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# Millennium Minerals (MOY)

## Digging deeper

**Recommendation**
**Buy** (Initiation)

**Price**
**\$0.20**
**Target (12 months)**
**\$0.27**
**GICS Sector**
**Materials**
**Expected Return**

Capital growth	<b>35.0%</b>
Dividend yield	<b>0.0%</b>
Total expected return	<b>35.0%</b>

**Company Data & Ratios**

Enterprise value	<b>\$135.0m</b>
Market cap	<b>\$158.4m</b>
Issued capital	<b>792.0m</b>
Free float	<b>52%</b>
Avg. daily vol. (52wk)	<b>\$266,628</b>
12 month price range	<b>\$0.14-\$0.26</b>

**Price Performance**

	(1m)	(3m)	(12m)
Price (A\$)	0.18	0.24	0.18
Absolute (%)	14.3	-16.7	14.3
Rel market (%)	9.6	-25.8	5.4

**Absolute Price**


SOURCE: IRESS

**Scratching the surface**

MOY is a gold exploration and production company whose primary asset is its 100% owned Nullagine Gold Project, located approximately 200km north of Newman in the Pilbara region of Western Australia. Since commencing production in 2012, ore feed to the mill has largely consisted of open-pit oxide material and resource development drilling across MOY's 280km<sup>2</sup> of tenements has been focused on shallow extensions of known deposits in order to maintain oxide mill feed. MOY has been successful on this front and built a strong track record of operational cash flow generation over the last three years. However, this has left much of the landholding effectively untested, with very little drilling outside the main deposits extending deeper than 100-150m below surface. MOY is now embarking on a path to exploit the full potential of the project.

**The turnaround – unlocking the sulphides**

Key to not only monetising its existing Resource base but realising the full potential of its highly prospective tenement package is the capability to economically process sulphide ores which comprise ~850koz (or 76%) of the current Resource base. In March 2018, after investigating several options, MOY identified a capital efficient, low operating cost processing route which is designed to increase overall recoveries to 82.5% of forecast ore blends. This has the immediate benefit of enabling a major optimisation of the current Resource but also opens up the entire project to MOY's aggressive exploration strategy. We view this as a major step towards MOY's objective of lifting production to ~100kozpa, supported by a +5 year mine life.

**Investment Thesis – Buy, Target Price \$0.27/sh**

In our view it is an opportune time to gain exposure to MOY. The success of the sulphide expansion would be a major positive catalyst, enabling MOY to realise full value from its sulphide Resource base through increased production and a materially extended mine life. We initiate with a Buy recommendation and a 12-month forward NPV-based target price of \$0.27/sh.

**Earnings Forecast**

Year end 31 December	2017a	2018e	2019e	2020e
Sales (A\$m)	116	133	187	201
EBITDA (A\$m)	22	22	47	56
NPAT (reported) (A\$m)	(6)	(0)	25	30
NPAT (adjusted) (A\$m)	(4)	(0)	25	30
EPS (adjusted) (cps)	(0.6)	(0.0)	3.1	3.8
EPS growth (%)	-132%	nm	nm	22%
PER (x)	nm	nm	6.5	5.3
FCF Yield (%)	-5%	-1%	18%	26%
EV/EBITDA (x)	6.5	6.6	3.1	2.6
Dividend (cps)	-	-	-	-
Yield (%)	0%	0%	0%	0%
Franking (%)	0%	0%	0%	0%
ROE (%)	-8%	0%	29%	27%

SOURCE: BELL POTTER SECURITIES ESTIMATES

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# Investment thesis and valuation

## Investment thesis: Buy TP\$0.27/sh

Our investment thesis is predicated on:

- Strong management team with the technical skills to deliver operational turnaround;
- Established production and demonstrated cash flow generation;
- Capital efficient process plant expansion to process refractory sulphide ore and increase production; and
- Realisation of value from the refractory sulphide resource base and highly prospective tenement package to extend mine life.

## Strong management team, operational turnaround

MOY is led by a proven management team with experience across mine operations, project financing, corporate restructuring, resource development and exploration. There have been significant changes to management over the last 12-15 months, including the appointment of a new CEO, Peter Cash, a new CFO, Ray Parry and a new COO, Dean Will. With the exception of Peter Cash, who was previously General Manager – Corporate Development, the new appointments are external candidates. This has helped bring a fresh perspective to build on a solid recent track record of cash generation and the impressive restructuring of the balance sheet. Peter Cash was instrumental in this process which achieved buy-in from subordinated creditors, suppliers and contractors plus board and management. MOY since that time has become debt-free and strengthened its balance sheet to a point where it has been able to fund a significant investment in exploration, build its Reserves and obtain the funding required to extract full value from the Resource base.

Ray Parry has over 30 years' experience in a variety of sectors including mining, manufacturing, oil & gas and banking. This included the role of CFO at Northern Star Resources (NST) where he played a key role in its growth from a single-project company into the second-largest ASX-listed gold miner by the end of 2014.

Dean Will is a highly regarded mining engineer with more than 30 years' experience in the mining industry in operations and corporate roles across a range of commodities globally. His most recent role was 3 years with Anglo American as Head of Mining and Technical Services.

In our view the MOY management team is well qualified to operate, develop and explore the Nullagine assets and has particularly strong technical capabilities.

## Established production and cash flow generation

Production commenced at the Nullagine Gold Project in 2012, having since produced ~400koz at approximately 75-80kozpa. There is no doubt that mining operations across the Nullagine tenements have been dispersed across a fragmented Resource base. In 2017 MOY sourced the bulk of its ore from no fewer than 8 separate deposits while exploration and resource development drilling was carried out across more than 50 targets.

We would typically be wary of projects with multiple, relatively small / short-life ore sources. However the Nullagine operations have a strong track record of operational cash flow generation over the last three years:

- CY17 operating cash flow: \$30.8m from production of 72.8koz;

- CY16 operating cash flow: \$42.1m from production of 86.3koz; and
- CY15 operating cash flow: \$30.7m from production of 92.1koz;

This demonstrates that MOY has been able to make money from this style of operation. Over this period it has rebuilt its balance sheet to a point where it is now able to make significant investments in exploration.

The exploration and evaluation spend over 2017 was \$23.3m resulting in negative free cash flows of \$7.3m. Free cash flows in prior years were:

- CY16 free cash flow: \$15.8m; and
- CY15 free cash flow: \$27.5.

In our view this demonstrates a strong track record of extracting value from the Nullagine Project and is evidence that upon conversion of sulphide Resources to ore Reserves further value will be realised from an extended mine life and the investment in exploration will generate strong returns.

### Capital efficient sulphide expansion

Key to not only monetising its existing Resource base but realising the full potential of its highly prospective tenement package is the capability to economically process the refractory sulphides. These comprise ~850koz (or 76%) of the current Resource base.

The existing processing plant is a relatively standard 2.0Mtpa carbon-in-leach (CIL) circuit designed to process free-milling ores. It comprises a primary crusher, SAG mill, gravity circuit and carbon-in-leach (CIL) tankage for extraction to gold doré. At present it is not economic to process refractory sulphide ores through the existing CIL plant. Identifying a technically and financially viable process route for the sulphide Resources at Nullagine has been the key to unlocking the full value of the asset for some time. MOY has investigated several refractory sulphide ore processing options including:

- A standalone 500ktpa flotation circuit to produce a bulk, high grade gold concentrate for an estimated CAPEX of \$20-\$30m;
- An additional ball mill and flotation circuit integrated into the existing CIL plant to treat refractory sulphides on a campaign basis, producing a high-grade precious metals concentrate. Estimated CAPEX for this option was \$40-\$46m;

In March 2018 an alternative process route was identified involving the installation of a gravity sulphide scavenging circuit on the CIL tails stream, coupled with an ultrafine grinding circuit and intense cyanidation of the sulphide concentrate. Baseline testwork has indicated the ability of this circuit to recover 50% of the gold contained in the CIL tails. Metallurgical test work is continuing to further optimise leach conditions, which is expected to further improve forecast recoveries. This will be a major milestone in achieving MOY's strategic target to lift production to ~100kozpa, supported by a +5 year mine life. Both these objectives will rely on the successful processing of sulphide ore.

The direct capital cost of the expansion is estimated to be \$15m. Current operating costs for the existing CIL plant are \$18.40/t, with the expanded processing route to add an incremental \$3.60/t for a total processing cost of \$22/t. Funding for this option is much more achievable and we estimate a payback period of 13-15 months, assuming a 25% gain on sulphide recoveries, a 3-5% gain on oxide recoveries, a 50:50 mill blend at 1.75Mtpa and a A\$1,700/oz gold price. The additional calculated 9.8koz recovered implies a capital intensity of A\$1,530/oz of installed annual production capacity. We point out that this is less than the current gold spot price.

## Realisation of value from the sulphide resource base

The Nullagine Gold Project tenements cover ~280km<sup>2</sup> and include a 40km strike length of what has been termed the Middle Creek Mineralised Corridor. Key regional faults defining its boundary host the majority of MOY's deposits. The vast bulk of MOY's landholding comprises granted Mining Leases (ML's) which we view as advantageous from a permitting perspective, enabling a rapid path to production and value realisation for new discoveries.

### Re-optimisation to enable Reserve growth

Due to most drilling having been focussed on extensions to known deposits to delineate sufficient free-milling oxide Reserves to maintain a two year mine life, very little drilling outside the main deposits extends below 150m below surface. Yet even with this being the case, there is an existing sulphide Resource base of ~850koz. If just half of this converted to Ore Reserves upon the re-optimisation of the Resource base that will be enabled by the expanded sulphide circuit, it will almost triple the current Reserve inventory of 221.6koz.

In 2017 the 246,000m drilling campaign resulted in the Project's Ore Reserves increasing 20% from 185.9koz to 221.6koz (after mining depletion of 69.0koz, implying gross addition of 106koz). It also delivered the expansion of existing oxide resources, the discovery of new prospects (Redbeard) and the successful definition of a maiden underground Reserve at the Barton's deposit. Impressive drilling results were achieved across the project area and, in our view, demonstrate its high prospectivity.

MOY has guided a further \$15m exploration budget for 2018 across the Project to grow the Resource base. The program will prioritise larger scale, longer-life deposits in keeping with the strategic objective of expanding production to 100kozpa over a minimum 5 year mine life. With the sulphide Resource base now a viable target and the demonstrated prospectivity of the project, we see increased opportunity for the discovery of genuine baseload deposits.

## Valuation and Recommendation – Buy, TP\$0.27/sh

Although we see upside to the current MOY valuation on a number of measures, our target price is based upon the 12-month forward NPV of our forecast free cash flows from the Nullagine Project. This is included in a sum-of-the-parts valuation for the company which also includes a notional estimate for the value of the exploration potential of the balance of the Nullagine tenements and a discounted cash flow estimate of corporate costs.

**Table 1 – MOY sum-of-the-parts valuation**

Sum-of-the-parts (+12 month Target Price)	\$m	\$/sh
Project (un-risked NPV10)	179.2	0.23
Other exploration	45.0	0.06
Corporate overheads	(21.1)	(0.03)
<b>Subtotal</b>	203.0	0.26
Net cash (debt)	16.8	0.02
<b>Total (undiluted)</b>	<b>219.8</b>	<b>0.28</b>
Dilutive effect of options		(0.01)
Add cash	1.7	0.00
<b>Total (diluted)</b>	<b>221.4</b>	<b>0.27</b>

SOURCE: BELL POTTER ESTIMATES

With upside of 35.0% from the current share price to our valuation, we make a Buy recommendation in conformity with our rating structure.

# MOY background and asset review

## Company description

MOY is a gold exploration and production company whose primary asset is its 100% owned Nullagine Gold Project, located approximately 200km north of Newman in the Pilbara region of Western Australia. Since commencing production in 2012, ore feed to the mill has largely consisted of open-pit oxide material, sourced from multiple deposits across the +40km strike length of MOY's 280km<sup>2</sup> tenement package. The bulk of this however remains largely under-explored due to drilling having been focussed on shallow extensions to known deposits. This has been successful in delineating sufficient free-milling oxide Reserves to underpin a 2 year mine life, but has left much of the landholding effectively untested. Very little drilling outside the main deposits extends deeper than 100-150m below surface. MOY is now showing there are opportunities to expand and monetise the Resource base. It has recently confirmed the technical viability of an expanded processing route to treat refractory sulphide mineralisation which makes up the majority of its Resource base. These developments could result in a significant increase to the Resource base, a much higher rate of conversion to Reserves and a material extension to the life-of-mine (lom) at Nullagine.

## Nullagine Gold Project

### Overview

The Nullagine Gold Project is located approximately 200km north of Newman on the Marble Bar Road. Site access is good with increasing sections of sealed road to site. This is in part due to infrastructure development associated with Hancock Prospecting's Roy Hill iron ore mine and FMG's Christmas Creek iron ore operations located to the south of Nullagine. The Pilbara setting does expose the Nullagine project to the West Australian cyclone season (November to April) and this has resulted in production disruptions in the past.

Since commencing production in 2012 Nullagine has produced over 400koz of gold and with a current Resource inventory of 1.1Moz equates to a known gold endowment of over 1.5Moz. In the context of a relative lack of exploration, shallow drilling and a short operational history this presents as a **compelling prospect for further Resource growth**.

MOY has provided **production and cost guidance for 2018** of 75-80koz at All-In-Sustaining-Costs (AISC) of A\$1280-1350/oz. Production will be highest in the March and December quarters, with an annualised rate of 100kozpa targeted for the final quarter. The June and September quarters will be lower production and higher cost as pre-stripping activities are undertaken to access higher-grade ore at Golden Eagle. The latest production update reported 12.6koz of gold produced in the June 2018 quarter and guided 22.0koz for the September 2018 quarter and 25.0koz for the December 2018 quarter.

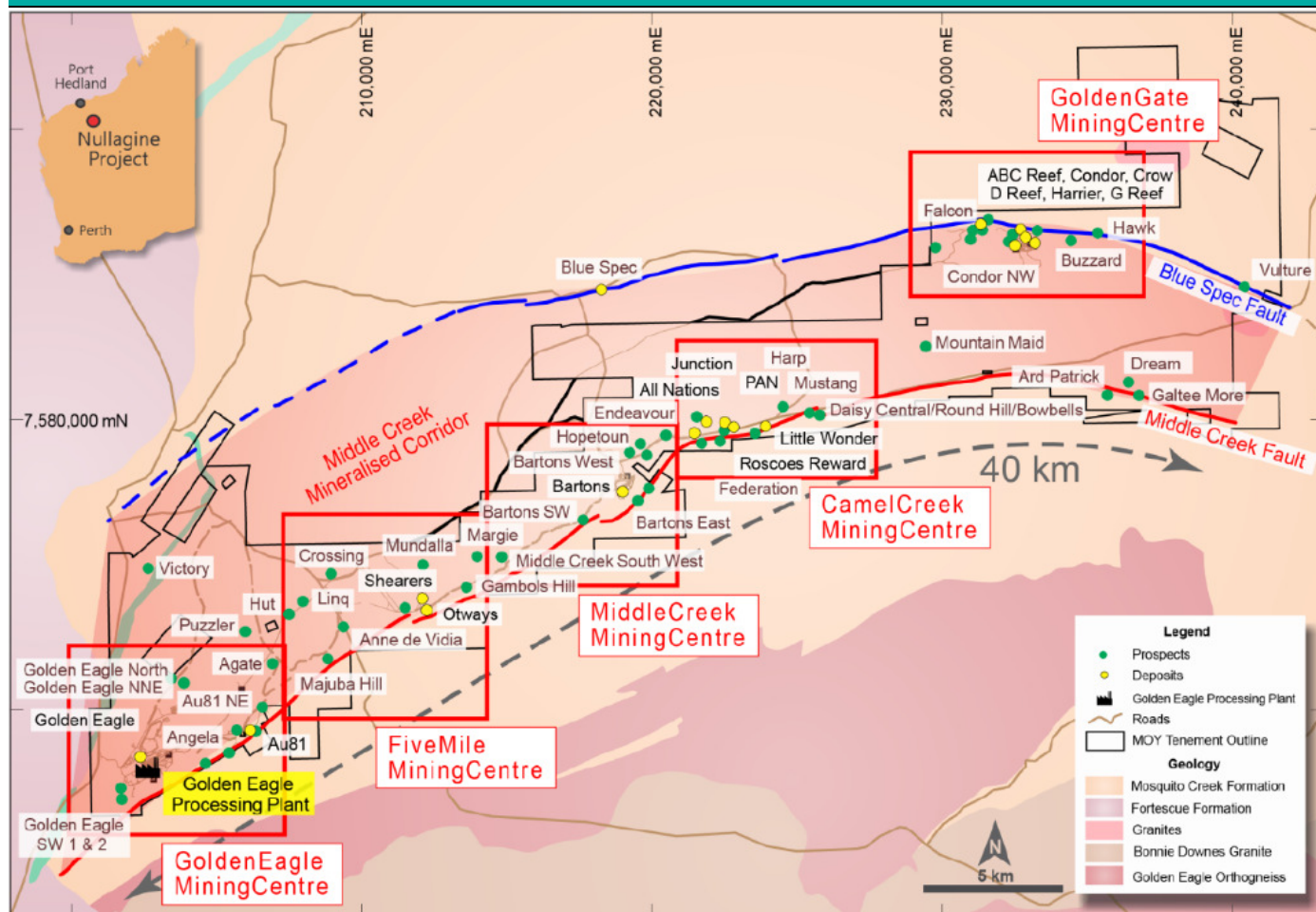
The project itself comprises five operating mining centres with a sixth centre emerging. MOY's tenements cover an approximately 40km strike length of the Middle Creek Mineralised Corridor for a total of 280km<sup>2</sup>. The vast bulk of MOY's landholding comprises granted Mining Leases (ML's) which we view as advantageous from a permitting perspective, **enabling a rapid path to production** for new discoveries. This has been demonstrated with the recent Redbeard discovery which progressed from discovery in November 2017 to Resource in just two months. It is expected to contribute to production from the September quarter of 2018, i.e. within 12 months of first discovery.



### Mining and processing operations

Mining operations to date at Nullagine have been exclusively by open-pit methods, with ore sourced from numerous deposits across the tenement package. Key deposits at Nullagine include the Golden Eagle open-pit, adjacent to which the processing plant is located. Golden Eagle has a current Reserve of 80.4koz @ 1.2g/t Au on a Resource base of 327.3koz @ 1.4g/t Au. It has been one of the primary sources of production over the life of the project and is planned to be the baseload ore source in CY2018. Others ore sources for CY2018 are the abovementioned Redbeard deposit, the Au81 deposit and the Shearers North open pits.

Figure 1 - Nullagine Gold Project location and geological setting



SOURCE: COMPANY DATA

There is no doubt that mining operations across the Nullagine tenements have been dispersed across a **fragmented Resource base**. In 2017 MOY sourced the bulk of its ore from no fewer than 8 separate deposits while exploration and resource development drilling was carried out across more than 50 targets.

These delivered predominantly oxide feed to the Golden Eagle CIL processing plant. The exception was fresh (sulphide) ore from the Bartons deposit being identified as free-milling through the existing plant, enabling a re-optimisation of the Resource and an expanded open-pit cutback. Subsequent to this, delineation of an underground Reserve sufficient to justify underground was completed, a feasibility study found it viable and development commenced in the March quarter of 2018. We view this as an important milestone for MOY, as **underground mining will likely become a significant production source** if the sulphide Resource base is to be successfully exploited.

We would typically be wary of projects with multiple, relatively small / short-life ore sources. However the Nullagine operations have a strong track record of operational cash flow generation over the last three years:

- CY17 operating cash flow: \$30.8m from production of 72.8koz;
- CY16 operating cash flow: \$42.1m from production of 86.3koz; and
- CY15 operating cash flow: \$30.7m from production of 92.1koz;

This demonstrates that MOY has been able to make money from this style of operation. Over this period it has rebuilt its balance sheet to a point where it is now making significant investments in exploration.

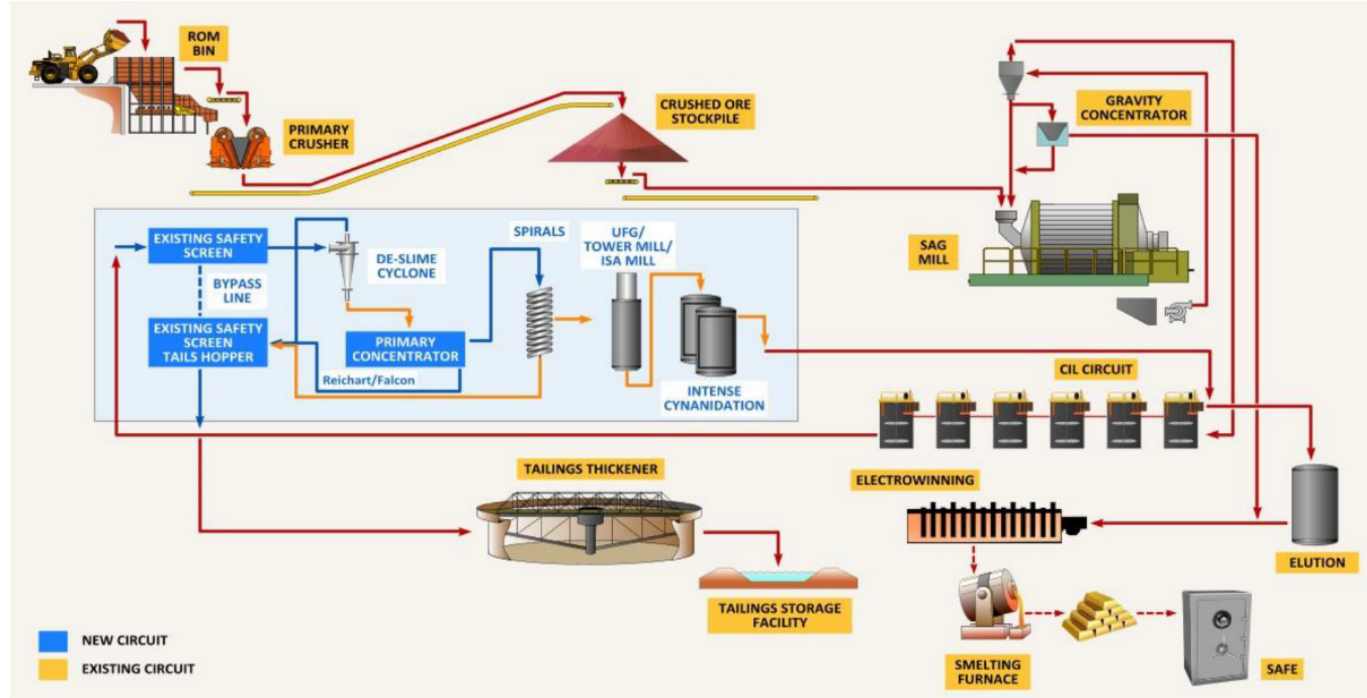
### Sulphide Expansion Study

Key to not only monetising its existing Resource base but realising the full potential of its highly prospective tenement package is the capability to economically process the refractory sulphides. These comprise ~850koz (or 76%) of the current Resource base.

The existing processing plant is a relatively standard 2.0Mtpa carbon-in-leach (CIL) circuit designed to process free-milling oxide and sulphide ores. It comprises a primary crusher, SAG mill, gravity circuit and carbon-in-leach (CIL) tankage for extraction to gold doré. It has a nameplate capacity of 1.5Mtpa but is currently operating at close to 2.0Mtpa due to processing a predominantly oxide blend which is softer than the sulphide blends it was designed for. We anticipate that as sulphide ore becomes an increasing portion of the mill feed, the throughput rate will reduce to 1.7-1.8Mtpa.

At present it is not economic to process refractory sulphide ores through the existing CIL plant. Recoveries from sulphide ores vary with mineralogy across the deposits at Nullagine, but at the largest deposit, Golden Gate, an overall average gold recovery of 50% has been estimated if the existing CIL plant was used without modification on the deeper sourced, less free-milling sulphide ores.

Figure 2 - Process flow-sheet for Nullagine CIL plant – including sulphide expansion circuit



SOURCE: COMPANY DATA

Identifying a technically and financially viable process route for the sulphide Resources at Nullagine has been key to unlocking the full value of the asset for some time. While MOY



has been able to make money from the mining of multiple oxide deposits, the identification of a large scale ore source to provide baseload feed over an extended mine life is almost certainly going to require successful conversion of sulphide deposits to Reserves.

MOY has been investigating the sulphide ore processing options for some time and considered:

- A standalone 500ktpa flotation circuit to produce a bulk, high grade gold concentrate with an estimated CAPEX of \$20-\$30m;
- An additional ball mill and flotation circuit integrated into the existing CIL plant to treat refractory sulphides on a campaign basis, producing a high-grade precious metals concentrate. Estimated CAPEX for this option was \$40-\$46m;

#### **Tails scavenging circuit**

In March 2018 Ausenco completed a trade-off study which evaluated these and other options for the processing of sulphide ore at Nullagine. Included in this study was an alternative process which involves the installation of a gravity sulphide scavenging circuit on the CIL tails stream, coupled with an ultrafine grind and intense cyanidation of the recovered concentrate (Figure 3). This has indicated an increase average overall gold recovery for Golden Eagle sulphide ore to approximately 75%.

MOY has committed to this expanded processing route for its CIL plant. The basis of this expansion is a well understood processing configuration, similar to that used successfully at the Granny Smith mine and for the fine grinding of sulphide concentrates at KCGM's Super Pit operations.

The gravity sulphide scavenging circuit on the CIL tails stream will pull ~7% of the tails mass to a concentrate which is then fed to an ultrafine grinding mill (to <10µm) and intense cyanidation leach. Metallurgical testwork indicates overall recoveries of the forecast plant feed will increase to 82.5%. The direct capital cost of the expansion is estimated to be \$15m, derived from estimates received from vendors of the major equipment components. Metallurgical test work is continuing to further optimise leach conditions, which is expected to further improve forecast recoveries.

Current operating costs for the current CIL plant are \$18.40/t, with the expanded processing route to add an estimated \$3.60/t for a total processing cost of \$22/t. Procurement of long-lead items was announced in May 2018, including design of an Outotec High Intensity Grinding Mill (HIGMill). This puts the project on schedule for commissioning of the expanded process route in Q1CY19.

#### **A step change for Nullagine**

A viable processing route for the refractory sulphide Resources at Nullagine will enable a major re-optimisation of the Nullagine Resource and Reserve inventory, expected in the September quarter of 2018. This option delivers significantly lower operating costs vs the other proposed circuits, which will in turn lower cut-off grades for likely higher conversion of Resources to Reserves

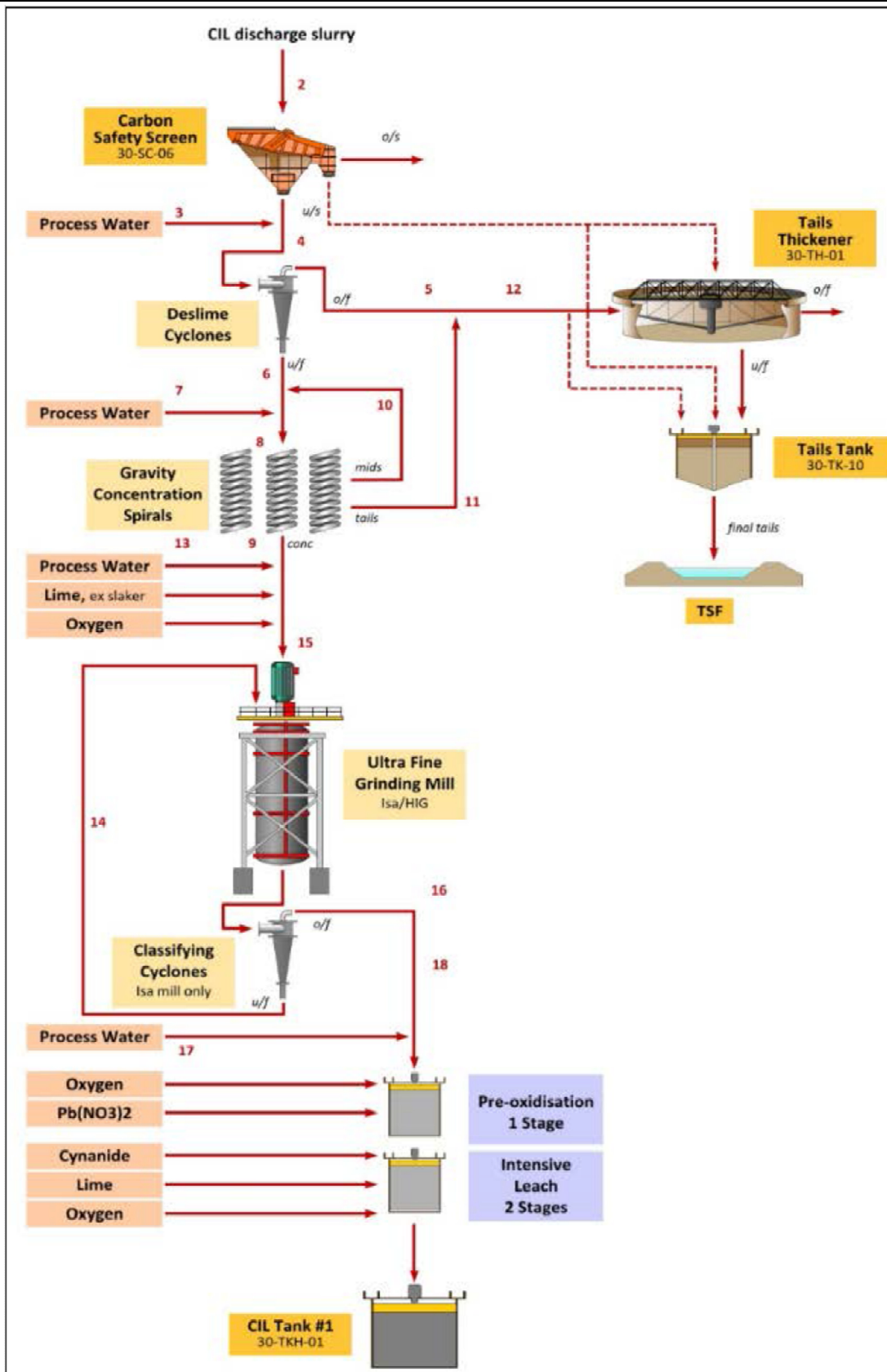
We see a number of advantages in this approach. It is a much lower CAPEX number vs the \$46m previously estimated for the construction of a parallel sulphide flotation circuit, which was to produce a high grade gold concentrate. Due to having a shared grinding circuit (single SAG mill), sulphides and oxides would have to have been batch processed separately – limiting operational flexibility. Operating costs would also have been much higher and MOY would have had to establish concentrate handling and transport infrastructure as well as a new marketing function.

#### **Affordable and capital efficient**

Funding for this option is much more achievable and we estimate a payback period of 13-15 months, assuming a 25% gain on sulphide recoveries, a 3-5% gain on oxide recoveries,

a 50:50 mill blend at 1.75Mtpa and a A\$1,700/oz gold price. The additional calculated 9.8koz recovered implies a capital intensity of A\$1,530/oz of installed annual production capacity. We point out that this is less than the current gold spot price.

Figure 3 - Process plant sulphide expansion flow sheet



SOURCE: COMPANY DATA

**Nullagine Gold Project summary**

The summary below outlines key historic, current and forecast operating metrics for the Nullagine Gold Project.

**Location:** 200km north of Newman, Western Australia.

**Tenements:** Approximately 280km<sup>2</sup>

**Operating currency:** Australian dollar.

**Stage:** Production. Operations commenced in November 2012, since producing 400koz at ~75-80kozpa. To date, the bulk of production has been sourced from free-milling oxide material due to the refractory characteristics of the sulphide mineral resources precluding their economic treatment through the Golden Eagle processing plant. MOY has a strategic target to lift production to lift production to ~100kozpa, supported by a +5 year mine life.

**Resources:** 22.8Mt @ 1.5g/t Au for 1,121.7koz contained gold (December 2017).

**Reserves:** 4,130kt @ 1.7g/t Au for 221.6koz contained gold (December 2017).

**LOM:** 2.4 years (Reserves), 13 years (Resources) - based on 1.75Mtpa throughput.

**CAPEX:** A\$87.6m project capital expenditure to first production. 2018 sulphide expansion capital budget is A\$15.0m.

**Sustaining CAPEX:** A\$12-13m pa (Bell Potter estimate)

**Production and cost guidance:** CY2018 guidance is for 75-80koz at AISC of A\$1,280-\$1,350/oz. Production will be highest in the March and December quarters, with an annualised rate of 100kozpa targeted for the final quarter. The latest production update reported 12.6koz of gold produced in the June 2018 quarter and guided 22.0koz for the September 2018 quarter and 25.0koz for the December 2018 quarter.

**Mining:** Open-pit mining by standard truck and backhoe excavator, drill-blast-load haul mining from the Golden Eagle deposit and a number of satellite pits. MOY has commenced development of its first underground mine at the free-milling Barton's deposit, from which first development ore production is expected by end CY2018.

**Processing:** 1.5Mtpa nameplate processing plant achieving ~2Mtpa on 100% oxide feed. Standard CIL processing plant utilising primary crushing circuit, a single SAG mill grinding circuit, CIL circuit with carbon adsorption, elution circuit and extraction to gold doré. A sulphide expansion has been approved which will lift overall recoveries to 82.5% for forecast blended oxide and sulphide feed.

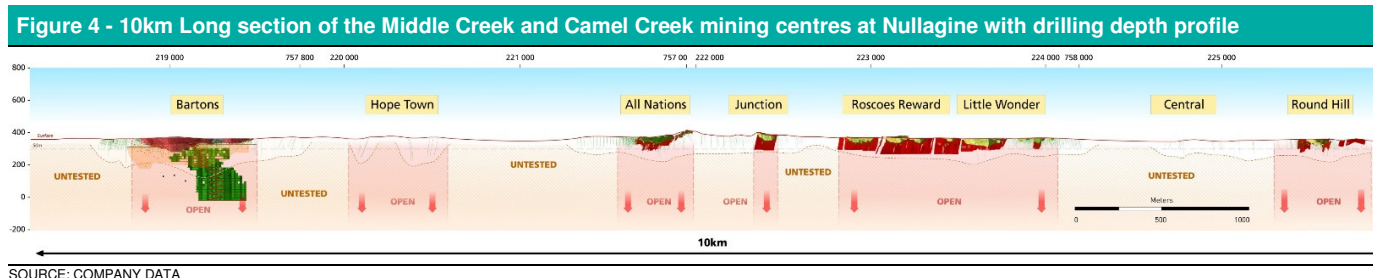
**Recoveries:** assumed at 89-90% for oxide material, 82.5% for 50:50 blended feed – sulphide circuit commissioning in the March quarter 2019.

**Steady state / target production:** 100kozpa over a minimum 5-year mine life from December 2018, supported by Resource to Reserve conversion on the back of the sulphide circuit expansion.

**Geology, Mineral Resources and Ore Reserves**

The Nullagine Gold Project covers ~280km<sup>2</sup> of the highly prospective and underexplored Mosquito Creek Basin (MCB), in the East Pilbara of Western Australia. The Nullagine Project deposits are structurally controlled, sediment hosted, lode gold style of deposit. The regional structural controls of the mineralisation are the Blue Spec Fault (northern boundary) and the Middle Creek Fault (southern boundary). These define the Middle Creek Mineralised Corridor (see Figure 1) which runs for an approximate 40km strike length covered by MOY's tenements.

The vast bulk of MOY's landholding comprises granted Mining Leases (ML's) which we view as advantageous from a permitting perspective, enabling a rapid path to production for new discoveries. These remain largely under-explored due to most drilling having been focussed on extensions to known deposits. This has been successful in delineating sufficient free-milling oxide Reserves to underpin a 2 year mine life, but has left much of the landholding effectively untested.



Very little drilling outside the main deposits extends below 100-150m below surface, but where depth extents have been tested, there have been positive results.

A good example of this is the Barton's deposit where open-pit mining has just been completed. Due to the free-milling (non-refractory) nature of its sulphide ore, depth extents were drilled, a Resource of 98.6koz @ 4.9g/t Au delineated and a positive feasibility study completed. This will be MOY's first underground operation, with development commencing in the current quarter for first production in early 2H CY18.

This deposit illustrates one of the key opportunities of the Nullagine project, where the groundholding is comparable to the stretch from Kalgoorlie to Kambalda. Significant potential exists for both new shallow oxide discoveries and deeper deposits with underground potential. Underground studies are now underway on several more deposits as a result.

#### Substantial exploration budget

MOY has maintained a substantial exploration budget of \$13-15m per annum, funded from operational cash flows and cash on hand. In 2017 the prime exploration objective was to identify and bring into production larger more sustainable ore sources. A 246,000m drilling campaign across more than 50 targets resulted in the Project's Ore Reserves year increasing 20% from 185.0koz to 221.6koz (after mining depletion of 69.0koz, implying gross addition of 106koz).

The strategy also delivered the expansion of existing oxide resources, the discovery of new prospects (Redbeard) and the successful definition of a maiden underground Reserve at the Barton's deposit. Impressive drilling results were achieved across the project area and, in our view, demonstrate its high prospectivity. Examples include:

#### Bartons

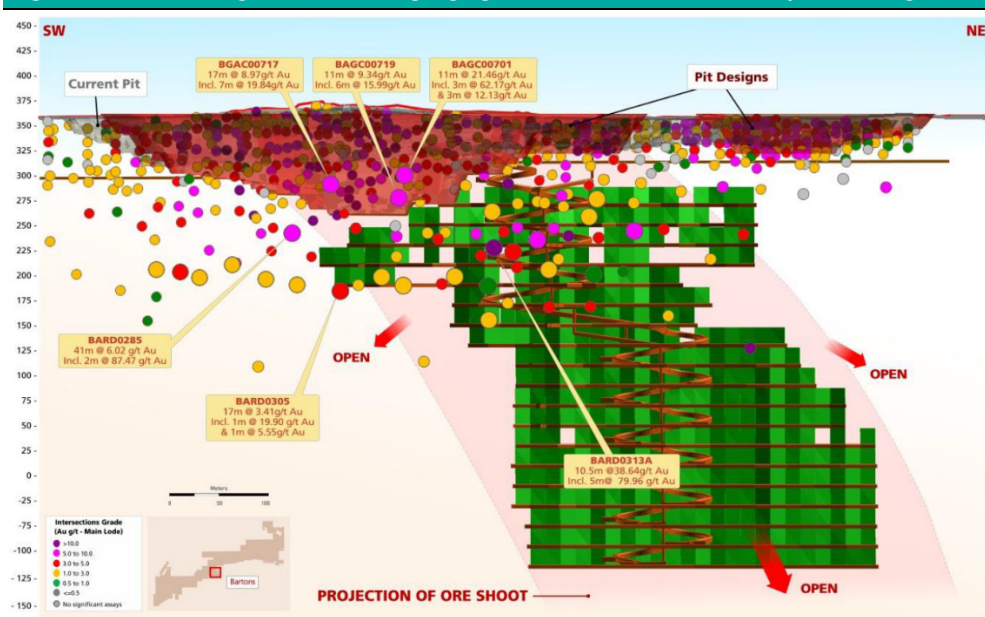
Metallurgical testwork completed in early 2017 confirmed fresh ore from Bartons could be economically processed through the existing CIL plant at Nullagine. Drilling was conducted to assess the potential for a significant cut-back and underground. High grade results included:

- 16m @ 5.91g/t Au from 115m incl. 2m @ 31.95g/t Au (BARD0104A)
- 8m @ 9.13g/t Au from 118m incl. 3m @ 22.41g/t Au (BARD0120)
- 8m @ 11.56g/t Au from 87m incl. 3m @ 29.63g/t Au (BARD0134)
- 6m @ 12.69g/t Au from 115m incl. 2m @ 32.42g/t Au (BARD0130)
- 4m @ 18.60g/t Au from 65m incl. 2m @ 36.19g/t Au (BARD0082)

The deposit remains open at depth and along strike. With underground development underway it is anticipated that Resource extensions are likely, once more cost-effective drilling commences from underground.

We view the approval of the Bartons underground as an important milestone for MOY, as underground mining will likely become a significant production source if the sulphide Resource base is to be successfully exploited. Over thirty deep drilling targets have been identified at Nullagine yet only four have been tested – all showing encouraging results.

**Figure 5 – Bartons long section showing high grade intersections and conceptual underground**



SOURCE: COMPANY DATA

### Au81 West

Located 3km east of the Nullagine processing plant, southern and northern extensions were defined over a strike length of 800m. Drill intersections included:

- 14m @ 1.97g/t Au from 23m (AUGC00104)
- 10m @ 2.23g/t Au from 5m (ARC0422)
- 11m @ 11.69g/t Au from 43m incl. 6m @ 19.62g/t Au (AUGC00145)
- 13m @ 1.35g/t Au from 17m incl. 2m @ 6.23g/t Au (AUGC00146)
- 7m @ 3.9g/t Au from 18m incl. 2m @ 8.93g/t Au (AUGC00148)

MOY has guided a further \$15m exploration budget for 2018 across the Project to grow the Resource base. The program will prioritise larger scale, longer-life deposits in keeping with the strategic objective of expanding production to 100kozpa over a minimum 5 year mine life. With the sulphide Resource base now a viable target and the demonstrated prospectivity of the project we see increased opportunity for genuine baseload discovery.

Global Mineral Resources and Ore Reserves for the Nullagine Gold Project were last calculated in December 2017 and are shown in Tables 2 and 3 following.



Table 2 - Mineral Resource Statement as at 31 December 2017

Nullagine Gold Project - Mineral Resource Statement									
Deposit	Measured		Indicated		Inferred		Total Remaining		
	Million Tonnes	Grade g/t Au	Million Tonnes	Grade g/t Au	Million Tonnes	Grade g/t Au	Million Tonnes	Grade g/t Au	Au Ounces
Agate <sup>3</sup>			0.23	1.2	0.11	1.1	0.34	1.2	12,800
All Nations <sup>3</sup>	0.26	1.6	0.44	1.2	0.27	1.1	0.97	1.3	39,900
Anne de Vidia <sup>3</sup>	0.09	1.7	0.38	1.1	0.21	1.1	0.68	1.2	25,800
Angela <sup>3</sup>			0.82	1.3	0.29	1.3	1.11	1.3	46,400
Au81 <sup>2</sup>	0.15	1.6	0.28	1.2	0.89	0.9	1.32	1.0	44,300
Au81 West <sup>3</sup>	0.04	1.3	0.24	1.6	0.19	1.2	0.47	1.4	21,400
Bartons Open Pit <sup>3</sup>	0.16	2.7	0.17	1.5	0.11	1.2	0.44	1.9	26,400
Bartons UG <sup>5</sup>			0.41	5.6	0.22	3.5	0.63	4.9	98,600
Bow Bells <sup>3</sup>			0.21	1.5			0.21	1.5	10,200
Condor <sup>5</sup>			0.06	4.3	0.02	4	0.08	4.2	10,500
Condor North-West <sup>3</sup>			0.06	3.3	0.01	2.7	0.07	3.2	7,300
Crossing <sup>3</sup>			0.3	1.2	0.06	1.3	0.36	1.2	14,100
Crow <sup>5</sup>			0.04	5	0.02	5.3	0.06	5.1	9,900
Falcon <sup>4</sup>	0.06	3	0.02	2.4			0.08	2.9	7,400
Gambols Hill <sup>3</sup>			0.13	1.6	0.17	1.6	0.3	1.6	15,500
Golden Gate G Reef <sup>5</sup>			0.01	3.6	0.001	2.4	0.011	3.5	1,300
Golden Eagle <sup>3</sup>	3.34	1.3	2.16	1.3	2.02	1.5	7.52	1.4	327,300
Golden Gate ABC Reef + Harrier <sup>5</sup>			0.08	6.4	0.11	4.6	0.19	5.4	32,800
Golden Gate D Reef <sup>5</sup>			0.04	5.3	0.02	5.8	0.06	5.5	10,600
Hopetoun-Endeavour <sup>3</sup>			0.17	1.4	0.5	1.4	0.67	1.4	30,200
Hut <sup>3</sup>			0.29	1.2	0.09	1	0.38	1.2	14,100
Junction <sup>3</sup>	0.05	1.9	0.06	1.5	0.04	1.5	0.15	1.6	7,900
Little Annie <sup>3</sup>					0.12	1.4	0.12	1.4	5,500
Little Wonder <sup>3</sup>	0.06	1.5	0.29	1.5	0.81	1.7	1.16	1.6	61,200
Majuba <sup>3</sup>			0.31	1.4	0.05	1.5	0.36	1.4	16,400
Mundalla <sup>3</sup>			0.13	1.4	0.18	1.3	0.31	1.3	13,400
Mustang <sup>3</sup>			0.07	2	0.11	1.3	0.18	1.6	9,100
Otways <sup>3</sup>	0.48	1.1	0.76	1.1	0.54	1	1.78	1.1	61,300
Red Beard <sup>3</sup>			0.13	3.5	0.11	1.6	0.24	2.6	20,300
Roscoes Reward <sup>3</sup>			0.58	1.4	0.32	1.3	0.9	1.4	39,500
Round Hill <sup>3</sup>			0.3	2	0.1	2.1	0.4	2.0	26,100
Shearers <sup>3</sup>			0.54	1.5	0.27	1.2	0.81	1.4	36,500
Shearers North <sup>3</sup>			0.22	1.4	0.22	1.1	0.44	1.3	17,700
<b>Total</b>	<b>4.69</b>	<b>1.4</b>	<b>9.93</b>	<b>1.7</b>	<b>8.18</b>	<b>1.5</b>	<b>22.80</b>	<b>1.5</b>	<b>1,121,700</b>

**Notes:**

1. Figures in Table may not sum due to rounding.
2. The Au81 deposit was estimated using ordinary kriging methodology for grade estimation by CSA Global.
3. Agate, All Nations, Angela, Anne de Vidia, Au81 West Bartons Open Pit, Bow Bells, Crossing, Condor North-West, Gambols Hill, Golden Eagle, Hopetoun-Endeavour, Hut, Junction, Little Annie, Little Wonder, Majuba, Mustang, Otways, Roscoes Reward, Round Hill, Shearers and Shearers North were estimated by ordinary kriging by Millennium Minerals Ltd.
4. Golden Gate satellite deposit, Falcon, was estimated using ordinary kriging by Dampier Consulting.
5. Barton Underground and Golden Gate open pit and underground deposits reported by Entech Pty Ltd.

SOURCE: COMPANY DATA

We point out that since this update, a larger, higher grade Mineral Resource has been defined for the Redbeard deposit of 278.5kt @ 3.0g/t Au for 25.2koz contained (July 2018). This represents a 15% increase in grade and a 24% increase in contained ounces vs the December 2017 estimate reported above. An updated Reserve is detailed overleaf.



Table 3 - Ore Reserve Statement as at 31 December 2017

Prospect	COG <sup>2</sup> Au (g/t)	Proved		Probable		Total		
		Ore (kt)	Au (g/t)	Ore (kt)	Au (g/t)	Ore (kt)	Au (g/t)	Ounces
Shearers North	>0.54	-	0.0	117,800	1.3	117,800	1.3	4,800
Au81 West	>0.52	7,000	1.7	128,900	1.8	135,900	1.8	7,800
Red Beard	>0.64	-	0.0	118,800	3.3	118,800	3.3	12,600
Bartons Open Pit	>0.64	171,600	2.5	12,100	1.1	183,700	2.4	14,100
Golden Eagle <sup>3</sup>	*	1,732,300	1.2	302,300	1.2	2,034,600	1.2	80,400
Mundalla	>0.53	-	0.0	24,200	1.6	24,200	1.6	1,200
Mustang	>0.6	-	0.0	63,200	2.2	63,200	2.2	4,400
Condor North West	>0.66	-	0.0	45,500	3.6	45,500	3.6	5,300
All Nations <sup>4</sup>	>0.62	96,600	1.6	34,700	1.6	131,300	1.6	6,800
Roscoes Reward	>0.6	-	0.0	26,300	1.4	26,300	1.4	1,200
Gambols Hill <sup>4</sup>	>0.6	-	0.0	7,200	1.7	7,200	1.7	400
Crossing <sup>5</sup>	>0.54	-	0.0	92,600	1.2	92,600	1.2	3,500
Round Hill <sup>5</sup>	>0.67	-	0.0	107,600	2.7	107,600	2.7	9,400
Hut <sup>5</sup>	>0.56	-	0.0	115,800	1.2	115,800	1.2	4,300
Angela <sup>5</sup>	>0.55	-	0.0	183,900	1.3	183,900	1.3	8,000
Hopetoun- Endeavour <sup>5</sup>	>0.65	-	0.0	68,000	1.6	68,000	1.6	3,400
Bow Bells <sup>5</sup>	>0.7	-	0.0	22,500	2.3	22,500	2.3	1,600
Agate <sup>5</sup>	>0.56	-	0.0	102,400	1.3	102,400	1.3	4,200
Bartons Underground <sup>6</sup>	>2.0	-	0.0	270,000	4.5	270,000	4.5	39,100
<b>Sub-total</b>		<b>2,007,500</b>	<b>1.4</b>	<b>1,843,800</b>	<b>2.1</b>	<b>3,851,300</b>	<b>1.7</b>	<b>212,500</b>
<b>Stockpiles</b>								
Golden Eagle		166,600	0.8			166,600	0.8	4,400
Au81 West		19,200	1.3			19,200	1.3	800
Otways		13,900	0.8			13,900	0.8	400
Roscoe Reward		2,200	0.7			2,200	0.7	100
Bartons		13,200	1.7			13,200	1.7	700
Little Wonder		7,100	2.0			7,100	2.0	500
Others		56,200	1.2			56,200	1.2	2,200
<b>Sub-total</b>		<b>278,400</b>	<b>1.0</b>			<b>278,400</b>	<b>1.0</b>	<b>9,100</b>
<b>Total Ore Reserves</b>		<b>2,285,900</b>	<b>1.3</b>	<b>1,843,800</b>	<b>2.1</b>	<b>4,129,700</b>	<b>1.7</b>	<b>221,600</b>

<sup>1</sup> Figures in Table 4 may not sum due to rounding.

<sup>2</sup> Cut-off grades vary due to variable haulage costs from pit to ROM.

<sup>3</sup> Due to variable recoveries for each ore block in Golden Eagle Deposit, the economical cut of grades are built into each ore blocks in the model used for the optimisation.

<sup>4</sup> Ore Reserve Estimate were updated for mining depletion

<sup>5</sup> Ore Reserve Estimate remain unchanged

SOURCE: COMPANY DATA

On the back of the larger, higher grade Mineral Resource defined for the Redbeard deposit an updated Ore Reserve was calculated of 153kt @ 3.5g/t Au for 17.2koz contained. This represents a 6% increase in grade and a 37% increase in contained ounces vs the December 2017 estimate reported above. This makes Redbeard the highest grade open-pit deposit defined at Nullagine to date and the high (76%) Resource to Reserve conversion is illustrative of being able to process the sulphide component of the deposit.

# Capital structure and financials

MOY has a strong balance sheet and increased funding flexibility following the approval in June 2018 of a A\$17.5m Revolving Loan Facility with Investec Australia. As at 31 March 2018, MOY held cash and bullion of \$23.4m. As at end December 2016 MOY held cash and bullion of \$25.2m, with the steady cash balance reflective of a substantial investment in exploration and evaluation which is being funded by strong operational cash flows. Over the June 2018 quarter significant investment in the Golden Eagle pre-strip and development of the Bartons underground, together with lower-than-planned production resulted in a cash balance of \$13.6m. This reflects the investment in the planned ramp-up to a 100kozpa run-rate by end CY18.

The exploration and evaluation spend over 2017 was \$23.3m resulting in negative free cash flows of \$7.3m. Free cash flows in prior years were:

- CY16 free cash flow: \$15.8m; and
- CY15 free cash flow: \$27.5.

Corporate costs for MOY run at approximately \$5-6m per annum.

## Revolving Loan Facility

In June 2017 MOY announced the approval of a \$17.5m Revolving Loan Facility and an additional Risk Management facility for gold hedging of up to 40koz. Proceeds from the facility, together with existing cash reserves, will be used to fund the acquisition of key plant and equipment and provide the working capital required for the expansion of the existing 2Mtpa CIL processing plant to treat the refractory sulphide portion of the Resource base at the Nullagine Gold Project.

The facility will have an initial tenor of 15 months and can be redrawn, providing MOY with working capital flexibility. Scheduled repayments commence 12 months after first availability. Under the terms of the loan, MOY will undertake a hedging program of at least 25koz over a rolling 12-month period from the date of first draw-down under the facility, with additional hedging available at MOY's discretion.

There are a couple of key points we would note in relation to this facility:

- MOY has the cash balance and operational cash flows to fund a significant exploration budget or the sulphide circuit expansion but would struggle to do both – particularly with higher cost / lower production quarters forecast for the middle of 2018;
- The approval of the facility provides MOY the funding flexibility to pursue both avenues for growth, with the service of the loan underpinned by the existing operations; and
- The availability of the loan can be seen as an endorsement of the sulphide expansion.

## Equity outstanding

MOY has 792.0m shares outstanding. In addition to this there are a further 22.4m Performance Rights, 15.6m options (@ \$0.079c expiring November 2019), 2.4m options (@ \$0.184c expiring June 2020) and 2.4m options (@ \$0.45c expiring January 2021).

MOY last raised equity of \$21 million via a Share Participation Offer (SPO) at 4 cents a share in December 2015. This was in part used to repay \$14m of debt with IMC Investments, which also underwrote a portion of the offer in an effective debt-for-equity swap. Other sub-underwriters included contractors, directors and management.

Figure 6 – MOY capital structure summary		
Shares on issue	m	792.0
<b>Total shares on issue</b>	<b>m</b>	<b>792.0</b>
<b>Share price</b>	<b>\$/sh</b>	<b>0.200</b>
Market capitalisation	\$m	158.4
Net cash	\$m	13.6
<b>Enterprise value (undiluted)</b>	<b>\$m</b>	<b>144.8</b>
Options outstanding (m)	m (wtd avg ex. price \$0.06 per share)	42.7
Options (in the money)	m	40.3
Issued shares (diluted for options)	m	832.3
Market capitalisation (diluted)	\$m	166.5
Net cash + options	\$m	15.3
<b>Enterprise value (diluted)</b>	<b>\$m</b>	<b>151.2</b>
SOURCE: BELL POTTER SECURITIES ESTIMATES		

## Share register and liquidity

We consider the MOY share register to be reasonably tightly held, with top shareholder IMC Group holding 47.9% of issued capital and being a stable holder. Institutional presence on the register is light. Turnover for the last 30 days has average ~1.8m shares per day, equating to 7.0% of the listed shares changing hands in that period (or 14% of the free float) and \$9.6m of value.

MOY's largest shareholder is IMC Investments, which holds 379.0m shares in MOY (47.9%). IMC is a Singapore based fund which has significant positions in various Australian-based mining companies in the basic materials sectors. It seeks to build a portfolio of mining resources that will complement and integrate with its industrial supply chain strategy. IMC initially came to its shareholding in MOY via its interest in the LinQ Resources Fund.

Figure 7 – MOY top shareholders		
Shareholder	%	m
IMC Group	47.9%	379.0
Old Mutual	1.8%	14.3
SOURCE: COMPANY REPORTS		

## Debt and hedging

MOY's only debt obligation is the Revolving Loan Facility with Investec as discussed above. It comes with an associated hedging facility requiring a minimum, rolling 25koz of forward sales. At the time of publishing, MOY has yet to draw down on the facility but we incorporate this into our forecasts, assuming it will be drawn down over the remaining quarters of CY2018 to fund the construction of the sulphide expansion circuit in time for planned commissioning in Q1CY2019.

MOY also has an existing hedge book which at March 31 2018 stood at 14.0koz to be delivered by 21 December 2018 at an average forward gold price of \$1,723/oz. MOY has typically maintained a relatively heavy hedge book exposure. In 2016 MOY sold 54.8koz into its hedge book (or 63% of 86.3koz produced) and in 2017 sold 52.0koz into its hedge book (or 71% of 72.8koz produced).

# Board and management

## Board of Directors and senior management

MOY is managed by a small Board of four members, all of whom are non-executive directors and two of whom are classed as independent, being Mr Kennedy and Mr Lester. Mr Chye is not considered to be independent by virtue of his prior employment by substantial shareholder, the IMC Group. Mr Bittar is not considered to be independent as he was previously employed as an Executive Director of MOY, until 1 March 2017. In our view the size of the Board and the skill-sets represented are appropriate to the size and activities of MOY. Remuneration of the Board and senior executives totalled \$2.773m in FY2017, inclusive of superannuation, termination benefits and share based payments.

## Board of directors

### Greg Bittar – Non-Executive Chairman (since March 2017)

Greg has a Bachelor of Economics and Bachelor of Laws (University of Sydney) and Masters in Finance (London Business School), and has over 15 years investment banking and mining resource sector experience in Australia and overseas – having worked for Bankers Trust, Baring Brothers Burrows and following the completion of his Masters in Finance in 2000, he joined Morgan Stanley, working in London, Melbourne and Sydney. He has extensive experience in public and private markets mergers and acquisitions, capital markets and strategic advisory assignments across a range of sectors including general industrials, metals and mining, mining services and energy. During the past three years, Greg has also served on the board of Trek Metals Limited (Non-Executive Chairman) and Horizon Oil Limited (NED).

### Bruno Lorenzon – Non-Executive Director (since May 2016)

Bruno is Head Group Corporate Finance at IMC Pan Asia Alliance Pte Ltd and has more than 15 years' experience in investment, strategy and corporate finance in the resources sector in both Australia and overseas. He has worked for the IMC Group for the past eight years, and previously worked for Vale in Brazil and Rio Tinto in Australia in roles encompassing strategic planning, mergers and acquisitions and business development. Bruno has an MBA, a bachelor degree in Civil Engineering and is a CFA charter holder.

### Peter Lester – Non-Executive Director (since March 2017)

Peter is a mining engineer with more than 40 years' experience in the mining industry in various roles including construction and project management, operations, corporate and financial advisory services and in business development with responsibility for strategic planning and corporate development, predominantly in precious and base metals. He has worked in operational roles in Mt Isa and Broken Hill, as well as senior executive positions with North Ltd, Newcrest Mining Limited, Oxiana/Oz Minerals Limited and Citadel Resources Group Limited. During the last three years, Peter has also served on the board of Kidman Resources (Non-Executive Chairman), White Rock Minerals Limited (NED) and Doray Minerals Limited (Non-Executive Chairman).

Source: Company website ([www.millenniumminerals.com.au/corporate-directory/board-management/](http://www.millenniumminerals.com.au/corporate-directory/board-management/)) and MOY Annual Report 2017

## Board of directors (continued)

### **Timothy Kennedy – Non-executive Director (since May 2016)**

Tim is a geologist with over 30 years' experience in the exploration, feasibility and development of gold, nickel, Platinum Group Elements (PGE), base metals and uranium projects throughout Australia. His most recent role was with successful mid-tier miner Independence Group NL (ASX:IGO) where he spent 11 years as Exploration Manager. Tim has also held positions with PNC Exploration, Hunter Resources, Resolute Resources and a senior role with Anglo American, and has been involved with a number of significant discoveries including Tropicana (gold), Bibra (gold), Ambassador North (uranium), Myrtle (zinc), Rosie (nickel-copper PGE), and Triumph (zinc). During the past three years, Tim has also served on the board of Sipa Resources Limited and Helix Resources Limited.

Source: Company website ([www.millenniumminerals.com.au/corporate-directory/board-management/](http://www.millenniumminerals.com.au/corporate-directory/board-management/)) and MOY Annual Report 2017

## Senior management

### **Peter Cash – Chief Executive Officer (since March 2017)**

Peter is a highly experienced mining executive with more than 20 years' experience working both in Australia and overseas. He has previously held a range of senior executive positions in Corporate Development, Exploration and Investor Relations with junior and mid-tier ASX-listed resource companies including Focus Minerals, Noble Mineral Resources and Talisman Mining. Peter joined Millennium two years ago, initially in the role of General Manager – Corporate Development, where he played a key role in the Company's highly successful operational turnaround strategy. Peter was appointed as Chief Executive Officer of Millennium Minerals in March 2017.

### **Ray Parry – Chief Financial Officer and Company Secretary (since November 2017)**

Ray holds degrees in both accounting and finance and an MBA specialising in international business. He is also a Fellow member of the Certified Practising Accountants of Australia and is a Graduate of the Australian Institute of Company Directors. He has over 30 years experience in a variety of sectors including mining, manufacturing, oil & gas and banking. Ray previously was the CFO and Company Secretary at Hanking Gold Mining and prior to this was the CFO at Northern Star Resources. His other roles include senior management positions with St Barbara, Kerr McGee (USA) / Tronox and Bankwest.

### **Dean Will – Chief Operating Officer (since July 2017)**

Dean Will is a mining engineer with more than 30 years' experience in the mining industry in Operations and Corporate roles with experience in the exploration, feasibility, development and mining of Gold, Nickel, Tin, Coal, Iron Ore, Copper, Platinum Group Elements (PGE), Base Metal and Diamond projects globally. His most recent role was 3 years with Anglo American as Head of Mining and Technical Services improving the performance of contracts and contractors in their global operations in Australia, Africa and South America. He has also held senior positions as Vice President Contract Mining Services with AngloGold Ashanti, as Executive Director with Metals X and as Chief Mining Engineer with Mincor.

Source: Company website ([www.millenniumminerals.com.au/corporate-directory/board-management/](http://www.millenniumminerals.com.au/corporate-directory/board-management/)) and MOY Annual Report 2017

# Millennium Minerals Ltd (MOY)

## Company description

MOY is a gold exploration and production company whose primary asset is its 100% owned Nullagine Gold Project, located approximately 200km north of Newman in the Pilbara region of Western Australia. Since commencing production in 2012, ore feed to the mill has largely consisted of open-pit oxide material, sourced from multiple deposits across the +40km strike length of MOY's 280km<sup>2</sup> tenement package. The bulk of this however remains largely under-explored due to drilling having been focussed on shallow extensions to known deposits. This has been successful in delineating sufficient free-milling oxide Reserves to underpin a 2 year mine life, but has left much of the landholding effectively untested. Very little drilling outside the main deposits extends deeper than 150m below surface. MOY is now showing there are opportunities to expand and monetise the entire Resource base. It has recently confirmed the technical viability of an expanded processing route to treat refractory sulphide mineralisation which makes up the majority of its Resource base. These developments could result in a significant increase to the Resource base, a much higher rate of conversion to Reserves and a material extension to the life-of-mine (lom) at Nullagine.

## Investment Thesis – Buy, Target Price \$0.27/sh

In our view it is an opportune time to gain exposure to MOY. The success of the sulphide expansion would be a major positive catalyst, enabling MOY to realise full value from its sulphide Resource base through increased production and a materially extended mine life. We initiate with a Buy recommendation and a 12-month forward NPV-based target price of \$0.27/sh.

## Valuation and Recommendation – Buy, TP\$0.27/sh

Although we see upside to the current MOY valuation on a number of measures, our target price is based upon the 12-month forward NPV of our forecast free cash flows from the Nullagine Project. This is included in a sum-of-the-parts valuation for the company which also includes a notional estimate for the value of the exploration potential of the balance of the Nullagine tenements and a discounted cash flow estimate of corporate costs.

**Table 4 – MOY sum-of-the-parts valuation**

Sum-of-the-parts (+12 month Target Price)	\$m	\$/sh
Project (un-risked NPV10)	179.2	0.23
Other exploration	45.0	0.06
Corporate overheads	(21.1)	(0.03)
<b>Subtotal</b>	<b>203.0</b>	<b>0.26</b>
Net cash (debt)	16.8	0.02
<b>Total (undiluted)</b>	<b>219.8</b>	<b>0.28</b>
Dilutive effect of options		(0.01)
Add cash	1.7	0.00
<b>Total (diluted)</b>	<b>221.4</b>	<b>0.27</b>

SOURCE: BELL POTTER ESTIMATES

With upside of 35.0% from the current share price to our valuation, we make a Buy recommendation in conformity with our rating structure.



# Resource sector risks

Risks to MOY include, but are not limited to:

- **Funding and capital management risks.** Funding and capital management risks can include access to debt and equity finance, maintaining covenants on debt finance, managing dividend payments and managing debt repayments.
- **Operating and development risks.** Mining companies' assets are subject to risks associated with their operation and development. Risks for each company can be heightened depending on method of operation (e.g. underground versus open pit mining) or whether it is a single mine company. Development of mining assets may be subject to receiving permits, approvals timelines or weather events, causing delays to commissioning and commercial production.
- **Operating and capital cost fluctuations.** Markets for exploration, development and mining inputs can fluctuate widely and cause significant differences between planned and actual operating and capital costs. Key operating costs are linked to energy and labour costs as well as access to, and availability of, technical skills, operating equipment and consumables.
- **Commodity price and exchange rate fluctuations.** The future earnings and valuations of exploration, development and operating resource companies are subject to fluctuations in underlying commodity prices and foreign currency exchange rates.
- **Resource growth and mine life extensions.** The viability of future operations and earnings forecasts and valuations reliant upon them may depend upon resource and reserve growth to extend mine lives.
- **Regulatory changes risks.** Changes to the regulation of infrastructure and taxation (among other things) can impact the earnings and valuation of mining companies.
- **Corporate/M&A risks.** Risks associated with M&A activity including differences between the entity's and the market's perception of value associated with completed transactions.

# Millennium Minerals

as at 10 July 2018

Recommendation

Buy

Price

\$0.20

Target (12 months)

\$0.27

Table 5 - Financial summary

PROFIT AND LOSS							FINANCIAL RATIOS						
Year ending December	Unit	2016a	2017a	2018e	2019e	2020e	Year ending December	Unit	2016a	2017a	2018e	2019e	2020e
Revenue	\$m	141.6	115.6	133.3	187.0	201.4	VALUATION						
Expense	\$m	(99.5)	(93.5)	(111.4)	(139.6)	(145.0)	NPAT	\$m	17.1	(5.6)	(0.1)	24.5	30.0
EBITDA	\$m	42.1	22.1	21.9	47.4	56.3	Reported EPS	c/sh	2.3	(0.7)	(0.0)	3.1	3.8
Depreciation	\$m	(21.9)	(25.3)	(21.9)	(23.2)	(23.3)	Adjusted EPS	c/sh	2.3	(0.6)	(0.0)	3.1	3.8
EBIT	\$m	20.1	(3.2)	0.0	24.3	33.1	EPS growth	%	nm	-132%	nm	nm	22%
Net interest expense	\$m	0.2	0.3	(0.1)	0.3	1.2	PER	x	8.9x	nm	nm	6.5x	5.3x
Unrealised gains (Impairments)	\$m	(0.1)	(1.1)	-	-	-	DPS	c/sh	-	-	-	-	-
Other	\$m	(3.1)	(1.6)	-	-	-	Franking	%	0%	0%	0%	0%	0%
PBT	\$m	17.1	(5.6)	(0.1)	24.5	34.3	Yield	%	0%	0%	0%	0%	0%
Tax expense	\$m	-	-	-	-	4.3	FCF/share	c/sh	2.1	(0.9)	(0.1)	3.7	5.2
NPAT (reported)	\$m	17.1	(5.6)	(0.1)	24.5	30.0	P/FCFPS	x	9.6x	-21.4x	-140.1x	5.4x	3.9x
NPAT (underlying)	\$m	17.2	(4.5)	(0.1)	24.5	30.0	EV/EBITDA	x	3.4x	6.5x	6.6x	3.1x	2.6x
							EBITDA margin	%	30%	19%	16%	25%	28%
							EBIT margin	%	14%	nm	0%	13%	16%
							Return on assets	%	32%	-5%	0%	17%	17%
							Return on equity	%	45%	-8%	0%	29%	27%
							LIQUIDITY & LEVERAGE						
							Net debt (cash)	\$m	-	-	(17)	(46)	(87)
							ND / E	%	0%	0%	-24%	-48%	-69%
							ND / (ND + E)	%	0%	0%	-31%	-92%	-223%
							EBITDA / Interest	x	-259.6x	-65.7x	nm	-168.0x	-46.4x
							ORE RESERVE AND MINERAL RESOURCE						
							Nullagine Gold Project				Mt	g/t Au	(koz)
							Mineral Resources						
							Measured				4.690	1.4	211.1
							Indicated				9.930	1.7	542.7
							Inferred				8.180	1.5	394.5
							Total				22.800	1.6	1,148.3
							Ore Reserve						
							Proven				2.285	1.3	95.5
							Probable				1.843	2.1	124.4
							Total				4.128	1.7	219.9
							ASSUMPTIONS - Prices						
							Year ending December (avg)	Unit	2016a	2017a	2018e	2019e	2020e
							Gold	US\$/oz	\$1,250	\$1,260	\$1,340	\$1,390	\$1,440
							Silver	US\$/oz	\$17.13	\$17.06	\$17.87	\$18.53	\$19.20
							Gold	A\$/oz	\$1,679	\$1,644	\$1,718	\$1,829	\$1,920
							Silver	A\$/oz	\$22.99	\$22.26	\$22.91	\$24.39	\$25.60
							Currency						
							AUD:USD	A\$/US\$	0.74	0.77	0.78	0.76	0.75
							ASSUMPTIONS - Production & costs						
							Year ending December	Unit	2016a	2017a	2018e	2019e	2020e
							Gold production						
							Ore tonnes processed	kt	1,988	1,916	1,839	1,950	1,960
							Head grade	g/t Au	1.5	1.3	1.5	1.9	2.0
							Gold produced	koz	86.3	72.8	78.0	102.2	104.9
							Costs						
							Cash costs / oz Au	A\$/oz	\$1,028	\$1,196	\$1,149	\$1,084	\$1,131
							All-in-Sustaining-Costs (AISC)	A\$/oz	\$1,213	\$1,372	\$1,290	\$1,291	\$1,325
							VALUATION						
							Ordinary shares (m)						792.0
							Options in the money (m)						40.3
							Total shares diluted (m)						832.3
							Sum-of-the-parts	Now	+12 mths	+24 mths			
								\$m	\$/sh	\$m	\$/sh	\$m	\$/sh
							Project (unrisked NPV10)	169.2	0.21	179.2	0.23	164.2	0.21
							Other exploration	45.0	0.06	45.0	0.06	45.0	0.06
							Corporate overheads	(22.5)	(0.03)	(21.1)	(0.03)	(18.3)	(0.02)
							Subtotal	191.7	0.24	203.0	0.26	190.9	0.24
							Net cash (debt)	13.6	0.02	16.8	0.02	45.8	0.06
							Total (undiluted)	205.3	0.26	219.8	0.28	236.7	0.30
							Dilutive effect of options		(0.01)		(0.01)		(0.01)
							Add cash from options	1.7	0.00	1.7	0.00	1.7	0.00
							Total (diluted)	206.9	0.25	221.4	0.27	238.4	0.29
							MAJOR SHAREHOLDERS						
							Shareholder					%	m
							IMC Group					47.9%	379.0
							Old Mutual					1.8%	14.3

SOURCE: BELL POTTER SECURITIES ESTIMATES

**Recommendation structure**

**Buy:** Expect >15% total return on a 12 month view. For stocks regarded as 'Speculative' a return of >30% is expected.

**Hold:** Expect total return between -5% and 15% on a 12 month view

**Sell:** Expect <-5% total return on a 12 month view

*Speculative Investments are either start-up enterprises with nil or only prospective operations or recently commenced operations with only forecast cash flows, or companies that have commenced operations or have been in operation for some time but have only forecast cash flows and/or a stressed balance sheet.*

*Such investments may carry an exceptionally high level of capital risk and volatility of returns.*

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