University.

Mr Underwood was appointed as a Director on 13 September 2017.

Mr Underwood holds 300,000 Ordinary Shares and 10,000,00 options

Noel O'Brien, Technical Director

Mr O'Brien is a metallurgist and processing expert who is currently Chief Technical Officer at Tawana Resources Limited (ASX:TAW) and a Non-Executive Director at Birimian Ltd (ASX:BGS). He was formerly Managing Director in South Africa for SNC-Lavalin Inc, responsible for delivering smelter and refinery projects across Africa. Mr O'Brien has a deep understanding of metallurgy and possesses processing expertise in smelting, gravity separation, flotation, leaching and solvent extraction.

Mr O'Brien holds a Metallurgical Engineering degree from the University of Melbourne, an MBA from Witwatersrand University and is a Fellow of the AusIMM.

Mr O'Brien was appointed as a Director on 6 February 2018.

Mr O'Brien holds 2,500,00 options

Exhibit 15: Top 20 Shareholders holding ~56% of the issued capital (ordinary shares)

	Name	Ordinary Shares	%
1	Australian Gold Resources Pty Ltd	36,861,440	30.62
2	Independence Newsearch Pty Ltd	5,900,000	4.90
3	Ellison WA Pty Ltd	5,000,000	4.15
4	Hoperidge Enterprise Pty Ltd <Jones Fam A/C>	3,000,000	2.49
5	JP Morgan Nom Australia Ltd	2,515,000	2.09
6	Wade, Peter David <Wade Fam A/C>	2,500,000	2.08
7	Botsis Holdings Pty Ltd	1,900,285	1.58
8	Blakfyre Investments Pty Ltd	1,200,000	1.00
9	Pindan Investments Pty Ltd <Pindan Inv A/c>	1,000,000	0.83
10	BS Capital Pty Ltd <Shallard Fam A/C>	1,000,000	0.83
11	Shallard BJ & Duperouzel <Shallard S/F A/C>	1,000,000	0.83
12	Lowe Stephen John & SL <Tahlia Fam A/C>	1,000,000	0.83
13	Auxilium Capital Pty Ltd <Sala Tenna Fam A/C>	910,000	0.76
14	Precision Opportunities Pty Ltd < Inv A/C>	750,000	0.62
15	Hawtin Dennis J & RA < Kryptonite S/F A/C>	700,000	0.58
16	Motte & Bailey Pty Ltd <Bailey S/F A/C>	636,851	0.53
17	West End Ventures Pty Ltd <West End A/C>	547,500	0.45
18	Dunstan Holdings Pty Ltd	510,455	0.42
19	Prosperity Ridge Holdings Pty Ltd	510,000	.042
20	Solace Therapies Pty Ltd <Solace A/C>	500,000	0.42
		67,941,531	**56.05**

Mark Creasy, via Australian Gold Resources Pty Ltd and Dunstan Holdings Pty Ltd – holding 37,371,895 Ordinary Shares

Source: Company data

Research as a Service

Appendix 1 – Mt Thirsty Cobalt Project Scoping Study operational and economic assumptions

The Barra Resources Scoping Study is the basis for our modelling assumptions on a potential GAL Mt Thirsty Cobalt development scenario given the strong geological and logistic similarities of the opportunities.

Exhibit 16: Barra Resources Mt Thirsty Cobalt Scoping Study assumptions – Norseman project scenario adjustments

BAR JV Mt Thirsty Project		Base Case Cost	Range				Galileo Mining: Norseman project - adjustments and outcomes
Process Plant throughput		1.5Mtpa					
Cobalt head grade		0.12%				0.11%	as per current MRE
Nickel head grade		0.52%					
Recovery rate	Cobalt	73%	73-80%				
	Nickel	21.5%	20-27%				
Construction/commissioning		24 months					
Life of mine		21 years					
Operating costs		A$43/t	A$38.7-47.3/t			A$ 43 /t	escalated at 2% pa from FY19 for life of project
Capital costs		A$212mn	A$190-232mn			A$ 232 mn	effectively increasing the capex by 10% (timing)
Co Price (ave life of mine)		A$97,600/t				A$ 74,183 /t	using a 1.5%pa inflator
Ni Price (ave life of mine)		A$20,945/t				A$ 22,262 /t	using a 1.5%pa inflator
MRE		**Tonnes**	**Co**	**Ni**	**Mn**		
Indicated		16,600,000	0.14%	0.60%	0.98%		
Inferred		15,340,000	0.11%	0.51%	0.73%		
		31,940,000	**0.13%**	**0.55%**	**0.86%**		
All cost and parameters are considered to be within an accuracy of +/- 50%							
Open pit mining							
The deposit is soft and strongly weathered and only limited balsting is anticipated. The overall strip ratio would be ~1.5:1 but vary between 3.3:1 to 0.3:1. The pit is most likely to be dry							
Cumulative Net Cash Flow		A$746mn	A$651-840mn			A$ 730 mn	
NPV		A$290mn	A$245-335mn			A$ 171 mn	
IRR		21.5%	18.7-24.3%			19%	

Source: www.barraresources.com.au

Research as a Service

Appendix 2 – Cobalt comp-co table

There is a large portfolio of ASX listed mining companies with a significant exposure to cobalt although we note many of them are in various stages of exploration activity.

We note a number of companies either in the DFS process (bankable feasibility study) or with near-term start-up dates.

The most striking item on a first pass look-through is the very wide range of cobalt prices upon which development projects are based, with specific disclosures on these projects varying between the published releases. In this regard it's difficult to form a consensus view on assumptions.

We have used the Barra scoping study as a scenario analogue for GAL and see the average (life of project) Co price of the Thakaringa and Goongarie developments as supportive of our assumption for Norseman (US$33.65/lb).

Exhibit 17: A selected series of ASX listed cobalt plays in various stages of pre-development

	Ticker	Price	Capitalisation	Project		DFS Timing	Projected Start-up	Capex	Cobalt		Ave life of mine Co price	Mieralisation	Reserves and resources Cobalt				
													Measured	Indicated	Inferred	TOTAL	
		cps	A$mn					A$mn	%	kt	tpa	US$/lb		Mt			
Cobalt Blue	COB	23.0	$22.0	Thakaringa	NSW	mid-2019	2021	$550	0.09	40.3	3,558	$33.80	Sulphide				
Panoramic Resources	PAN	47.0	$232.4	Savannah	WA		1Q 19	$36	0.09	6.7	800	$28.00	Sulphide	7.6		0.1	**7.6**
AEON Metals	AML	29.0	$170.4	Walford Creek	QLD		2Q 19		0.13	44			Sulphide	3.0	10.3	20.4	**33.7**
Clean TeQ Holdings	CLQ	41.5	$309.3	Sunrise	NSW	mid-2018	2021	$912	0.10	64.4	3,222	$12.00	Laterite	54.9	41.3		**96.2**
Ardea Resources	ARL	54.0	$56.7	Goongarie	WA	end-2019	2022	$656	0.10	29.5	1,180	$41.63	Laterite				**83.1**
Barra Resources	BAR	3.9	$20.7	Mt Thirsty	WA	mid-2019	2022	$212	0.13	25.2	1,200	$44.27	Laterite		16.6	15.3	**31.9**
Northern Cobalt	N27	9.0	$3.8														Still at an exploration stage
Mithril Resources	MTH	0.7	$1.4	Leaky Bore	NT											26.5	**26.5** Still at an exploration stage
Australian Mines	AUZ	5.00	$135.8	Sconi	QLD	mid-2019	2022(?)		0.11		3,010		Laterite	updated MRE available April-2019			Also holds Flemington Project - an extension of Sunrise; and Thackaringa, adjacent to Cobalt Blue Project
White Cliff Minerals	WCN	1.6	$1.2														Still at an exploration stage

Source: Company data; IRESS data

Exhibit 18: Financial Summary

GALILEO MINING		GAL
YEAR END		June
NAV	A$	$0.32
SHARE PRICE	A$	$0.185 priced COT 9-Nov
MARKET CAP	A$M	22
ORDINARY SHARES	M	120
OPTIONS	M	

nm = not meaningful
na = not applicable

COMMODITY ASSUMPTIONS		FY17A	FY18A	FY19E	FY20E	FY21E
Cobalt Price	US$/lb			26.81	27.21	27.62
Nickel Price	US$/lb			8.04	8.16	8.29
AUDUSD				0.7232	0.7285	0.7322

RATIO ANALYSIS		FY17A	FY18A	FY19E	FY20E	FY21E
Shares Outstanding	M		120	120	120	470
EPS (pre sig items)	Acps		(2.1)	(0.7)	(0.9)	(0.2)
EPS (post sig items)	Acps					
PER (pre sig items)	x		na	na	na	na
OCFPS	Acps		(0.5)	(0.5)	(0.5)	(0.1)
CFR	x		na	na	na	na
DPS	Acps					
Dividend Yield	%					
BVPS	Acps		13.8	13.0	12.1	16.9
Price/Book	x		1.3x	1.4x	1.5x	1.1x
ROE	%					
ROA	%					
(Trailing) Debt/Cash	x					
Interest Cover	x					
Gross Profit/share	Acps					
EBITDAX	A$M					
EBITDAX Ratio	%					

EARNINGS	A$'000s	FY17A	FY18A	FY19E	FY20E	FY21E
Revenue			0	0	0	0
Cost of sales			0	0	0	0
Gross Profit			**0**	**0**	**0**	**0**
Other revenue			40	0	0	0
Other income			15	19	18	55
Exploration written off						
Finance costs						
Impairment						
Other expenses			(733)	(878)	(1,044)	(1,044)
EBIT			(677)	(859)	(1,026)	(989)
Profit before tax			**(677)**	**(859)**	**(1,026)**	**(989)**
Taxes			0	0	0	0
NPAT Reported			**(677)**	**(859)**	**(1,026)**	**(989)**
Underlying Adjustments			0	0	0	0
NPAT Underlying			**(677)**	**(859)**	**(1,026)**	**(989)**

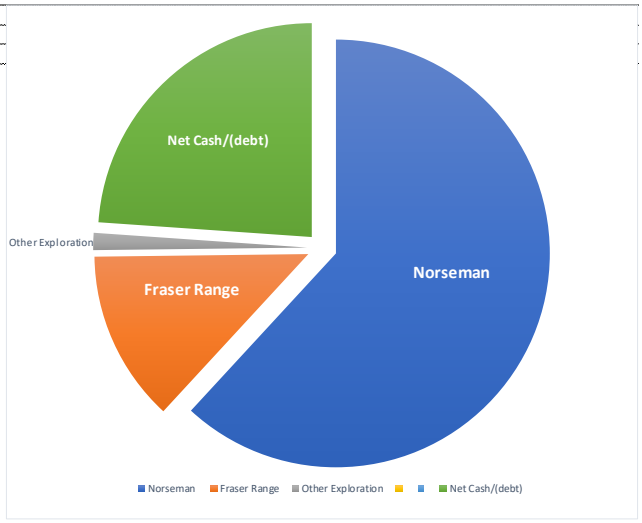
CASHFLOW	A$'000s	FY17A	FY18A	FY19E	FY20E	FY21E
Operational Cash Flow			**(625)**	**(561)**	**(644)**	**(644)**
Net Interest			15	19	18	55
Taxes Paid						
Other						
Net Operating Cashflow			**(610)**	**(542)**	**(626)**	**(589)**
Exploration			(918)	(4,285)	(3,376)	(1,400)
PP&E						
Development			0	0	0	(3,800)
Net Asset Sales/other						
Net Investing Cashflow			**(2,239)**	**(4,285)**	**(3,376)**	**(5,200)**
Dividends Paid						
Net Debt Drawdown			(956)	0	0	2,470
Equity Issues/(Buyback)			15,066	0	0	65,980
Other			0	0	0	0
Net Financing Cashflow			**14,109**	**0**	**0**	**68,450**
Net Change in Cash			**11,261**	**(4,827)**	**(4,002)**	**62,661**

BALANCE SHEET	A$'000s	FY17A	FY18A	FY19E	FY20E	FY21E
Cash & Equivalents			11,275	6,449	2,446	65,108
PP&E & Development			17	0	0	3,800
Exploration			5,287	9,572	12,948	14,348
Total Assets			**16,851**	**16,021**	**15,395**	**83,256**
Debt			0	0	0	2,680
Total Liabilities			**185**	**415**	**815**	**3,685**
Total Net Assets/Equity			**16,666**	**15,606**	**14,580**	**79,571**
Net Cash/(Debt)			11,275	6,449	2,446	62,428
Gearing ($d_n/(d_n+e)$)					na	na

PRODUCTION		FY17A	FY18A	FY19E	FY20E	FY21E

RESERVES & RESOURCES								
Cut-off Co			Co			Ni		Mn
ppm		Mt	%	kt	%	kt	%	
Mt Thirsty Sill								
	Indicated	10.5	0.12	12.1	0.58	61	0.71	
600	Inferred	2.0	0.11	2.2	0.51	10	0.71	
		12.5	**0.11**	**14.3**	**0.57**	**71**	**0.71**	
	Indicated	5.2	0.15	8.0	0.64	33	1.01	
1000	Inferred	0.8	0.15	1.2	0.52	4	1.09	
		6.0	**0.15**	**9.2**	**0.62**	**37**	**1.02**	
Mission Sill								
600	Inferred	7.7	0.11	8.2	0.45	35	0.80	
1000	Inferred	2.8	0.15	4.4	0.14	13	1.20	
TOTAL JORC Compliant resource								
600		**20.2**	0.11	22.5	0.53	106	0.74	
1000		8.8	0.15	13.6	0.57	50	1.08	

EQUITY VALUATION	Interest	Pr	A$M	Acps	
Norseman	100%	15%	**$24**	$0.20	
Fraser Range	100%		**$5**	$0.04	
Other Exploration	100%		**$1**	$0.00	
			$29	**$0.24**	
Net Cash/(debt)		100%	$10	$0.08	
Corporate costs			($1)	($0.01)	**P/NAV**
TOTAL			**$39**	**$0.32**	0.58
Cash Producing Assets					



Source: RaaS Advisory

FINANCIAL SERVICES GUIDE

RaaS Advisory Pty Ltd

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Corporate Authorised Representative, number 1248415

of

BR SECURITIES AUSTRALIA PTY LTD

ABN 92 168 734 530

AFSL 456663

Effective Date: 1st November 2018

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- who we are
- our services
- how we transact with you
- how we are paid, and
- complaint processes

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