The Miner’s Dilemma
Have WeReached Peak Discovery

Mines and Money, Hong Kong. March 2014

www.explorationinsights.com
The Good News: You Will Make Money Buying Quality

Nevsun. High quality discovery in Eritrea

First Quantum. High quality miner acquired major deposits

NSU. 1996 to 2004
$9 to 10-cents to $9

FM. 1998 to 2005
75-cents to $17
2002 to 2014: A Boom and a Bust

• Gold miners index (XAU) ~80% gain vs. S&P 60%
• But beginning in 2011 it all busted
  • GDXJ (jnr miners) off 75%
  • XAU off 40%
What Went Wrong—Implied Margins

Production Costs—Cash Costs per oz implied high margins
• Increased from ~$190 to ~$800 since 2000
• Industry pushed “cash costs” metric—great margins

2011 cash costs by company

Source: Deutsche Bank, company data
What Went Wrong—No Margins

All-in Production Costs

- Barrick: $1,527
- Yamana: $1,262
- Newmont: $1,459
- Top 12 avg: $1,574

2014 Est. Average $1,410

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### Exhibit 6. All-in Cost/Oz Figures Derived From Financial Statements

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013e</th>
<th>2014e</th>
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<tbody>
<tr>
<td>Agnico-Eagle</td>
<td>$1,291</td>
<td>$1,353</td>
<td>$1,681</td>
<td>$1,532</td>
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<tr>
<td>AngloGold Ashanti</td>
<td>$1,251</td>
<td>$1,668</td>
<td>$1,526</td>
<td>$1,372</td>
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<tr>
<td>Barrick</td>
<td>$1,463</td>
<td>$1,527</td>
<td>$1,390</td>
<td>$1,273</td>
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<td>Centerra</td>
<td>$1,175</td>
<td>$2,086</td>
<td>$1,370</td>
<td>$1,281</td>
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<td>Eldorado</td>
<td>$984</td>
<td>$1,300</td>
<td>$1,709</td>
<td>$1,763</td>
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<td>Gold Fields</td>
<td>$1,249</td>
<td>$1,518</td>
<td>$1,339</td>
<td>$1,541</td>
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<td>Goldcorp</td>
<td>$1,015</td>
<td>$1,529</td>
<td>$1,992</td>
<td>$1,295</td>
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<tr>
<td>Iamgold</td>
<td>$968</td>
<td>$1,617</td>
<td>$1,731</td>
<td>$1,751</td>
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<tr>
<td>Kinross</td>
<td>$1,394</td>
<td>$1,676</td>
<td>$1,699</td>
<td>$1,580</td>
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<tr>
<td>New Gold</td>
<td>$1,647</td>
<td>$1,891</td>
<td>$1,125</td>
<td>$1,039</td>
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<tr>
<td>Newmont</td>
<td>$1,133</td>
<td>$1,459</td>
<td>$1,439</td>
<td>$1,466</td>
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<tr>
<td>Yamana</td>
<td>$923</td>
<td>$1,262</td>
<td>$1,317</td>
<td>$1,023</td>
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<tr>
<td>Average</td>
<td>$1,208</td>
<td>$1,574</td>
<td>$1,527</td>
<td>$1,410</td>
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<tr>
<td>YoY Change</td>
<td>30%</td>
<td>-3%</td>
<td>-8%</td>
<td></td>
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</table>

Source: Company reports and CIBC World Markets Inc.
What Went Wrong--Capex

Barrick Gold says ..... We can’t make money on 54 million ounces
Pascua Lama Mine Capex $600mil (1999) to >$9bil (2013)

“To sustain current 85 mil oz production will cost in excess of $400 billion over 10 years”

Past six years 40% of major miners’ total market cap went into development projects

Next six years projected that 60% of market cap goes into capex– Just to sustain current production

The Miners Dilemma
What Went Wrong—Timelines

The average time from Discovery to Production Increased

- ~10 years in 2000 to 20 years in 2013
  - Social
  - Political
  - Environmental
  - Technical
  - Financial
What Went Wrong—Quality of Deposits

Average Mined Grade down by half
Average Reserve Grade down by more
Deeper deposits require higher grades and more drilling

Grade down, Tonnes up

Yet Gold Production only increased ~1.7%
Copper—Not Much Better Off

SNL Metals Economic Group documented:
• Since 2001, Copper grades have fallen 30%
• Since 1988, 100 copper discoveries
• Only 10% have been converted to reserves

Source: BMO Capital Markets, Wood Mackenzie
Can the Major Miners Make Money?

Kinross Gold has written off $9.6 bil in four years. Current market cap ~$6.7bil

Kinross Gold’s Previous Four Principles for Building Value
1. Growth at any cost
2. Over promise, under deliver
3. Spend like a drunken sailor
4. Pay CEO big bucks (Tye walks w/ $80m)

Highlights From the 2014 BMO Global Metals & Mining Conference
With Lower Metal Prices Grade Must Increase

High Grading Current Mines

Original mine: 4 mil oz @ 2.1g/t gold

New mine: 2.8 mil oz @ 4g/t gold
And: 1.2 mil oz @ 0.9g/t gold
Reserves go bye bye
Where Else Can We Cut Costs?

• Cutting or eliminating exploration
• Firing geologists and engineers
• Curtailing development

Mining CEOs opt for low-cost exploration
Simple Solution: Find New Deposits

• Discoveries falling, production rising
• One Carlin Trend a year (85 mil oz)
We Are Not Finding Large Deposits

• How many of these will move to production?
• How many will make money?
• Bottom Line: Legitimate discoveries extremely valuable

8 of 14 deposits not going ahead
Very Low Odds of Discovery Success

Geology 101

• 1 in 1,000 prospects become economic
• 1 in 10,000 prospects become tier 1 mines

• WHY?
  • Geology
  • Industry
Geology 101

1. Time
2. Uniformitarianism

Earth’s History In One Hour:
Entire Continents Form and Disappear In 5 Minutes

- Algae - 19 minutes ago
- Dinosaurs - 3 minutes
- Ice age - 8/10 second
- Man - 1/10 second
Every deposit is an anomaly
Every anomaly is *not* a deposit

High Sulfidation Gold System

Poas Volcano Costa Rica
It’s Tougher on the Ground than in the Office

These are complex mineral systems—Subduction Zone
You have to know where you are---and aren’t
Then drill sufficiently for confidence to invest
### OPERATING METRICS: 100,000 TPD

<table>
<thead>
<tr>
<th></th>
<th>Years 1-14</th>
<th>Years 1-5</th>
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</thead>
<tbody>
<tr>
<td><strong>Mine Plan</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>Strip Ratio – Waste to Ore</strong></td>
<td>1.34:1</td>
<td>1.54:1</td>
</tr>
<tr>
<td><strong>CAPEX - Initial</strong></td>
<td>$2.790 Billion</td>
<td>$2.790 Billion</td>
</tr>
<tr>
<td><strong>CAPEX - Sustaining</strong></td>
<td>$667 Million</td>
<td>$387 Million</td>
</tr>
<tr>
<td><strong>Gold Recovery</strong></td>
<td>80.3%</td>
<td>82.2%</td>
</tr>
<tr>
<td><strong>Head Grade</strong></td>
<td>0.69 g/tonne</td>
<td>0.83 g/tonne</td>
</tr>
<tr>
<td><strong>Total Ounces Produced</strong></td>
<td>8,086,400 ounces</td>
<td>3,492,500 ounces</td>
</tr>
<tr>
<td><strong>Average Annual Production</strong></td>
<td>577,600 ounces</td>
<td>698,500 ounces</td>
</tr>
<tr>
<td><strong>OPEX</strong></td>
<td>$1,030/ounce</td>
<td>$885/ounce</td>
</tr>
<tr>
<td><strong>All-In Cost After Tax (CAPEX+OPEX)</strong></td>
<td>$1,474/ounce</td>
<td>$1,292/ounce</td>
</tr>
</tbody>
</table>
95% of stocks that start up this slope end up with nothing of importance. *Find the fatal flaw.*
La Garrucha, Colombia

- 270m @ 1.23 g/t AuEq
- 145m @ 0.73 g/t AuEq

BHV: $0.90 to $0.03
This is what small porphyry plugs look like
A Legitimate *Economic* Deposit Keeps Getting Better

- Discovery hole: 266m @ 1.3% CuEq
- Confirmation of Geology: 166m @ 11.6% CuEq ($760/yt)
- Resource 65Mt @ 3.5% CuEq ($225/t)

**Proof of Concept**

**High Grade**

**Size and Grade Confirmed**

**Industry Recognition**

$0.60 to $7.00 in 1.5 yrs
What a Discovery Looks Like: Fission Energy (FCU.V)

A Legitimate *Economic* Deposit Keeps Getting Better
Tick the boxes

$0.35 to $1.65
Denison Spinout--+45%
Fission 3.0--$0.15
Net ~450% gain in 1.5 yrs

Jurisdiction
Infrastructure
Shallow open pit
Geology

100m incl. 38m @ 14% U3O8
Three Questions to Consider:

1. Will metal demand increase over next 10 years?
2. Will mining companies need new deposits?
3. Will metal discoveries keep up with production?

If the answers are yes, yes and no—Investors have only one real option:

Accumulate the best deposits
Take Aways

1. Major Miners are struggling to survive and wasting their futures

1. A severe new mine deficit looms

1. High margin deposits extremely valuable

1. “Having survived the pain, might as well stick around for the gain”
“Turning Rocks Into Money”