

Advancing a Tier 1 gold project

To broaden our coverage on ASX-listed gold stocks, we initiate on De Grey Mining Ltd (DEG) with an Overweight Rating and a A\$2.00 Price Target. De Grey has a large high grade open pit resource. In our view this resource can underpin a large scale, low cost, long life gold mine; hence we classify it as Tier 1. A definitive feasibility study (DFS) is due in mid-2023, with financing running in parallel for a final investment decision (FID) by end of 2023.

A top 5 global gold project; low cap intensity, high grade open cut: OW

De Grey's key asset is the undeveloped Mallina project located in the Pilbara region of WA. The project has a 5.1Moz reserve which places it as one of the largest undeveloped gold projects in the world, with relatively low capital intensity and high-grade open cut at 1.5g/t. A pre-feasibility study (PFS) study in Sep-2022 envisaged capital investment of A\$1.05bn, and a 2-year development timeline; production could average ~500-550kozpa over the first 10 years, with all-in-sustaining-costs (AISC) life of mine of A\$1,316/oz (real) and a 14-year life.

Mallina: B*e are conservative: pre-production capex/costs > PFS

Capital cost inflation in the WA mining industry is a key risk for large projects. We reflect this by modelling pre-production capex of A\$1.3bn from FY24-26e, +23% higher than the PFS. We assume a FID is made by H1 2024, enabling first production in 2H 2026. We model AISC of A\$1,582/oz (real) life of mine, +20% higher than the PFS (A\$1,316/oz), but still below most industry Australian peers now in the A\$1,600-2,000/oz range. Applying our US\$1,900/oz real long-term gold price (below spot of US\$2,000), we value the Mallina project at A\$2.8bn, together with A\$145m of cash, we derive a group NPV of A\$1.90ps. De Grey trades at a ~15% discount to our NPV, many of the stocks we cover trade at 10-30% premiums to their NPVs. We estimate a 34% IRR and a 2.5 year-payback period. The key to a rapid payback is the Brolga starter pit given its low 2.3x stripping ratio is much lower than the 6.9x life of mine.

Can De Grey fund the project?

Yes, as compelling economics, De Grey's 100% ownership of the project and Gold Road's (GOR, N, A\$1.65 PT) 20% equity interest in De Grey provide numerous funding options. Management has stated it is in discussions with banks regarding project finance and targeting ~\$800m in debt. On our higher capex estimate, this implies a remaining funding task of ~A\$355m. De Grey could consider a sell-down of a minority interest in the project, as the combination of scale/cost profile/long life could be attractive to a range of potential partners. Lastly, an equity raising is an option.

Valuation: A\$1.90ps: DCF, 6% WACC; US\$1,900/oz long-term gold price

Our \$2.00ps Price Target is based on our 1-year forward NPV.

Financial & valuation metrics

Y/E Dec (A\$)	FY21A	FY22A	FY23E	FY24E	FY25E
NPAT (\$m)	(5)	(11)	(14)	(14)	(33)
EPS (cps)	(0.4)	(1.1)	(0.9)	(0.9)	(2.1)
DPS (cps)	-	-	-	-	-
PE (x)	n/a	n/a	n/a	n/a	n/a
EV/EBITDA (x)	n/a	n/a	n/a	n/a	n/a
Dividend yield (%)	-	-	-	-	-

Source: Barrenjoey Research estimates, FactSet. All earnings are on an underlying basis.

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Stock Rating

OVERWEIGHT

Price Target

A\$ 2.00

Ticker	DEG AU
Closing price (3-May-23)	A\$ 1.60
Expected share price return	25.4%
Expected dividend yield	-
Expected total return	25.4%
Market cap (m)	A\$ 2,490
Shares outstanding (m)	1,561
52-week avg daily vol (m)	5.18
52-week range	A\$ 0.74 - 1.69

EPS forecast changes & consensus

Y/E Dec (A\$)	FY23E	FY24E	FY25E
B* from (cps)	n/a	n/a	n/a
B* to (cps)	(0.9)	(0.9)	(2.1)
Change (%)	n/a	n/a	n/a
Consensus (cps)	(1.0)	(0.4)	(1.3)
B* vs cons (%)	9.1%	(104.4%)	(55.9%)

Source: FactSet, Visible Alpha, B* estimates use underlying and diluted EPS data

Price performance (A\$)



Source: FactSet

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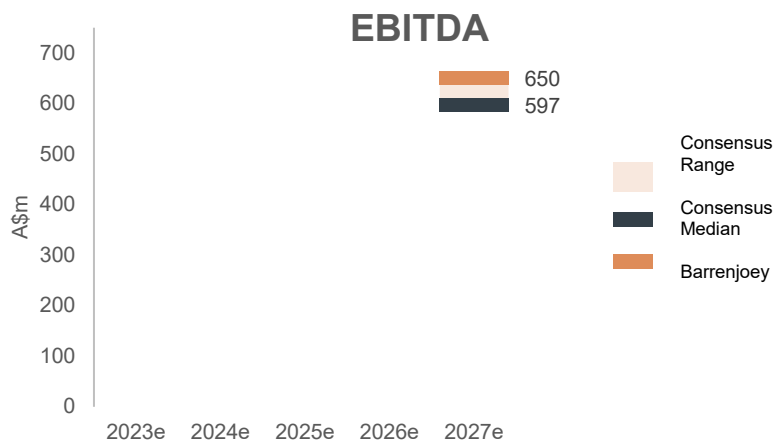
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Income Statement (A\$m)	FY21A	FY22A	FY23E	FY24E	FY25E	FY26E	FY27E	CAGR
Sales	0.0	0.0	0.0	0.0	0.0	0.0	1,164	n/a
EBITDA	(4.8)	(9.0)	(14.5)	(14.2)	(14.6)	(14.9)	649.7	135.4%
EBIT	(5.4)	(10.6)	(16.8)	(16.6)	(17.0)	(17.3)	547.8	120.0%
PBT	(5.3)	(10.5)	(13.7)	(13.6)	(32.7)	(73.2)	459.7	112.8%
NPAT (reported)	(5.3)	(10.5)	(13.7)	(13.6)	(32.7)	(73.2)	321.8	98.1%
NPAT (underlying)	(5.3)	(10.5)	(13.7)	(13.6)	(32.7)	(73.2)	321.8	98.1%
Margin & return data (%)	FY21A	FY22A	FY23E	FY24E	FY25E	FY26E	FY27E	Average
EBITDA (adj) margin	n/a	n/a	n/a	n/a	n/a	n/a	55.8%	n/a
EBIT (adj) margin	n/a	n/a	n/a	n/a	n/a	n/a	47.1%	n/a
ROIC	(3.1%)	(3.7%)	(4.0%)	(3.0%)	(1.5%)	(1.0%)	18.9%	1.0%
ROA	(2.7%)	(3.4%)	(3.2%)	(2.4%)	(2.9%)	(4.3%)	14.1%	(0.3%)
ROE	(3.0%)	(3.7%)	(3.3%)	(3.3%)	(8.8%)	(24.4%)	51.8%	1.4%
Balance Sheet (A\$m)	FY21A	FY22A	FY23E	FY24E	FY25E	FY26E	FY27E	Average
Cash & equivalents	70.9	63.5	137.3	145.6	134.1	81.3	481.7	173.9
PPE	6.6	8.8	7.5	105.1	652.7	1,250	1,220	540.7
Total assets	196.9	311.6	424.6	561.0	1,128	1,705	2,278	1,068
Short & long-term debt	2.2	1.9	1.9	151.9	751.9	1,402	1,402	618.6
Total liabilities	22.4	25.7	7.5	157.5	757.5	1,408	1,659	669.2
Net debt	(68.7)	(61.6)	(135.3)	6.3	617.8	1,321	920.2	444.7
Total equity	175.6	288.1	419.3	405.8	373.1	299.9	621.7	401.3
Cashflow (A\$m)	FY21A	FY22A	FY23E	FY24E	FY25E	FY26E	FY27E	CAGR
Change in Working Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	n/a
Operating cashflow	(4.1)	(6.3)	(15.7)	(11.2)	(30.3)	(70.8)	504.3	(340.4%)
Capital expenditure	(5.9)	(3.5)	(0.9)	(100.0)	(550.0)	(600.0)	(71.1)	82.2%
Free cash flow	(60.9)	(122.7)	(70.1)	(141.6)	(611.5)	(702.8)	400.4	(226.7%)
Dividends paid	-	-	-	-	-	-	-	n/a
Financial ratios	FY21A	FY22A	FY23E	FY24E	FY25E	FY26E	FY27E	CAGR
Per share								
Reported EPS (cps)	(0.4)	(1.1)	(0.9)	(0.9)	(2.1)	(4.7)	20.6	(279.2%)
Underlying EPS (cps)	(0.4)	(1.1)	(0.9)	(0.9)	(2.1)	(4.7)	20.6	(279.2%)
DPS (cps)	-	-	-	-	-	-	-	n/a
Franking (%)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%
Wtg avg ord shares (m)	1,288	946	1,496	1,561	1,561	1,561	1,561	10.5%
Wtg avg diluted shares (m)	1,288	946	1,498	1,565	1,565	1,565	1,565	10.6%
Valuation								Average
PE (x)	n/a	n/a	n/a	n/a	n/a	n/a	7.8	n/a
EV/Sales (x)	n/a	n/a	n/a	n/a	n/a	n/a	2.9	n/a
EV/EBITDA (x)	n/a	n/a	n/a	n/a	n/a	n/a	5.2	n/a
EV/EBIT (x)	(275.8)	(108.5)	(133.9)	(150.2)	(183.1)	(219.8)	6.2	(131.6)
Free cash flow yield (%)	(3.9%)	(10.1%)	(2.9%)	(5.7%)	(24.5%)	(28.1%)	16.0%	(9.2%)
Dividend yield (%)	-	-	-	-	-	-	-	n/a
Payout ratio (%)	-	-	-	-	-	-	-	n/a
Growth								Average
EBIT (%)	n/a	(96.0%)	(58.0%)	1.2%	(2.1%)	(2.1%)	3,259.8%	517.1%
Underlying NPAT (%)	n/a	(100.7%)	(29.9%)	0.9%	(140.7%)	(124.1%)	539.7%	24.2%
Underlying EPS (%)	n/a	(173.2%)	18.0%	5.1%	(140.7%)	(124.1%)	539.7%	20.8%
Liquidity & leverage								Average
Net debt/EBITDA (x)	14.3	6.8	9.3	(0.4)	(42.4)	(88.4)	1.4	(18.9)
Net debt/(Netdebt+equity)(%)	(64.3%)	(27.2%)	(47.7%)	1.5%	62.3%	81.5%	59.7%	21.7%
EBIT interestcover (x)	30.8	105.0	5.4	5.4	1.1	0.3	6.2	20.6

Source: Barrenjoey Research estimates, FactSet

CAGR and Average (asterisk) are calculated using the most recent actual year and five forward years.

Barrenjoey vs consensus



Key debates

What could impact the share price?

- 1 Is Mallina a Tier 1 Gold Project?** Yes, we think so. A 'Tier 1' mining project we define as being large scale, long life and low cost. Mallina appears to have these attributes. The resource of 10.6Moz and reserve of 5.1Moz makes Mallina one of the largest undeveloped gold projects in the world. The 2022 PFS suggests this could be developed into ~500kozpa production over the first 10 years and with a life of 14 years. Regional exploration if successful could extend this life further. The project has the potential to be low cost relative to WA peers due to its scale, its high grade, and low strip ratio, particularly in early years.
- 2 Can De Grey fund the development of Mallina?** Yes. Compelling economics, De Grey's 100% ownership of the project and Gold Road's 20% equity interest in De Grey provide numerous options. Based on our capex estimate (which is ~23% higher than the PFS), we estimate a funding task of \$1.3bn. If De Grey is successful in negotiating a targeted A\$800m project finance facility, then the remaining equity gap would be ~A\$355m, equating to ~15% of De Grey's market cap as 4 May 2023. An equity raising is one option that could bridge that gap, or De Grey could sell a small portion of the Mallina project.

Our view

Price performance (A\$)



Source: Barrenjoey Research estimates, FactSet.

OVERWEIGHT

B* Scenarios		Upside/ Downside to share price
Upside	\$3.00	88%
Price Target	\$2.00	25%
Downside	\$1.20	-25%

4.0:1

Upside to Downside skew vs share price

Scenarios

- ↑ Upside scenario | A\$3.00 |** In our upside scenario we factor in a US\$2,250/oz LT real Gold Price. We factor in A\$1.05bn in capex, inline with the PFS, and a mine life to 2050 with 10.1Moz ultimately mined. We factor in a 6% WACC.
- Price Target | A\$2.00 |** In our base case we factor in a US\$1,900/oz LT real Gold Price. We factor in A\$1.3bn in capex, +23% on the PFS, and a mine life to 2042 with 7.2Moz mined. We factor in a 6% WACC.
- ↓ Downside scenario | A\$1.20 |** In our downside case we factor in a US\$1,600/oz LT real Gold Price. We factor in A\$1.5bn in capex, +43% on the PFS, and a mine life to 2037 with 5.6Moz mined. We factor in a 6% WACC.

Table of Contents

Executive Summary	5
Investment Thesis	5
Group Production and Earnings Snapshot	6
Price Assumptions and Framework	7
Peer Valuation Comparison	8
Key Debate #1: Is Mallina a Tier 1 Gold Project?	9
Key Debate #2: Can De Grey fund the development of Mallina?	14
Valuation Methodology and Risks	15

Executive Summary

Investment Thesis

We initiate on De Grey Mining Ltd with an Overweight Rating and a A\$2.00 Price Target. We believe De Grey offers investors exposure to a Tier 1 undeveloped gold deposit: large scale, long life and low cost.

Key highlights are outlined below.

- **Large Scale:** The resource of 10.6Moz and reserve of 5.1Moz makes Mallina one of the largest undeveloped gold projects in the world. The 2022 PFS suggests this could be developed into ~500kozpa production over the first 10 years. If developed this would be among the top 5 most productive gold mines in Australia and potentially De Grey could become the 5th largest gold miner listed on the ASX after Newcrest, Northern Star, Evolution and Perseus.
- **Low costs:** We model costs of A\$1,582/oz (real) on an AISC basis life of mine, more conservative than the PFS of A\$1,316/oz to account for industry cost inflation. This is well below many WA-based peers at A\$1,600-2,000/oz. Mallina's expected relatively low-cost is due to it being a series of shallow open cut mines, with relatively high grade and low strip in early years.
- **Semi-refractory ore poses challenges that can be overcome:** The Hemi deposit which accounts for most of the resource is semi-refractory. Metallurgical testwork suggests gold recoveries of ~93-94% is possible through a flotation and a selective pressure oxidation (POX) circuit. While POX plants typically mean higher capex and opex, the Mallina flow sheet envisages a small one of just 0.8Mtpa, ~14x smaller than the 10Mtpa scale of the front end of the plant.
- **Brolga starter pit means low strip and quick payback:** The first open pit operation is planned to be the Brolga pit. Production from this pit is estimated by management to be 20Mt at 1.7g/t (higher than reserve of 1.5g/t) and with a stripping ratio of 2.3x vs 6.1x for the reserve and 6.9x for the mine plan. This combination of higher grade and lower stripping ratio means that the project is projected to have a rapid payback period of 2.5 years and a high IRR of ~34% based on our long-term gold price of US\$1,900/oz.
- **Long life and reserve growth Potential:** The PFS suggests a life of 14 years from first production. Naturally, regional exploration, may extend this. Resource definition drilling is being conducted at Brolga and other zones to increase the amount of Indicated Resources within pit designs for inclusion in the production schedule and reserve of a definitive feasibility study (DFS) currently underway. A DFS is scheduled for release in the Sep-23 quarter. We factor in a life of 15.5 years and assume production of 7.2Moz, 13% above the PFS study.
- **Permitting and traditional owner approval:** A mining agreement was reached with the Kariyarra people, the traditional owners in Dec-22. Documentation to support environmental approvals at both a state and federal level is in the final stages of preparation and management expect to lodge these in mid 2023.
- **Funding:** The release of a DFS is expected in the Sep-23 quarter and should be a catalyst to secure funding for the project. Management is targeting debt finance of ~A\$800m. As at 31-Mar-23, the group held net cash of A\$145m.

Key debates

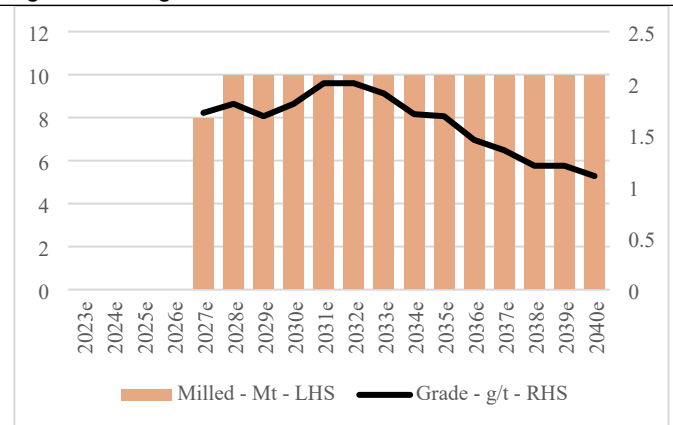
1. **Is Mallina a Tier 1 gold project?**
Yes, we think so. Tier one mining projects are long life, large scale and low cost. We see Mallina as having all of these attributes. See p9 for a fuller discussion.
2. **Can De Grey fund the development of Mallina?**
Yes, compelling economics, De Grey's 100% ownership of the project and Gold Road's 20% equity interest in De Grey provide numerous options. See p14 for a fuller discussion.

Group Production and Earnings Snapshot

We model first production at Mallina in Sep-26, making FY27 the first year of production. In the first decade of production (FY27-36) we forecast average annual production of 520kozpa and peak production in FY31-32 of ~600kozpa. We forecast in real terms, AISC of ~A\$1,200/oz in year 1 and averaging A\$1,368/oz over the first decade of production. On our gold price forecasts of US\$1,900/oz in real terms, the project is forecast to generate ~A\$800m pa of EBITDA over the first decade of production. We model project capex of A\$1.3bn, +23% higher than the PFS which is spent from FY24-FY26e.

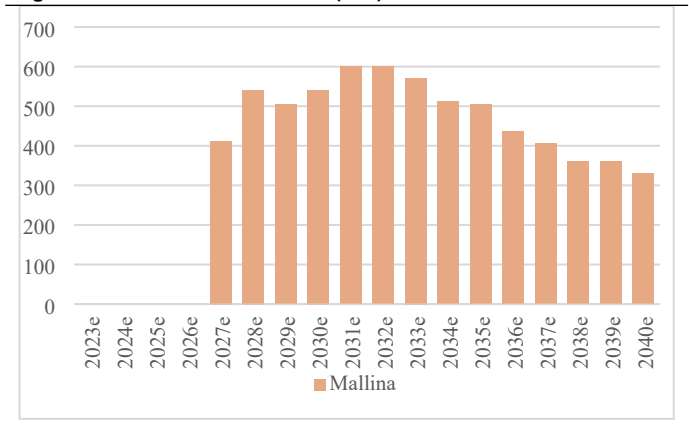
We forecast milled grade declining from FY32-40e, which leads to declining production, higher unit costs, lower earnings and cashflow. A key opportunity for De Grey once in production is exploration success. Discovery of other regional satellite deposits might extend mine life, lift medium term grades and push out this forecast production and earnings decline.

Figure 1: Milling and Grade Forecasts



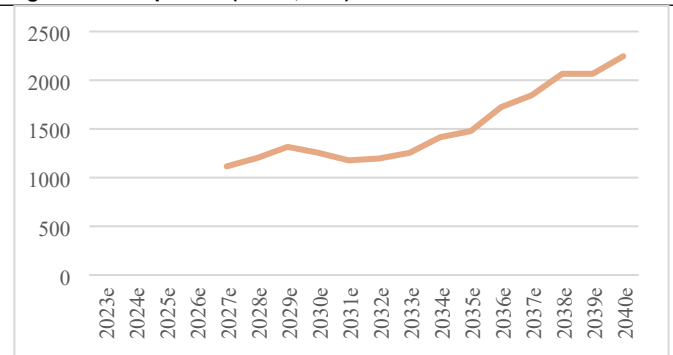
Source: Company data, Barrenjoey Research estimates. Years are fiscal years.

Figure 2: Production Forecasts (koz)



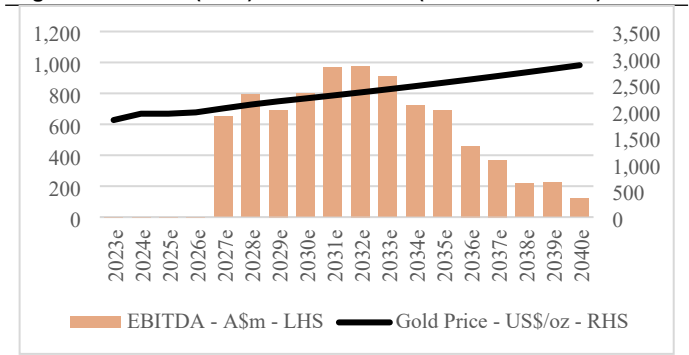
Source: Company data, Barrenjoey Research estimates. Years are fiscal years.

Figure 3: Group AISC (A\$/oz, real)



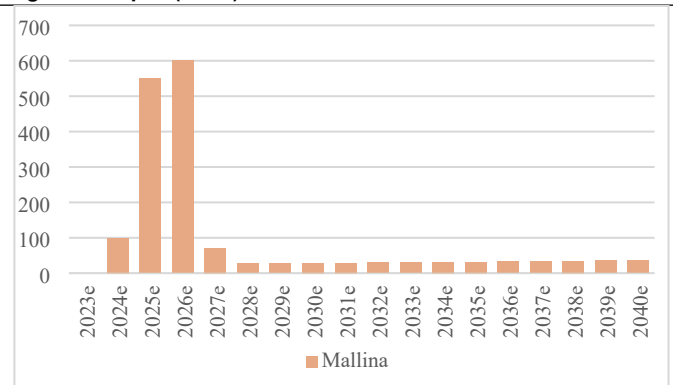
Source: Company data, Barrenjoey Research estimates. Years are fiscal years.

Figure 4: EBITDA (A\$m) and Gold Price (US\$/oz - nominal)



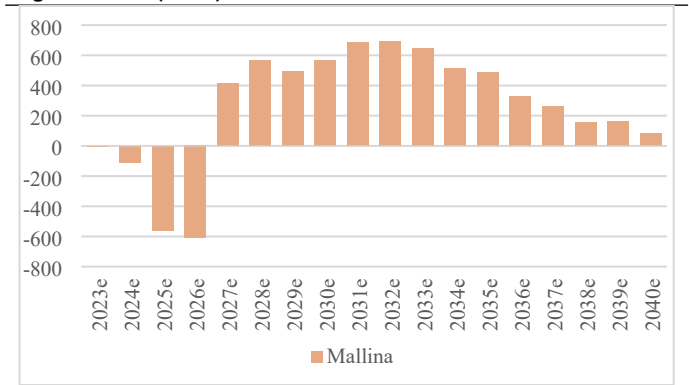
Source: Company data, Barrenjoey Research estimates. Years are fiscal years.

Figure 5: Capex (A\$/m)



Source: Company data, Barrenjoey Research estimates. Years are fiscal years.

Figure 6: FCF (A\$/m)



Source: Company data, Barrenjoey Research estimates. Years are fiscal years.

Price Assumptions and Framework

Our gold price forecast assumptions are shown below. For valuation purposes, we use a long-term real gold price of US\$1,900/oz, near spot of US\$2,000/oz, which we plan to review regularly. Gold is a unique commodity where the mining industry produces ~3ktpa, less than ~2% p.a. of global above-ground stocks of ~200kt. We do not think that an incentive price or cost curve approach provides a good framework for a long-term price. Instead, we use the spot price.

The gold market is large and liquid, in 2022 average daily trade volume was US\$132bn across global financial markets (Source, World Gold Council). With financial market participants able to trade and hedge across physical gold, ETFs and gold equities, we believe that gold equities are a derivative of this gold price.

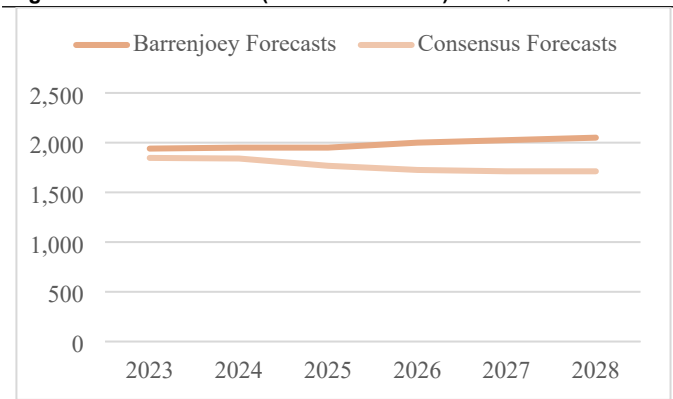
Our gold price cycle forecasts are generally above consensus by ~US\$100-300/oz or A\$200-500/oz.

Figure 7: B* Gold price forecasts vs Consensus

		2023	2024	2025	2026	2027	2028	LT Real
Barrenjoey Forecasts								
Gold	US\$/oz	1,940	1,950	1,950	2,000	2,025	2,050	1,900
AUDUSD	US\$	0.67	0.68	0.70	0.72	0.72	0.73	0.75
Gold	A\$/oz	2,881	2,860	2,783	2,780	2,797	2,813	2,533
Consensus Forecasts								
Gold	US\$/oz	1,846	1,840	1,767	1,725	1,712	1,712	
AUDUSD	US\$	0.69	0.70	0.71	0.72	0.72	0.73	
Gold	A\$/oz	2,676	2,629	2,489	2,396	2,377	2,345	

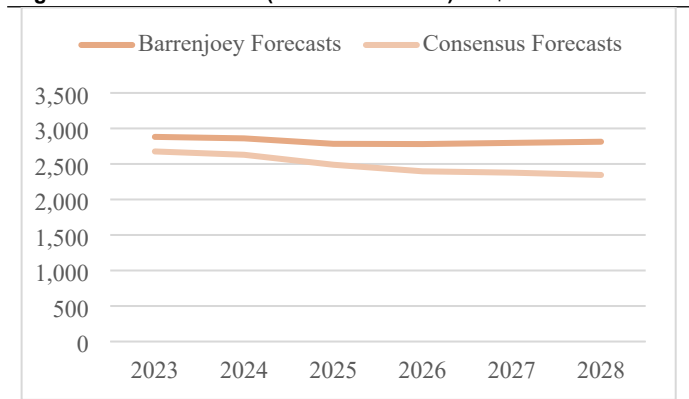
Source: Barrenjoey Research estimates, VisibleAlpha

Figure 8: Gold forecasts (B* vs Consensus) – US\$/oz



Source: Barrenjoey Research estimates, VisibleAlpha

Figure 9: Gold forecasts (B* vs Consensus) – A\$/oz



Source: Barrenjoey Research estimates, VisibleAlpha

Peer Valuation Comparison

De Grey is not yet in production and trades at a discount to the peers show in the table below. It trades at a ~15% discount to our NPV, many of the stocks we cover trade at 10-30% premiums to their NPVs.

De Grey is trading on a EV/Resource of ~A\$130/oz, below most peers and the median of ~A\$180/oz. On an EV/Reserve basis it is trading on ~A\$270/oz, below most peers and the median of A\$450/oz. On an EV/production basis, De Grey is trading on ~A\$7k/oz below peers in production on ~A\$10-13k/oz.

The completion of the DFS, funding of the project, progressing approvals and exploration success are all key to a re-rating.

Figure 10: Valuation Comparison on Barrenjoey forecasts and June year end multiples

Ticker	Company	Rating	Share Price		Market Cap A\$m	EV A\$m	Share Price Performance		NPV A\$	P/NPV x	
			Price (A\$)	Target (A\$)			3mth	12mth			
BGL-AU	Bellevue Gold	Overweight	1.37	1.40	1,548	1,463	12%	47%	1.28	1.07	
CMV-AU	Capricorn Metals	Neutral	4.42	4.60	1,662	1,680	-6%	8%	4.32	1.02	
DEG-AU	De Grey	Overweight	1.60	2.00	2,490	2,330	5%	37%	1.90	0.84	
EVN-AU	Evolution Mining	Underweight	3.61	3.20	6,624	8,368	7%	-9%	2.97	1.22	
GOR-AU	Gold Road	Neutral	1.90	1.65	2,049	2,097	13%	27%	1.51	1.26	
NCM-AU	Newcrest	Overweight	29.12	30.00	26,040	28,603	26%	9%	28.97	1.01	
NST-AU	Northern Star	Overweight	13.55	14.50	15,582	15,958	2%	41%	13.34	1.02	
RRL-AU	Regis Resources	Underweight	2.14	1.75	1,616	1,847	-4%	6%	1.57	1.36	
Total / weighted average					57,611	62,345				1.06	
Median										1.22	
Ticker	Company	P/E (x)	EV/EBITDA (x)		FCF Yield (%)		3 Year Capex outlook as % of EV	Dividend Yield (%)			
			2023	2024	2023	2024		2023	2024	2023	2024
BGL-AU	Bellevue Gold	NM	30.2	NM	12.2	-14.9%	-4.7%	26%	0.0%	0.0%	
CMV-AU	Capricorn Metals	19.5	15.3	10.3	8.1	7.5%	6.1%	24%	0.0%	0.0%	
DEG-AU	De Grey	NM	NM	NM	NM	-0.7%	-4.5%	68%	0.0%	0.0%	
EVN-AU	Evolution Mining	31.0	14.2	9.3	6.2	-3.3%	5.6%	26%	0.6%	0.0%	
GOR-AU	Gold Road	15.0	15.3	9.3	6.5	7.7%	9.0%	7%	1.8%	2.6%	
NCM-AU	Newcrest	22.8	25.2	8.8	8.4	1.6%	-0.8%	26%	3.1%	0.8%	
NST-AU	Northern Star	44.4	17.7	9.7	6.2	2.2%	5.4%	21%	2.1%	2.7%	
RRL-AU	Regis Resources	-33.6	-26.5	4.8	5.0	2.4%	-0.6%	53%	0.0%	0.0%	
Total / weighted average			26.0	18.9	8.5	7.2	1.1%	1.9%	26%	2.1%	1.2%
Median			21.1	15.3	9.3	6.5	1.9%	2.4%	26%	0.3%	0.0%
Ticker	Company	4 Year Production CAGR (2022-26)	Forecast AISC (A\$/oz)		EV/Resource A\$/oz	EV/Reserve A\$/oz	EV/Production A\$/oz	Mine Life Years	Net Debt / (Cash) A\$m	Gearing (ND/ND+E) %	
			2023	2024							
BGL-AU	Bellevue Gold	NM	NM	1,327	256	764	9,237	8.0	-85	-26%	
CMV-AU	Capricorn Metals	20.9%	1,316	1,384	219	396	12,448	23.6	18	6%	
DEG-AU	De Grey	NM	NM	NM	130	268	6,915	14.0	-160	-60%	
EVN-AU	Evolution Mining	5.1%	1,446	1,470	178	512	11,133	16.1	1,744	35%	
GOR-AU	Gold Road	4.0%	1,588	1,444	271	705	11,361	11.1	48	5%	
NCM-AU	Newcrest	3.2%	1,609	1,637	153	383	13,287	25.1	2,563	13%	
NST-AU	Northern Star	5.4%	1,736	1,634	179	516	8,949	13.1	376	4%	
RRL-AU	Regis Resources	-1.8%	1,834	1,871	121	290	4,043	9.5	231	13%	
Total / weighted average					169	447	11,193	19.1		9.6%	
Median					4.5%	1,599	1,470	179	454	10,185	13.6

Source: Company data, Barrenjoey Research estimates. Note Gold Road forecasts are calendarized to June year end for comparison to peers. Developers Bellevue and De Grey EV/production shown based on average production basis when in production of 180kozpa and 525kozpa respectively.

Key Debate #1: Is Mallina a Tier 1 Gold Project?

Barrenjoey Response

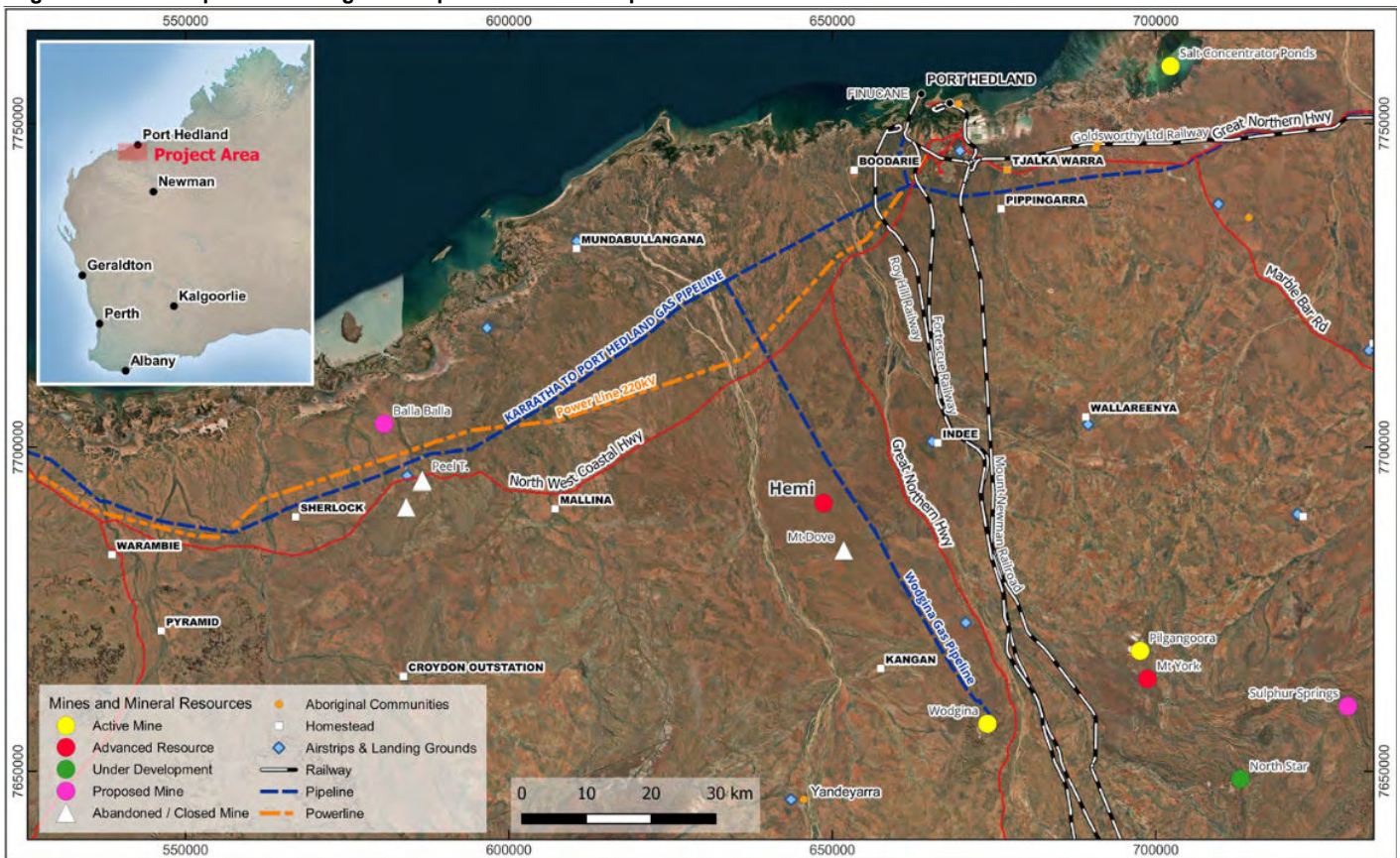
Yes, we think so. A 'Tier 1' mining project we define as being large scale, long life and low cost. Mallina appears to have these attributes. The resource of 10.6Moz and reserve of 5.1Moz makes Mallina one of the largest undeveloped gold projects in the world. The 2022 PFS suggests this could be developed into ~500kozpa production over the first 10 years and with a life of 14 years. Regional exploration if successful could extend this life further. The project has the potential to be low cost relative to WA peers due to its scale, its high grade, and low strip ratio, particularly in early years.

Insights and data to support our view

Project Setting and Resources

The Mallina gold project is located in Northern part of West Australia, ~85km by road from Port Hedland. This provides significant regional infrastructure advantages for project development, including regional roads, gas pipelines, electricity transmission and access to the Airport. The Mallina gold project is centred at Hemi, where the majority of gold mineralisation has been defined to date.

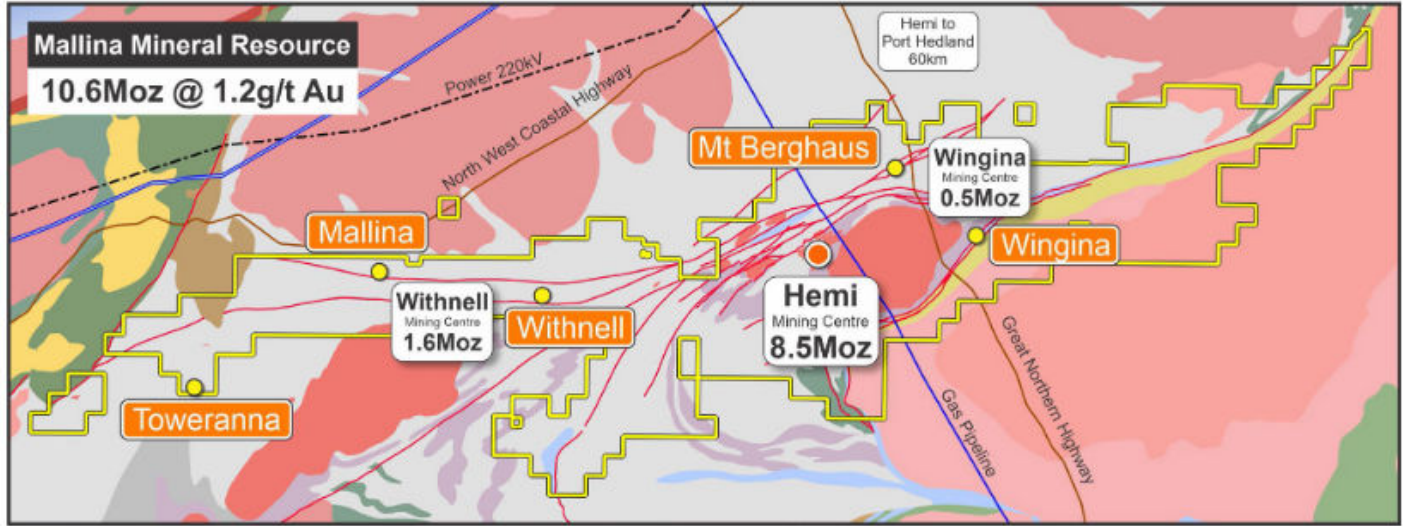
Figure 11: Hemi Deposits and Regional Deposits Location Map



Source: De Grey.

Most of the resource delineated to date is at Hemi, which is responsible for 8.5Moz of the 10.6Moz resource. From this resource, a 5.1Moz reserve has been declared at Hemi, with a grade of 1.5g/t. The pre-feasibility study considered the inclusion of inferred mineralisation within the pit designs of the reserve and so the study considered a total mineable inventory of 6.9Moz above the 5.1Moz resource.

Figure 12: Mallina Gold Province showing main gold deposits and the Hemi Discovery



Source: De Grey.

Figure 13: Mallina Resources

	Mt	Grade (g/t)	koz
Resource by Mining Centre			
Hemi	213.3	1.2	8,470
Withnell	25.6	2	1,626
Wingina	11.9	1.4	538
Total	250.7	1.3	10,634
Resource by Ore type			
Oxide	20.2	1.4	925
Sulphide	230.5	1.3	9,709
Total	250.7	1.3	10,634

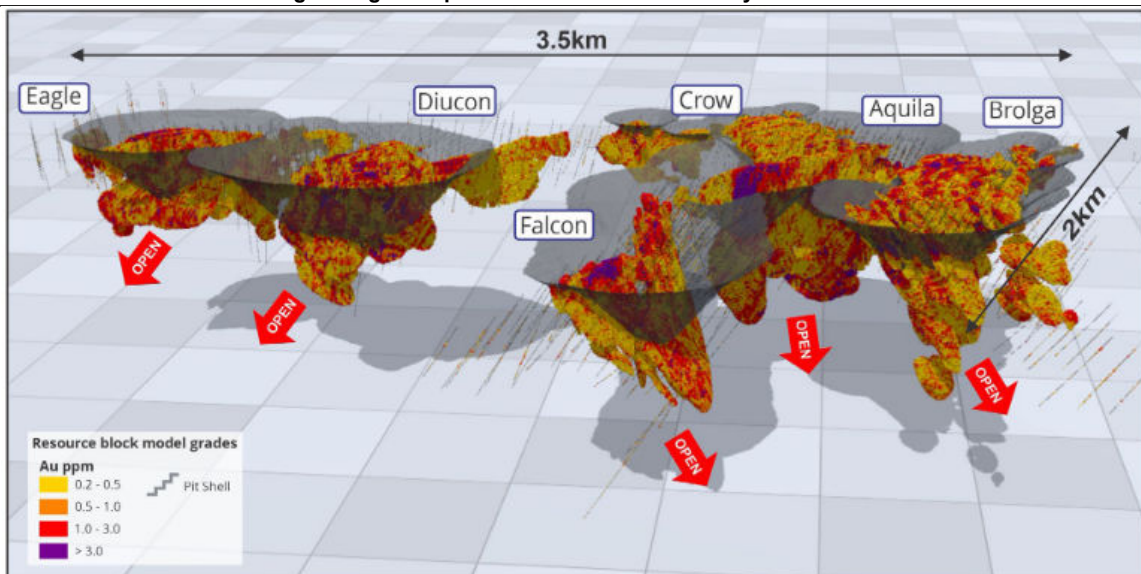
Source: De Grey.

Figure 14: Mallina Reserves and Mining Inventory

	Mt	Grade (g/t)	koz
Hemi Reserve			
Oxide	7.3	1.7	403
Transition	6.0	1.7	329
Sulphide	90.1	1.5	4,408
Total	103.4	1.5	5,139
Mining Inventory used in PFS	137.0	1.6	6,872

Source: De Grey.

Figure 15: Mallina Gold Province showing main gold deposits and the Hemi Discovery



Source: De Grey.

Mineralogy and Processing

Gold ores can be generally categorized into two types - free milling and refractory. Free milling ores are easy to process using simple gravity techniques or direct cyanidation. Refractory ores, on the other hand, are in general terms more difficult to treat and require pre-cyanidation processes to liberate the gold from their minerals.

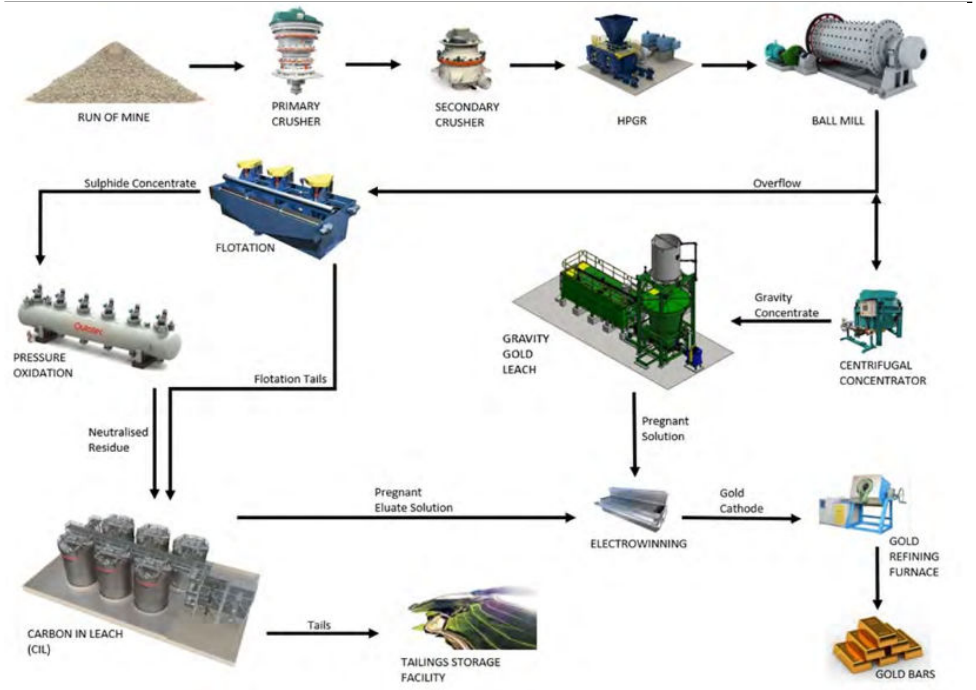
While the Mallina project gold ore bodies are large in scale, a key issue is the metallurgy with ~90% mineralisation being semi-refractory in nature with gold contained in sulphide ore. To successfully extract the gold from the sulphide ore, the PFS contemplated three sulphide oxidation processes for Hemi, 1) autoclave pressure oxidation (POX) 2) bacterial/biological oxidation (BIOX) and 3) atmospheric oxidation (Albion). The preferred process identified being POX.

This process has become very common over the past 30 years, examples of gold mines with successful POX plants include; Newcrest’s Lihir in PNG, Evolution’s Red Lake in Canada and Barrick Newmont’s Gold Strike mine in the US (among others).

A POX plant is an additional processing step and capital cost item. But in the case of the Mallina project, it is anticipated the scale of any POX plant will be modest, because of how well the gold is concentrated via flotation. Metallurgical test work showed that a flotation process after crushing and grinding could concentrate most of the gold into a flotation concentrate with just 7% of the mass to undergo a POX process. Post POX, this concentrate can be fed into a standard carbon in leach (CIL) plant with ~95% recovery of contained gold. The Flotation tail, i.e. ~93% of the plant feed by mass can also be fed into a CIL plant with 71% recovery. Combined between the two streams, ~93% of gold with the ore with a 0.9g/t head grade was recovered.

What does this testwork mean and why is this important? It means that the scale of the POX plant can be significantly smaller than the full process plant. This reduces the scale of capex and opex. For the plant design, the PFS contemplated a 10Mtpa processing mill, with a flotation circuit. After flotation 0.8Mtpa is put through a POX plant, with the remaining 9.2Mtpa flotation underflow going to CIL tanks. Some peer gold mines that use POX plants are a much higher proportion of the ore feed or even process whole of ore feed.

Figure 16: Simplified Process Plant Flowsheet

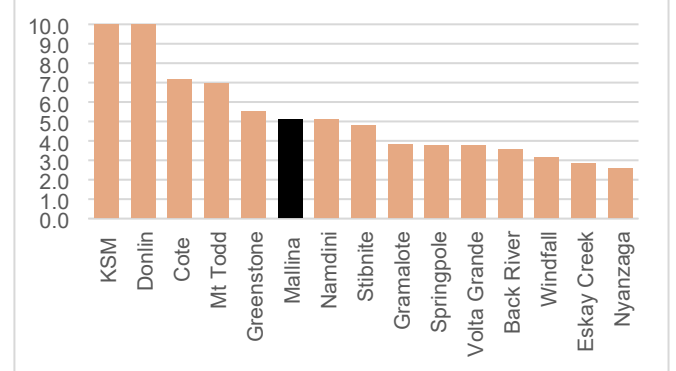


Source: De Grey.

Mallina vs other undeveloped global projects

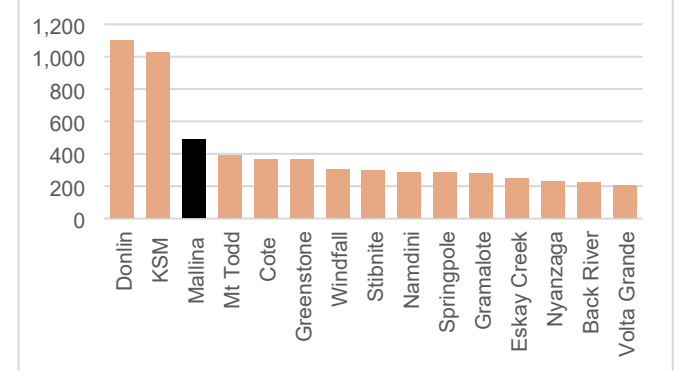
Benchmarking Mallina against other global undeveloped projects highlights it is one of the largest projects in terms of reserves (Figure 17) and life of mine production (Figure 18) and has among the lowest capital intensity levels to bring into production (Figure 19). On an AISC basis costs are at face value higher than the peer set of projects (Figure 20), this is due to mainly a relatively high strip ratio (Figure 22), which is offset by a relatively high grade (Figure 21), particularly for an open cut project. While the cost structure appears higher than some other undeveloped projects, it compares favourably to many current Australian gold mines. The Mallina project is located in WA, one of the premier global mining jurisdictions.

Figure 17: Mallina Reserves vs other global projects (Moz)



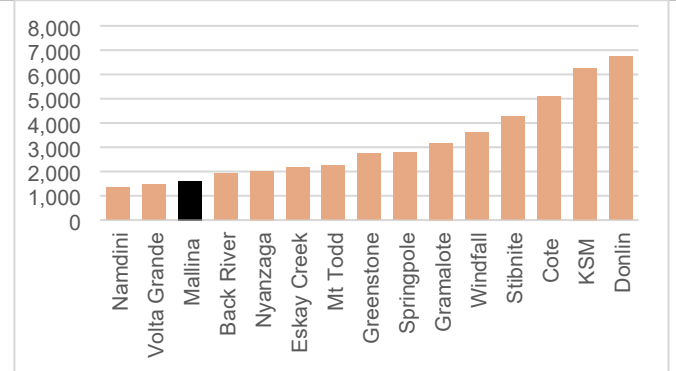
Source: De Grey and Public Filings. Note, KSM reserves are 47Moz and Donlin is 34Moz, scale is adjusted in order to compare the remainder of the data set.

Figure 18: Mallina life of mine production vs other projects (kozpa)



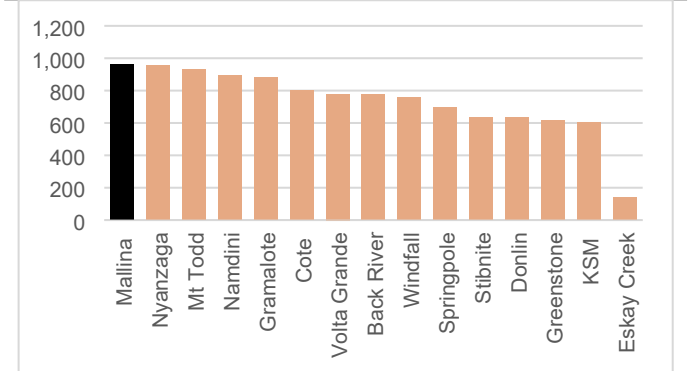
Source: De Grey and Public Filings.

Figure 19: Mallina Capital Intensity vs global peers (US\$/oz)



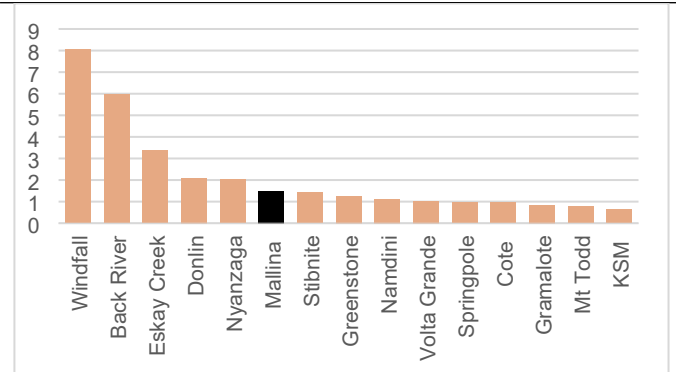
Source: De Grey and Public Filings.

Figure 20: Mallina AISC vs other global projects (US\$/oz)



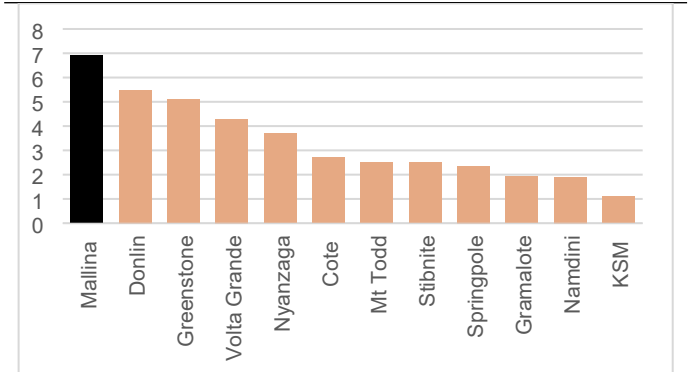
Source: De Grey and Public Filings.

Figure 21: Mallina Grade vs other global projects (g/t)



Source: De Grey and Public Filings.

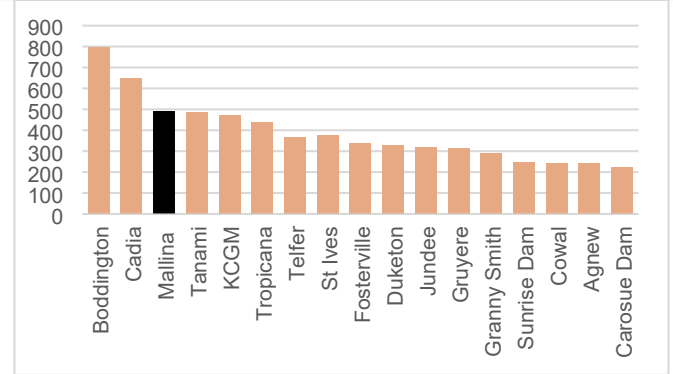
Figure 22: Mallina strip ratio vs other projects (waste:ore)



Source: De Grey and Public Filings.

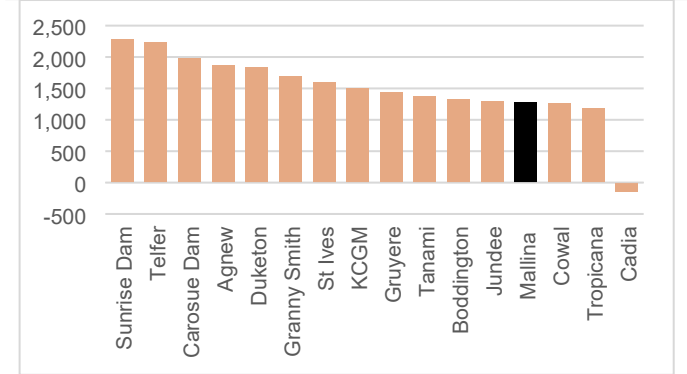
Mallina vs Australian Production Peers

Figure 23: Mallina Production vs other Australian mines (kozpa)



Source: De Grey and Public Filings.

Figure 24: Mallina AISC vs other Australian mines (A\$/oz)



Source: De Grey and Public Filings.

The PFS mine plan and Barrenjoey forecasts

The key findings of the PFS and our forecasts are summarised in Figure 25. Our operational forecasts broadly match the findings from the PFS. We factor in slightly lower production in the initial years of operation due to a slower assumed ramp up.

We factor in +23% higher capex of A\$1.3bn to develop the project to account for recent industry capital cost escalation. We also factor in higher operating costs of A\$1,582/oz life of mine, +20% higher than the PFS.

Figure 25: Mine overview and Barrenjoey forecasts

		PFS	B*	B* vs PFS
Life of Mine	Years	13.6	15.5	14%
Ore Tonnes Mined	Mt	136	158	16%
Strip Ratio	waste:ore	6.9	6.9	0%
Ore Processing	Mtpa	10	10	0%
Average processed grade	g/t	1.6	1.6	1%
Recovery	%	93.6%	93.5%	0%
Average Gold Production Years 1-5	kozpa	550	520	-5%
Average Gold Production Years 1-10	kozpa	540	517	-4%
Recovered Gold	Moz	6.4	7.2	13%
Mining Costs	A\$/t of ore	4.4	5.0	14%
Processing Costs	A\$/t of ore	24.0	27.0	13%
Admin Costs	A\$/t of ore	1.4	2.0	45%
AISC - years 1-5	A\$/oz	1,220	1,257	3%
AISC - years 1-10	A\$/oz	1,280	1,371	7%
AISC - life of mine	A\$/oz	1,316	1,582	20%
Gold Price - real	A\$/oz	\$2,400	\$2,533	6%
Net FCF - post tax	A\$bn	4.2	5.1	22%
NPV - post tax	A\$bn	2.7	2.7	0%
WACC	%	5%	6%	20%
EBITDA - life of mine	A\$bn	7.1	9.0	27%
IRR - post tax	%	41%	34%	-16%
Pre production capex	A\$m	1,053	1,300	23%

Source: Company data, Barrenjoey Research estimates

Key Debate #2: Can De Grey fund the development of Mallina?

Barrenjoey Response

Yes. Compelling economics, De Grey's 100% ownership of the project and Gold Road's 20% equity interest in De Grey provide numerous options. Based on our capex estimate, which is ~23% higher than the PFS, we estimate a \$1.3bn funding requirement. If De Grey successfully negotiates its target A\$800m project finance facility, we estimate the remaining equity gap would be ~A\$355m, ~15% of De Grey's market cap. An equity raising could bridge that gap, or De Grey could consider selling a small portion of the Mallina project.

Insights and data to support our view

How much funding does De Grey Need?

As shown in Figure 26, a pre feasibility study published in Sep-22 estimated the project cost at \$1,050m. In light of industry cost pressures, our capex assumption is +23% higher at A\$1.3bn.

As at 31-Mar-23 De Grey had \$145m of cash on its balance sheet. Management is seeking a syndicated project finance facility and has received non-binding proposals from 14 banks and financial institutions. Management indicated that discussions support a debt funding capacity of ~A\$800m for the project based on the Sep-22 PFS. These financing discussions are continuing in parallel with completion of the DFS and are targeted for mid-2023.

Based on our capex estimate, existing cash reserves and assuming a successful debt facility of A\$800m, we estimate an additional equity of A\$355m is needed. This could come from a partial sell down or an equity raise. We note that additional equity of \$355m would equate to ~15% of De Grey's ~\$2.5bn market cap (as at 4 May 2023).

Figure 26: Sources and Uses of Funds

Use	A\$m	Source	A\$m
Processing - Plant	489	Cash at Bank - 31-Mar-23	145
Processing - Infrastructure	115	Debt Finance Target	800
Processing - Indirects	41	Assumed Equity Finance needed	355
Infrastructure - Site	122		
EPCM/Owners	117		
Subtotal	885		
Contingency	100		
Total	985		
Pre-strip	68		
Total PFS including pre-strip	1,053		
B* Capex estimate modelled	1,300		1,300

Source: Company data, Barrenjoey Research estimates

Valuation Methodology and Risks

We value De Grey with a US\$1,900/oz long term gold price and a 6% WACC. Our WACC includes a 3.5% RfR. Applying these inputs to our model we estimate Mallina is worth ~A\$2.7bn, and including exploration and investments and the balance sheet position, we derive an equity NPV for De Grey of A\$1.90ps. Our Price Target of A\$2.00ps is based on our 1-year forward valuation.

Figure 27: Valuation Summary

	A\$m	A\$ps
Mallina	2,693	1.72
Exploration & Investments	250	0.16
Corporate	-127	-0.08
Total Assets	2,816	1.80
Net Cash / (Debt) - bop	145	0.09
Equity Value	2,961	1.90

Source: Barrenjoey Research estimates

Downside risks to Price Target

- **Project Delays:** We model FID in H1 2024 and first production in the Sep-26 quarter. Not meeting these dates would be a downside risk to our valuation.
- **Capital cost inflation:** Capex inflation has been fierce the last 2 years in the mining industry and particularly in WA. Labour tightness, access to contractors, supply chain disruptions and energy costs have all played a part. We have sought to account for this in our modelling, with capex of A\$1.3bn, +23% higher than the PFS study which is less than 1 year old (Sep-22). Even higher capex would be a downside risk to our valuation.
- **Operating cost inflation:** Similarly our gold coverage has experienced strong underlying cost inflation. We have modelled A\$1,582/oz life-of-mine, +20% higher than the PFS. Higher costs would be a downside risk to our valuation.

Upside risks to Price Target

- **Gold Price:** The spot gold price is currently ~US\$2,000/oz, above our US\$1,900/oz long term real forecast. If this strength persists, then our valuation has upside risk.
- **Exploration Success:** The discovery of Hemi is relatively recent, in 2019, with a very rapid delineation of a 10.6Moz resource. There is reasonable prospects of further success from multiple fronts, including infill drilling, along strike where a number of ore bodies are open at depth and from drilling regional targets many of which remain untested.
- **Higher milling rates:** The planned 10Mtpa mill, may operate above nameplate as is common for processing plants to do, and may be expanded over time if exploration success justifies this.

Companies Mentioned

Bellevue Gold Limited (BGL.AX, A\$1.37, OW, PT A\$1.40)
 Capricorn Metals Ltd (CMM.AX, A\$4.42, N, PT A\$4.60)
 Evolution Mining Limited (EVN.AX, A\$3.61, UW, PT A\$3.20)
 Gold Road Resources Ltd (GOR.AX, A\$1.90, N, PT A\$1.65)
 Newcrest Mining Limited (NCM.AX, A\$29.12, OW, PT A\$30.00)
 Northern Star Resources Ltd (NST.AX, A\$13.55, OW, PT A\$14.50)
 Regis Resources Limited (RRL.AX, A\$2.14, UW, PT A\$1.75)

Disclosure appendix

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