

THE LONG TERM VIEW

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RECENT HISTORY



RECENT HISTORY

Metal prices have dropped significantly

Consumption growth has slowed

Stockpiles have increased



RECENT HISTORY

Net capitalization of the mining industry has decreased (dramatically)

In 2011 the capitalization of the 200 largest mining companies was approximately \$3.9 billion

Capitalization in late 2015 - \$970 billion

A 75% decrease!

RECENT HISTORY

Global exploration expenditures have declined

2012 - \$21.5 billion

2015 - \$8.8 billion*

*SNL 2016

RECENT HISTORY

Capital expenditures for mine development have declined dramatically

Down 30% from a peak in 2012

Investments have favoured transfer of existing production...zero sum...

**SNL projection October 2015*

WHERE ARE WE NOW?



WHERE ARE WE NOW?

Many companies barely profitable or losing money

At \$2.20 / lb copper...

- 10% of global copper mines are losing money on cash cost basis
- 47% are losing money on a total AISC basis

**GFMS 2016 Copper Survey*

WHERE ARE WE NOW?

Global Indicators...

Soft landing in China

Chinese housing sector stats turning slightly positive

US economy continues to experience positive growth

Slight improvement in mainstream European economic activity

WHERE ARE WE NOW?

TSX and TSX-V resources indices bottomed in January and have since increased significantly

Most metal prices have increased year to date

New capital inflows into the gold sector

Signs of life.....

THE CHALLENGES



THE CHALLENGES

Exploration is becoming more difficult

According to a McKinsey study in 2011....

“New mining discoveries have been essentially flat despite a fourfold increase in expenditures”

THE CHALLENGES

Over the past 30 years, the responsibility for exploration has seen a significant shift from the larger companies to small cap companies

Most junior mining companies do not have cash flow therefore exploration efforts are very sensitive to climate for higher risk investment

Exploration and development of large mining projects is very expensive and junior companies often do not have the financial strength to fully execute projects

Result is projects stall and the development timeline gets extended

THE CHALLENGES

Lack of new, large discoveries

Long time to achieve production for new projects

Grade of mineable deposits is decreasing

- average copper grades have decreased from 0.75% to approx 0.60%

Long period of declining production costs is over

- low point for copper was in 2002
- copper SXEW production decreased 4% last year

PG10

slide number not always shown

Peter Granata, 29/04/2016

THE CHALLENGES

Insufficient supply to meet *sustained* increase in demand

- Annual consumption growth for copper is 3.5% - equates to 655K tonne of new copper production required every year
- Chinese copper consumption grew by 4% in 2015 (in a soft economy!)
- Chinese government committed to supporting economic growth

THE CHALLENGES

Social and environmental cost of resource extraction continues to increase in terms of complexity, time and dollars

Carbon taxes & GHG emission reductions add to costs

Water supply becoming a major issue in many areas

- Physical limitations
- Conflicting use
- Additional cost

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Key Points...

Population growth (*7 billion now & heading for 8 billion by 2035*)

Global trend to increased urbanization

Growing middle class

Developing countries will continue to develop

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Urbanization

Globally, urbanization currently at 54%

Projected to increase to 66% by 2050

Represents an increase of 2.5 billion people

90% of this increase will be Africa and Asia

Significant infrastructure will be required to support increased urbanization

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Growth of the middle class

1 billion people forecast to achieve middle class status over the next 10 years

Per capita annual copper consumption

- US 8.3 kg
- China 5.4 kg
- India 0.4 kg

There will be a significant increase in global consumerism

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A few more statistics....

Global GDP growth has been 3.8% over past 50+ years

Per capita GDP growth 2.2% over the same period

Global vehicle sales totalled 75 million in 2015 – has increased 3.6% annually since 2005

Vehicle sales projected to double by 2035

US housing starts currently 1.1 million/year which is still below the long term average of 1.5 million, *room to increase*

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Power generation...

More power required to support urbanization....

- Coal fired power station contains 1.3 tonnes of copper per MW
- Nuclear power - 2.5 tonnes per MW

Increasing use of green power generation...

- Average wind turbine requires 2 tonnes of copper per (MW) of power generation,
- Solar power - 6.8 tonnes per MW

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Key themes...

Social economic development is slow to start but then ramps up

Once standard of living starts to increase, people do not want to go backwards

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Metal price outlook

At current metal prices many operations are barely profitable and many are losing money, therefore limiting capital investment

Current period of under investment will constrain future supply, leading to price increases

According to GFMS, incentive price required to justify new copper mines is over \$3 per lb

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Continued global GDP growth, increasing urbanization and a growing middle class will drive increasing consumption of most metals...

Limitations on new supply will lead to higher prices, driving new capital investment

The minerals industry will remain cyclical

Due to the long lead time to develop mineral projects, it is structurally difficult to match metals supply to demand over the short to medium term

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Bottom of the Cycle...

At this point it is very possible the current down cycle has bottomed and we are now starting the next up-cycle

Medium Term...

Definite improvement expected over the next 1- 3 years....

Long Term...

The future for the minerals industry is extremely positive.

Thank you