The International Mining Industry — Linking the Upstream Mineralisation With the Downstream Money

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ABSTRACT

Just as Australia is part of the Pacific Rim, so the Pacific Rim should be viewed as part of the whole world. That applies in particular to that scarce commodity – money.

There are five main factors of production in any mining development – mineralisation, materials, manpower, management and money. Let's focus on the upstream input – mineralisation, and the downstream input – money, especially in the area of communications.

Unknown to many, the Competent Person reporting on Mineral Resources and Mineral Reserves has a direct and unavoidable impact on the company's financial statements – the profit and loss account and balance sheet.

With respect to reporting of the major asset of most mining companies – the resources/reserves – investors are getting a better deal now than at any time in memory as regards flow and adequacy of information. Australia has been a world leader in this regard. The outlook is for even more informative and useful reporting.

The more rigorous reporting requirements for Exploration Results and Mineral Resources/Reserves, which have become a worldwide phenomenon over the last five years, will continue. This will be positive for the mining industry as a whole and for Australia in particular. However competition for the scarce investment dollar will also increase.

Put simply, mining has many competitors, unconnected with mining, for the capture of the investment dollar. It behoves all participants to recognise that there are three investment factors which influence strongly the willingness of investors to put money into mining. These are Confidence, Credibility and Consistency. Australia's investment image stands high in these three respects, but the competition will continue to grow. Australia's lead must be maintained. However, some investment decisions should not necessarily be based on fundamental, quantifiable facors. Some of these are outlined.

INTRODUCTION

There are five main factors of production in any mining development – mineralisation, materials, manpower, management and money. Let's focus on the upstream input – mineralisation, and the downstream input – money, especially in the area of communications.

The transparent reporting of mineralisation is of utmost importance. Compared with say ten or 20 years ago, the money people – investors – can understand better now what the miners are talking about. However, just as mineralisation is always different, equally all investors are different – no one model of an investor fits all. Just because you have met one doesn't mean you understand them all. For each buyer of a share, there is a seller.

Tim Goldsmith of PricewaterhouseCoopers has pointed out the Competent Person reporting on Mineral Resources and Ore Reserves has a *direct and unavoidable impact* on the company's financial statements – the profit and loss account and balance sheet. This fact may surprise some geoscientists.

The financial/investment world as well as the investment regulatory authorities are having an increasing influence on the mineral reserves reporting standards and the reports as prepared by the geoscientific profession. Studies in 2003 by PricewaterhouseCoopers and KPMG highlighted what investors and others see as best practice in reporting, including that of resources and reserves. The International Accounting Standards Board has pointed out the growing significance of JORC-type reporting standards and their possible future impact on financial accounting. The Securities and Exchange Commission in USA (SEC) is moving towards an accommodation with the US mining corporations and professionals, but this will assuredly move more in favour of more demanding reporting standards.

Mining is a fashion industry, often high risk, as it is subject to many downstream factors which can cause funding and investment volatility, for example commodity prices, exchange rates and start-up performance.

However with respect to reporting of the major asset of most mining companies – the resources/reserves – investors are getting a better deal than at any time in history as regards flow and adequacy of information. Australia has been an undoubted world leader in this regard.

The outlook is for even more informative and useful reporting as a result of significant developments, for example, the inclusion of the requirement for a Competent Person to be responsible for Exploration Results reporting in the 2004 JORC Code. Other countries have or will require Exploration Results reporting to be signed off by a Competent Person.

The more rigorous requirements for reporting of Exploration Results and Mineral Resources/Reserves, which have become a worldwide phenomenon over the last five years, will continue. The clock cannot and will not be turned back. This will be positive for the mining industry as a whole and for Australia in particular. However competition for the scarce investment dollar will also increase. All participants in the mining investment chain will need to recognise this situation.

The role of all occupations in the mining industry has changed. Not just at the technical level, but all the way up the chain to the top.

To quote *The Economist* of 30 October - 5 November 1999:

> *Backed by a corporate bureaucracy, a chief executive might have got by with good managers, cost control, and a beady eye on the accounts. Although such things still matter, a chief executive now has to think for himself. He needs to be an innovator, and an entrepreneur with a global vision. He needs political skills, to steer a course through the regulatory maze. He needs to be a salesman and a preacher to woo consumers, employees and investors.*

HOW HAVE CERTAIN SECTORS OF MINING FARED AS TO THEIR OWN INVESTMENT PERFORMANCE?

In his paper 'Managing Technical Risk for Mine Feasibility Studies' at The AusIMM Mining Risk Management Conference, Sydney, September 2003, Peter McCarthy made some quite disturbing observations, (for investors) in supporting his conclusion that the record of mine feasibility studies is poor.

Back in the 1970s, a study for the World Bank showed that in the first year of operation after commissioning, 60 per cent of the mines and 70 per cent of treatment plants surveyed achieved a production rate of less than 70 per cent of design capacity. Most achieved their design rate by the second or third year.

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In the 1980s a study of 35 Australian gold mines showed that 68 per cent failed to deliver the planned head grade (Burmeister,1988) while a review of nearly 50 North American projects showed that only ten per cent achieved their commercial aims, with 38 per cent failing within about one year (Harquail, 1991).

In the 1990s a study of start-up performance of nine Australian underground base metals mines found that only 50 per cent reached design throughput by year three and 25 per cent never achieved it. While most mines were able to operate for at least three months at a rate 15 per cent higher than design, on a longer term average they operated at only 80 per cent of that peak rate or 92 per cent of design. Three of the mines (33 per cent) failed to achieve the estimated reserve grade and after five years each was operating at about 70 per cent of its intended grade (Ward and McCarthy, 1999).

Over the past decade, McCarthy, in annual surveys of feasibility studies, concluded from 105 samples, that areas of problems were:

Area of problem	**Frequency**
Mine design and scheduling	32 per cent
Geology, resource and reserve estimation	17 per cent
Metallurgical testwork, sampling and scale-up	15 per cent
Process plant equipment design and selection	12 per cent
Others (four areas), totalling	24 per cent

One conclusion that could be drawn is that commodity prices and exchange rates are not necessarily the major risk for mining investors. Another conclusion is that some mine developers don't really understand or contend very well with the risk which may be associated with mining at the operations end of the business.

Maybe the answer lies in the fact that for a mining company there may be only one mine in which the company places its whole future. However, sometimes there may be several where the risk can be diversified or spread (or performance hidden).

Developing a new mine is a sunk cost for a miner, whereas the investor can diversify his portfolio by spreading his risk amongst different stocks and by playing the cyclical market by selling out of miners when they are not 'hot' and returning when they have cooled down.

Or maybe most investors do not have access to the above mentioned figures. Or the companies manage to put forward the best image on their lack of performance when it comes to feasibility studies.

MINERAL REPORTING CODES AND THE INVESTOR

Owing to the introduction of the JORC Code in 1989 both long-term investors and short-term speculators are now provided with much more meaningful and useful information about the 'stuff in the ground' than they were some 15 years ago. Had the JORC Code not come into being, investors might well have done worse than they did in the stockmarket, or worse still may have sought investment avenues elsewhere than in mining, resulting in a longer and deeper capital drought in the mining sector.

As an aside it is worthwhile recalling what some (but not all) reserves reporting standards were like in Australia in the 1970s and 1980s, before the 1989 JORC Code came into operation.

In a paper presented at the AusIMM Sydney Branch Estimation and Statement of Mineral Reserves Conference, October 1979, Joe Lord, then Director, Geological Survey of Western Australia, instanced some categories of reserves reported to them. He quoted some at the level of assurance below the highest level, which included indicated, probable, drill indicated, assessed, conservative, expected, directors' confident, almost certain, geologically indicated, uncertified drill indicated and reasonably assured.

In the lowest category of assurance an even greater variety of terms was found, namely inferred, possible, drill inferred estimated, blocked and inferred, anticipated, broad indications, preliminary estimate, probable existence, likely, speculative resources, less assured additional, surmised, etc.

Compare these with the seven categories of resources /reserves currently in use almost worldwide, through CRIRSCO and its standards (mineral resources, and its sub-categories measured, indicated and inferred, and for mineral (ore) reserves, and its sub-categories, proved and probable. Theses definitions either through CRIRSCO links or through the United Nations Economic Commission for Europe – Framework Classification, cover most of the globe, the main excepted areas being the Sahara region. Could any investor have made a responsible investment decision based on these descriptions?

The trend towards more meaningful and transparent reporting of Exploration Results in JORC 2004 and in other CRIRSCO linked countries should ensure much more meaningful, informative and transparent reporting for investors and other interested stakeholders in the reporting chain.

As a result, investor confidence in mining company reporting of resources/reserves has gained confidence in the eyes of the investor. Not perfect, but certainly more reassuring and certain for the investor who after all, one way or another, provides the finance for development of mining projects.

However, miners in Canada and USA, seeing those countries now have mineral reserves reporting standards comparable to Australia, can offer Australian investors mining stockmarket investment opportunities outside of Australia, thus providing geographic diversification as well as stockbroker research support and information which may favour the larger North American companies.

HOW ARE THE INVESTORS BEING SERVED? WHAT ABOUT COMMUNICATIONS?

But are the investors being serviced and informed as well as they should be by the mining companies? Evidence suggests there are deficiencies.

PricewaterhouseCoopers in their 'Digging Deeper – Managing value and reporting in the mining industry' global mining survey in 2003 (this survey since updated in 2004) concluded, inter alia, under the heading The Communications Challenge:

> *The survey indicated that mining companies need to work more effectively to achieve their dialogue goals with the investment community. More than half of the companies surveyed believe they work proactively to initiate or maintain, contact with investment community, yet only 23 per cent of investors and only nine per cent of analysts characterise the mining sector as proactive in this regard.*

Why should mining companies improve their communications performance?

According to PricewaterhouseCoopers:

> *Analysts and investors believe that a move toward improved reporting on the part of mining companies will produce significant benefits for mining companies. Improved access to new capital, increased share prices and increased credibility of management are among the benefits of better disclosure cited by the majority of investors and analysts surveyed.*

In conclusion PricewaterhouseCoopers said:

> *If mining companies believe that they are undervalued and the investment community believes they cannot value companies properly, herein lies both the problem and the key to the solution. Bridging this gap demands better dialogue. A collaborative exercise involving all stakeholders to identify indicators of value is the first step in aligning the importance that companies, investors and analysts place on different indicators. Only then can companies focus their reporting on the indicators identified by all stakeholders as important.*

THE PRESSING NEED FOR BETTER DIALOGUE AND COMMUNICATIONS IN ALL SECTORS OF MINING

Tim Goldsmith, Mining Leader Australasia of Pricewaterhouse Coopers who is also on the JORC Committee, at the AusIMM/CMMI Congress at Cairns, 27 - 28 May 2002, drew attention to the need for dialogue interaction in the mining industry. Whether reserves or resources are utilised, does not change the key requirement that those using or preparing reserves and resources statements need to understand key aspects. For example:

- Geologist/engineers
  - Do they know how reserves or resources will be used?
  - Have they imparted information on variability of key drivers such as grade or depth or dilution?
  - Do they know that major financial/business altering decisions may be based on the analysis?
- Accountants
  - Do they understand where the numbers have been derived from and the assumptions that may have been made in their determination?
  - Do they understand the degree of accuracy (or inaccuracy) that may exist particularly with resources?
  - Do they understand the history of resource reconciliations and what it may mean for the future?
- Directors
  - Do they understand the processes undertaken by the company to prepare the financial report and the interaction between the geologists/engineers and accountants?
  - Do they understand the potential sensitivity of results to the input variables?

Goldsmith added that:

> *Financial reporting is extremely reliant on the use of reserves and resources, however the geologists/engineers/accountants and directors do not always understand the interactions between themselves which may lead to misleading public reporting.*
>
> *The purpose of this analysis is to reflect the importance of reserves and resources in financial statements, and in particular that their accuracy is vital when considering the profit and loss of a mining company. In essence if Ore Reserves and Mineral Resources are misstated they can misrepresent the profit and loss account and balance sheet.*

The question that this begs is whether the people responsible for preparing the Ore Reserve and Mineral Resources statements understand that they may well be the most important determinant of a company's profits. Experience suggests that there are major expectation gaps:

- The Competent Person/s who signs off an Ore Reserve and Mineral Reserve Statement often has no idea that the information will subsequently be utilised by accountants, directors, auditors and investors. Worse still, they do not realise that they may be responsible for the most important determinant in a company's profit, share price determination, or hedging strategy.
- Furthermore, accountants, directors, auditors and investors often consider Ore Reserves and Mineral Reserves to be a fact rather than an estimate.
- The operational team will prepare a life-of-mine forecast based on geological information. Whilst there is often a high degree of communication between geologists and operational teams, this is not always the case. Where this does not occur, inappropriate assumptions may be made by the operational team.
- The accountant preparing the financial statements doesn't always understand some of the key assumptions that may have been made in determining resources and reserves. From (Goldsmith's) experience, there is many an occasion when the accountant has treated the Ore Reserves and Mineral Resources statements as a fact, and not considered the possible upside and downside sensitivities.
- Some auditors do not always place sufficient emphasis on the method of determination of the Ore Reserves and Mineral Reserves, or understand the underlying assumptions. (Goldsmith hastens to add this does not apply to all auditors!)
- Ultimately, the directors take responsibility for financial statements when they pass a resolution to approve them. As reserves and resources may be the most important determination of the financial statements the directors are in effect taking responsibility for the accuracy of the Ore Reserves and Mineral Resources Statements.

However, not all investment decisions are based on fundamental, quantifiable considerations.

SOME NON-TECHNICAL STOCKMARKET GUIDANCE

Everybody likes to make money on the stockmarket, but it is almost as important that you don't lose money. In other words if you want to continue to make money in the longer term, you have to survive in the short- and/ or medium-term. This is not about how to make a lot of money, but how to avoid losing what you have.

I would like to quote extensively from *Australian Business Magazine* (ABM) of January 1992 and in particular a very perceptive article called 'Survival Guide' by Trevor Sykes. Sykes writes under the name of Pierpont and is widely known and applauded as one of Australia's most closely read and influential financial journalists, and author on matters financial and investment, including, but not exclusively in the mining sector.

Although some of these hints do not apply particularly to mining they are relevant to stock market investment generally and are still as relevant today as they were in 1992. Maybe more so.

Pierpont wrote:

> *For those battered victims of the recession (in the early 1990s) who are still seeking a little guidance your correspondent has assembled a few rules. They are not exactly conventional wisdom on investment but you could do worse. Plenty have.*

1. Never sign a blank.

   The most monumental argument in Pierpont's career was with an English hire car company who overcharged your correspondent. Pierpont exploded on seeing the bill but as he had signed the invoice in advance when the company had taken the imprint of his platinum card, Pierpont had no effective redress. Yet people sign all sorts of blanks every day. An employer who signs blank cheques in advance when going on a trip is simply asking his secretary to rob him.

2. Remember Parkinson's Third Law.

   This says that perfection of planned layout is achieved only by institutions on the point of collapse. Prospering companies are usually so dynamic that they outgrow their premises before they ever get around to planning them. On the other hand, any company that has time to plan the perfect office layout may well have run out of more profitable occupations for its staff. This is why marble in the foyer is an ominous sign for investors. If there is a fountain as well, phone your broker and sell the shares. And if the chairman of the board has personalised number plates on his Rolls Royce, don't walk to the phone. Run.

3. The trend is your friend.

   All things being equal, which they never are, you are better off following an investment trend until it is clearly broken. If the shares in a company rise from $5 to $10, then drop to $8.50 then the investor who stuck with the stock is still $3.50 ahead. Sure, he didn't sell at the top but he has still made 70 per cent on his opening stake and you don't need too many winners like that to have an enviable portfolio. The alternative is to try to pick turning points, but this is terribly difficult. There are legends told about chaps who picked the top or bottom of the market, but in his entire life Pierpont has never known anyone who was able to do this consistently.

4. Did the audit partner grow up with the company?

   Auditors are not cold-blooded calculating machines (more's the pity). They are warm-blooded humans who like to be liked. An auditor who has been inspecting the books of a company for a decade or more is bound to have developed friendships within it. The company might be perfectly sound but the cosy relationship may be such that that the auditor is turning a blind eye to things he should not. This is so where the auditor has been with the company since it was very small.

5. Check the balance date.

   Retailers often balance in January or July because it is too difficult to do a full year or interim stocktake on New Year's Eve. Australian banks often balance in September, but where there is no obvious reason for the balance date to stray outside the traditional June/December pattern, it's worth asking why.

   This advice goes in spades if a group of companies includes one or more whose balance sheet is out of line. If Blue Sky Mines balances in June and its associated company Madcap Metals balances in July, the accounts of both companies can be rigged by swapping assets between them just before their balance dates.

6. Does the company do most of its dealings with associates?

   The automatic suspicion is that the companies are playing pass the parcel between each other and the prices they are paying for each others assets could not be justified in the open market.

7. Are the deals too complex to understand?

   In the course of his long career, Pierpont has had to unravel some blindingly complex deals and in the process has developed a deep prejudice against them. The best business deals Pierpont has ever seen were fairly straightforward transactions. The worst deals tend to be the most complex and this is by no means coincidental. Sometimes a deal has to be made complex to disguise the fact that the basic transaction is a sham or a poor deal.

   The same goes for overly complex financing packages or structures. If a company has so many classes of options, warrants, shares and cumulative, redeemable, convertible, unintelligible unsecured notes that you cannot follow the capital structure after two or three attempts, the most probable explanation is that you are not meant to understand it. Throw the sponge in and buy something else.

8. Are the market and the company saying the same thing?

   If the company says it is doing just fine but the market is dumping the shares as though they had leprosy, follow what the market is doing and sell immediately. Anyone who followed this advice would have got out of stocks such as Adsteam, Bond Corp, Quintex, and Westmex when they were halfway down, which was a lot better than hanging on until they got to zero. Yes, the market is wrong sometimes, but it's right a lot more often.

9. Who's running the place?

   The most valuable piece of advice in an annual report is the names of the directors and executives. Have they been associated with successful or solid companies in the past? Have their names been tainted by association with scandal or failure? An investor who checks out these details may not need to know more about the company. Anyone who has a long and active business career will certainly have one or two mistakes or failures on his CV, but a good businessman's winners will outnumber his losers. These are the people to back. A company may be well and honestly managed and still fail, but it has a much higher chance of survival than one which is fraudulently or incompetently managed.

   It is Pierpont's firm belief that incompetence in a businessman becomes entrenched after the age of 35. Any businessman who has a history of losers after that age will never have a winner. Incompetence has arrived to stay.

10. Find a smart adviser.

    If you can do this, you can ignore all the other Pierpont Rules. The catch, of course, is that there are very, very few people who are really smart. A lot of people look smart and sound smart. But if you observe them carefully over time, they so often prove to be superficial or are having a temporary spell of good luck. In his long life, Pierpont has made enough investment mistakes to rid him of any delusions of infallibility. But having read and listened to a lot of advice from stockbrokers, accountants, newsletter tipsters and various other people whom the Securities Act classifies as experts, Pierpont has come to the conclusion that their batting average is not much better, and some proved to be congenital idiots. As a starting point, why should you take the advice of anyone who hasn't made as much money as you? But finding someone who sounds smart, and is richer than you, does not provide the whole answer. He might be smart enough to rob you, or he might be too busy tending his own fortune tend yours as well. So you will not only need to find someone smart, but someone who is smart, honest, and will be diligent in looking after your affairs. One only has to state the definition to realise that there are not many such individuals around.

Some mining specifics

In addition to Pierpont's views, to be specific about raising money from the public requires several more insights into the mining sector, especially at the exploration end.

All old mines ceased operations because of either:

1. the war – Boer, WW1 or WW2;
2. the water inflow, or
3. the sulfides couldn't be treated.

No mine ever ran out of ore.

If an exploration geologist buys shares in a 'hot property' the share price will decrease by at least 50 per cent within the week.

Furthermore, only God knows where all the orebodies are. Accountants are his little helpers in keeping this information secret.

CONCLUSION

The more rigorous reporting requirements for Exploration Results and Mineral Resources/Reserves which have become a worldwide phenomenon over the last five years will continue. The clock cannot and will not be turned back. This will be positive for the mining industry as a whole and for Australia in particular. However competition for the scarce investment dollar will also increase. All participants in the mining investment chain will need to recognise this.

Put simply, mining has many competitors, unconnected with mining, for capture of the international investment dollar. It behoves all participants to recognise that there are three investment factors which influence strongly the willingness of investors to put money into mining. These are *Confidence, Credibility and Consistency.* Australia's investment image stands high in these three respects, but the competition will continue to grow. Australia's lead must be maintained.

> *It is not the strongest specie that survives, nor the most intelligent but the ones most responsive to change* (Charles Darwin).