

**MANAGING COMMODITY PRICE CYCLES
THROUGH A SENSIBLE APPROACH**
(Metal Cycles, Cost Curves and the Art of Mindful Management)

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Introduction

- Being in the commodity business, mining companies are effected by the ups and downs of the cycles and suffer particularly during the recession.
- The greatest challenge faced by the industry is to properly manage the cycles in order to limit the volatility and consequences of recessions.
- The objective of the presentation is to explore ways to moderate the effects of the recession without losing the gains achieved during an upturn.
- The presentation consists of the following three segments:
 1. Analysis of the metal cycle: Determine the root cause why the companies are unprepared for a recession in spite of the fact that it is part of every cycle.
 2. Utilization of cost curves: The recommended approach is to utilize the cost curve as a strategic tool to lessen the impact of a recession by continuously focusing on the cost reduction.
 3. Practice of mindful management: The proposed approach will be successful if the Leaders follow the tenets of mindful management by paying attention to the present costs instead of attempting to predict the future price.

Phases of Price Cycles

- Heightened economic activities increase the demand, which result in a tightening of the supply and rising price.
- Referring to Slide 4, the increase in the profit during the mark-up phase motivates companies to undertake expansionary activities to satisfy the growing demand.
- During the bullish phase, companies become overconfident and encouraged by investors, overextend for the sake of higher profits and faster growth.
- In this process, they let their all-inclusive-costs (AIC) uncontrollably escalate just when the market would unnoticeably turn downwards.
- Unable to stop the growth plan, companies would be caught between the rising costs and falling prices.
- The panic phase starts when companies are compelled to undo the past excesses and resort to draconian cost cutting measures to stem the losses in order to survive.

Stages of Commodity Cycle

(Ref. Way 2 Capital)



Root Cause Analysis

- Companies and their investors are aware that a recession will routinely follow an upturn and yet they are always caught unprepared.
- History has shown that the damages inflicted by a recession did not only erase all gains made during the upturn, it also would take years of struggle to recover.
- This phenomenon could be explained by the following reasons:
 - Confidence in the price forecast and duration of the bull market.
 - Optimistic belief in the validity of a long term price, which is used to estimate the future cashflows and ability to pay back the debt.
 - Collective amnesia about the inevitability of a recession and absence of adequate preparations to deal with it.
 - Letting uncontrolled escalations of the AIC happen by getting caught in a herd mentality.
- In summary, the decisions taken during the bull market and a lack of preparation, not the recession itself, are the root causes of subsequent problems.

The Challenge of Managing the Cycles

- Referring to Slide 7, price cycles are the norm in the industry and copper experienced some 20 such cycles since 1900.
- Recurring problems during the recession stem from the inability to detect the signs of an impending recession.
- Since a recession is a fact of life and cannot be avoided, preparing for a recession should be the normal mode of the operation, even during the height of a bull market.
- The transition from an environment of rising prices to one which is characterized by falling prices should be seamless.
- The question is how?

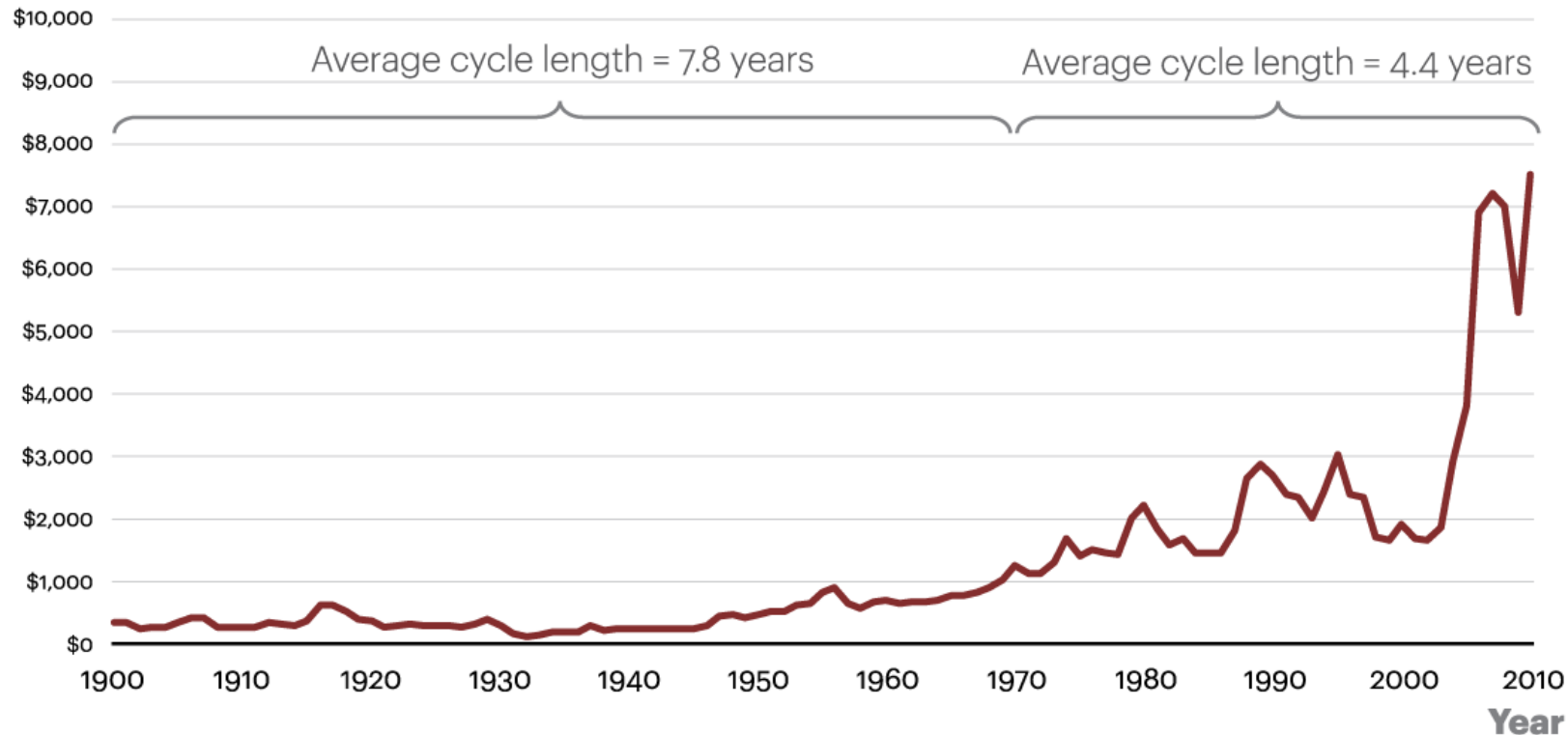
Copper Cycles over the Past Century

Figure 2

The copper industry's cycles of peaks and valleys have grown shorter over the past century

Copper price

(US\$ per ton)



Sources: ICSG Yearbook 2011, London Metal Exchange; A.T. Kearney analysis

The Answer can be Found in the Cost Curve

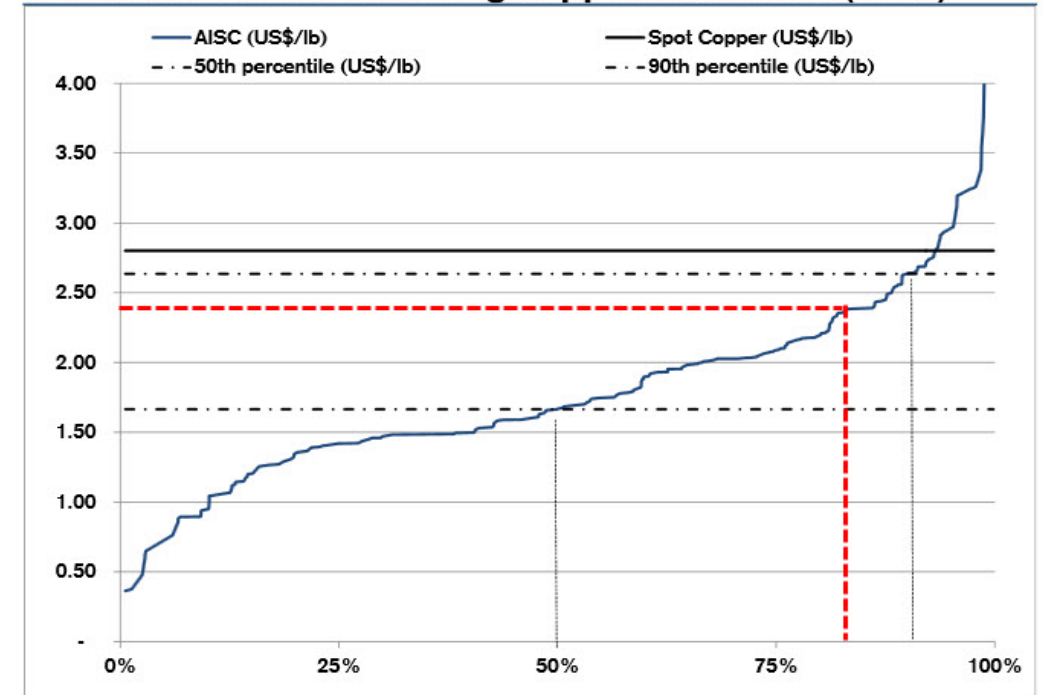
- The cost curve as a tool has a strategic function: the position on the curve determines the relative competitive strength of a company.
- Since no one can predict the price, a company's position should be low enough to ensure a positive cashflow at the bottom of the cycle.
- Referring to the example of copper on Slide 9, a 10 year price curve shows that except for a brief period, copper price had a floor of \$2.00/lb
- In this case, a company should have an AIC between \$1.50 to \$ 2.00 to be cash positive during the recession without the need for resorting to extreme measures.
- In general, a company should aim at a position well within the second quartile by actively controlling its AIC irrespective of the price and profit levels.

Copper Price Chart & Cost Curve

Copper Price
2.72 USD/lb
23 Feb '17



Exhibit 11: All-In Sustaining copper cost curve (2015)



Source: Wood Mackenzie, Credit Suisse estimates

Continuously Focused on Costs - a Sensible Strategy

- Mining is a commodity business where differences in quality and the marketing of the product are not significant factors.
- The market sets the price depending on the supply and demand balance and all producers have to meet the same price to remain in the business.
- The cost is the only the metric for competitiveness and should be controlled.
- Continuous Improvement (CI) is a well established system that would enable the companies to contain the costs in order to maintain their position on the cost curve.
- CI is used by several major mining companies to manage their operations.

What is Continuous Improvement?

- **CI was developed** in Thirties by manufacturers to improve work efficiency by identifying and reducing waste and minimizing non-value added activities.
- **CI requires everybody's participation** - from management to engineering, production and service departments, also customers and suppliers.
- **It must include every activity** - design, procurement, manufacturing, financial control, marketing, product development, etc. In the mineral industry: geologist, mining, processing, material handling, procurement, shipping and sales.
- **CI is a bottom-up process** - starts with the formation of small work groups at the floor level to discuss operating problems and generate improvement ideas.
- It requires team work and co-operation so that all can participate, often forming cross-functional teams, in focusing on continuous cost reductions.
- Successful and sustainable implementation of CI requires changes in the organization's systems, work methods and also behaviors of all employees.
- This culture change requires the support and commitment of senior managers leading the way to change their own behaviors to conform with the new values.

Benefits of the Proposed Strategy

- It instills spending discipline during the boom, preventing companies from undertaking actions which might have to be undone during the recession.
- This would result in the building up of the cash reserves and generating positive cashflow by striving to maintain the AIC below the market price.
- In this way, companies will amass surpluses to take advantage of available opportunities during the recession.
- During a downturn, usually the prices of equipment and supplies are substantially reduced, service rates are much lower and assets sell at bargain prices.

Growing more Responsibly

- By managing in a counter cyclical fashion, a company can benefit from low cost opportunities before the bull market is in full swing and others are struggling (Slide 6).
- At the height of the bull market, resource constraints will drive all costs up and this is the time to be prudent in order to be ready for the recession.
- To avoid acting desperately during a recession, companies should always counter rising costs by investing in improvement activities:
 - Improving process capability
 - Applying new technologies
 - Encouraging innovations
- The time for bargain hunting will come when everything is on a fire sale.

What is Mindful Management?

- Rooted in ancient Buddhist traditions, the current practice is based on the latest advancements in neuro-science to deal with the challenges of modern life.
- Mindful management has a proven track record of success and, referring to Slide 15, it is practiced by some of the planet's most valuable and creative companies.
- The basic tenet of mindfulness is the awareness that arises through paying attention, on purpose, in the present moment rather than rehashing the past or imagining the future.
- In the mining context, companies should manage their current costs, which they can control, instead of trying to predict the future direction of prices, which no one can do.



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Mindfulness is everywhere.

Achieving a Paradigm Shift

- This requires a company to transform itself by embracing a paradigm shift by challenging the status quo.
- Market forces will exert pressures on companies in a bull market to conform to the usual way of doing business in spite of its inherent pitfalls.
- Through the practice of mindfulness, companies will realize that they can achieve their full potential by steadfastly paying attention to the present rather than inventing the future.
- Investors should develop new metrics to evaluate the companies, which are on the path to successfully manage the cycles.

Conclusions: Four Truths to Remember

1. Mining companies are constantly subjected to fluctuating prices during the cycles, over which they have no control.
2. The only way to manage cycles is to have a consistently lower AIC than the market price, which is a moving target and cannot be predicted.
3. Companies can only control their costs, which have a tendency to rise, unless they have a system to prevent this from happening.
4. This can be accomplished through continuous improvement by minimizing waste and eliminating non-value added work.

Mindful Way to Manage the Cycles

1. **Right knowledge:** the business is governed by the economic cycles and a bust will inevitably follow the boom.
2. **Right aspiration:** always be prepared to deal with a certain downturn irrespective of the current situation.
3. **Right strategy:** continuous cost reduction regardless of the levels of price and profit in order to be correctly positioned on the cost curve.
4. **Right leadership:** support the paradigm shift by controlling the present costs instead of relying on predicting the future prices, which nobody can do.
5. **Right system:** implement continuous improvement of costs by focusing on minimizing the waste and eliminating non-value added work.
6. **Right effort:** involve and train everybody and include all activities, from geology, mining, processing, to engineering, administration, sales etc.
7. **Right action:** cultivate soft skills such as team building, communication, listening, collaboration etc. in order to develop trusting relationships.
8. **Right contemplation:** confidently implement the new strategy to avoid hasty reactions during the downturn and thus deliver consistent results.

Following these principles will satisfy stakeholders, gain happy customers and delight shareholders.

