Austalian Mining Share Market in Perspective

The enormous expansion that is currently taking place in the Australian mining industry has attained a very prominent place in the Australian and overseas Press during recent years.

Much has been written of potential long-term benefits, both to our country as a whole through higher levels of employment, increased royalty receipts, taxation and earnings, and to the investors in Australian mining companies.

The object of this paper is to examine the performance of Australian mining share markets since 1950, and to outline briefly the various factors which appear to underpin the present buoyancy.

Australia's traditional strength in mining is said to be founded on a hill and three mountains:—Broken Hill, Mount Lyell, Mount Morgan and Mount Isa. The re-invested cash flows from these and smaller ventures have made a most significant contribution to Australia's industrial growth, particularly in the establishment of our iron and steel industry.

These "cornerstone companies", for many years favourites with investors, formed the basis of the Sydney Stock Exchange Non-Ferrous Metals Index (No. 13). Despite the relatively recent admission to the lists of mining companies of many new companies in various industries, Index No. 13 does, nevertheless, provide an overall measurement of investor confidence and interest in mining companies. It is used in the following exercise in this general context only.

It should be remembered that, although this index covers many sectors of Australian mining, it does not include coal mining companies and does not include B.H.P. Although our premier company now has a fifty per cent interest in the oil and natural gas discoveries in Bass Strait, the investor enthusiasm over this discovery is not reflected in Index 13.

Since the beginning of 1950 Index 13 has risen spectacularly. The overall increase of this index and the Sydney Stock Exchange AllOrdinaries Index (No. 15) are summarised below:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining</td>
<td>151</td>
<td>307</td>
<td>1328</td>
<td>780</td>
</tr>
<tr>
<td>All Ordinary</td>
<td>147</td>
<td>201</td>
<td>322</td>
<td>120</td>
</tr>
</tbody>
</table>

The All Ordinary Index, as most analysts are aware, includes the Mining Index.

An examination of these indices plotted on a semi-logarithmic chart reveals that Index 13 reached new peaks in 1951, 1956, 1960 and 1966. It is currently at the highest levels in Australia's history of mining share investment. One is prompted to ask the questions: Will the strength in the current mining market be sustained? Why?

As a first step towards assessing the strength of the mining investment market, seven leading companies (the names of which are in Appendix 1) were selected with the idea of compiling an index of their aggregate cash flow (i) over the period since 1950. Since these companies are the components of Index 13, it was possible to measure the growth rate of cash flow and compare it with the growth rate of Index 13 on semi-logarithmic paper.

(i) Defined as net profit plus non-cash charges.

Points for comparison with Indices 13 and 15 were:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregate</td>
<td>100</td>
<td>145</td>
<td>460</td>
<td>360</td>
</tr>
</tbody>
</table>

It would appear from the relationships between the mining index and the cash flow index in 1950 and 1966 that present day investors in the mining market are prepared to pay approximately twice as much for cash currently flowing into the industry as they were in 1950.

An examination of the graphs shows that until 1958 there existed a general relationship between the rates of movement of Index 13 and those of the cash flow index. But since that date there has developed a steadily widening gap between the two rates of appreciation with Index 13 rising far more rapidly than the cash flow index. If the reasons for the widening of this gap could be outlined, we should gain a better idea of the relationship in the future. The difficulty is, of course, in giving correct quantitative assessment to each reason, but the following points provide a degree of understanding of the behaviour of the index since 1958.

(1) In 1958-59 overseas portfolio investment in Australian equities rose to $40 million from $16 million for the previous year. Further increases were recorded each year until the figure of $96 million was invested in 1960-61. Thereafter
the annual amount has declined somewhat and for 1964-65 amounted to $74 million. By overseas standards, Australian mining stocks were relatively cheap during the early 1960s, and they attracted interest, principally from North America and the U.K.

(2) A long-term investment image of major mining companies has become accepted, whereby the investor seems prepared to overlook the possibilities of periodic fluctuations in metal prices and to take a sophisticated view of likely future returns from projects reaching production stages in several years.

(3) During the early 1960s, various surveys were conducted by governments of countries which consumed the major proportion of the world's minerals, to estimate long-term mineral requirements and compare them with the known mineral deposits. The results of the surveys, although on somewhat varying basic premises, were that known mineral deposits would not be anywhere near sufficient for projected world needs, even in the medium term. Record levels of industrial growth, which ensued in many countries, caused an alarming increase in mineral consumption growth rates. Concern at the deficit in the supply-demand position during this period was one of the main reasons for the sale of large quantities of surplus minerals accumulated by the U.S.A. General Services Administration. Although the release of tin, copper, lead, zinc, cobalt, nickel, silver (to mention only some minerals) filled the supply-demand gap, the world's leading mining companies commenced an unprecedented search for minerals to assure the long-term position.

During this period, metal prices boomed, record profits were earned, and the leading Australian mining companies found themselves well equipped financially to carry out extensive programmes of exploration and development.

Exploration and Development

The search for new mineral deposits and the development of known mineral deposits have never been more intense at any time in Australia's history. A significant improvement in the application of geological and geophysical techniques has facilitated the search.

Results to date have been most encouraging. Many of the "missing minerals" have been found in very large quantities—petroleum, nickel, phosphates all have considerable potential. Minerals, previously located in smaller quantities and currently being exploited on a limited scale, have been found in enormous quantities, offering long-term supplies far greater than our country could consume for several centuries. These include high-grade iron ore, bauxite, and hard coking coal. In many cases, however, exploration has been concentrated around previously known deposits to extend the known limits of ore which, due to new low-cost mining techniques or buoyant metal prices, have ceased to be deemed marginal operations.

The exploration tempo is quickening. In 1965, listed mining companies spent an estimated $10 million, or approximately 40 per cent more than the previous year. This figure would almost certainly have been exceeded during 1966. Principal spenders were B.H.P., Mount Isa Mines, and Consolidated Riotinto of Australia; Broken Hill South, North Broken Hill, Mount Lyell and Western Mining spent on a smaller scale.

Funds expended on oil exploration in calendar 1965 amounted to $56 million, of which only $15 million came from Australian companies. In 1966, this would have been lower, but 1967 and 1968...
could see new records set for exploration funds spent. Leading spenders to date have been Wapet, Union-Kern-A.O.G., The Associated Group, the Magellan-Exoil-Transoil-Farmout Drillers Group, the Delhi-Santos Group and B.H.P.-Esso. In the coming years B.H.P.-Esso are likely to be spending vast amounts on exploration.

In addition to funds spent by locally listed companies, much has been spent by overseas companies who have focused their attention on Australia during the past few years. These companies are bringing new techniques in exploration as well as the much-needed capital. More than 90 foreign-controlled exploration companies are searching for minerals in Australia, causing strong competition for worthwhile areas.

Relatively novel to Australia is the off-shore exploration which has caught the imagination of local companies as well as overseas companies. Much of Australia's coastline has now been claimed for mining tenements by companies searching for minerals including tin, gold, rutile, zircon and ilmenite, as well as the better-known endeavours to find oil and natural gas. So far, significant discoveries of tin have been reported.

It is understandable then that men in positions which would normally suggest their conservatism have been prepared to state publicly that huge new mineral deposits will be discovered in Australia. And, in this atmosphere, it is of little wonder that investors in our mining companies are prepared to pay market premiums, which have no cognisance of near term dividend yields, for potential or possible new commercial discoveries that would not be likely to contribute significantly to the exploring company's cash flow for three to five years.

A schedule of significant exploration activity appears in Appendix 2.

**Current and Projected Investment in Australian Mining**

Prospecting successes in previous years are now being followed by a period of development of new mineral projects on an unprecedented scale. Fifty major mineral projects now being constructed, expanded, or at an advanced stage of testing, have capital requirements amounting to over $2,500 million, almost equalising total capital expenditure in Australia by private enterprise on building, construction and other items of capital expenditure during 1965-66. Iron ore and aluminium feature most prominently, requiring 40 per cent and 23 per cent of the expenditure, respectively. Others include petroleum, lead and zinc, copper, manganese, nickel, coal, phosphates, beach sands, tin and salt.

This vast amount of capital needed to finance the development of these recently discovered resources and to explore for new deposits is not available from within our own resources, despite the increasing interest being shown by local institutions and the public in producing funds of this nature. Consequently, the flow of overseas capital into the Australian mining industry has been encouraged by leaders of industry and Government. About 65 per cent of the capital needed for present and planned mining projects is from overseas sources, predominantly from U.S.A. and the United Kingdom. Of the $2,500 million, $1,000 million has been spent; most of the remaining $1,500 million will be spent by 1970.

Australian mining companies are steadily increasing their efforts and are showing a greater tendency to join forces to develop new projects. A schedule illustrating the new mining developments that are under way or in the planning stage may be found in Appendix 3. It has been forecast by government authorities and senior officials in industry that Australia will definitely increase the

---

**Comparative Capitalisations of Leading Mining Companies**

<table>
<thead>
<tr>
<th>Company</th>
<th>Shares (million)</th>
<th>Price $</th>
<th>Market capitalisation ($ million)</th>
<th>Shares (million)</th>
<th>Price $</th>
<th>Market capitalisation ($ million)</th>
<th>Market capitalisation change %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aberfoyle Holdings</td>
<td>2.1</td>
<td>0.98</td>
<td>2.1</td>
<td>4.7</td>
<td>1.80</td>
<td>8.5</td>
<td>+ 305</td>
</tr>
<tr>
<td>Associated Minerals</td>
<td>f.p. 1.7</td>
<td>3.40</td>
<td></td>
<td>ctg. 7.6</td>
<td>7.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broken Hill South</td>
<td>f.p. 16.5</td>
<td>1.02</td>
<td>19.9</td>
<td>24.5</td>
<td>3.31</td>
<td>81.0</td>
<td>+ 305</td>
</tr>
<tr>
<td>Central Norseman</td>
<td>2.6</td>
<td>4.70</td>
<td>12.2</td>
<td>2.6</td>
<td>3.75</td>
<td>9.8</td>
<td>- 20</td>
</tr>
<tr>
<td>C'wealth Mining Inv.</td>
<td>6.4</td>
<td>0.90</td>
<td>5.8</td>
<td>6.4</td>
<td>2.75</td>
<td>17.6</td>
<td>+ 205</td>
</tr>
<tr>
<td>Conzinc Riotinto</td>
<td>f.p. 41.7</td>
<td>1.52</td>
<td>79.4</td>
<td>5.14</td>
<td>408.0</td>
<td></td>
<td>+ 530</td>
</tr>
<tr>
<td></td>
<td>ctg. 1.0</td>
<td>.76</td>
<td>64.9</td>
<td>p.f. 1.4</td>
<td>.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mount Isa</td>
<td>38.1</td>
<td>6.75</td>
<td>258.0</td>
<td>95.2</td>
<td>4.28</td>
<td>407.0</td>
<td>+ 58</td>
</tr>
<tr>
<td>Mount Lyell</td>
<td>16.3</td>
<td>0.25</td>
<td>4.1</td>
<td>16.3</td>
<td>1.60</td>
<td>26.0</td>
<td>+ 535</td>
</tr>
<tr>
<td>Mount Morgan</td>
<td>f.p. 4.1</td>
<td>1.05</td>
<td>4.1</td>
<td>4.1</td>
<td>3.43</td>
<td>14.2</td>
<td>+ 223</td>
</tr>
<tr>
<td></td>
<td>p.f. 1.1</td>
<td>1.00</td>
<td></td>
<td>.1</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Broken Hill</td>
<td>f.p. 14.0</td>
<td>1.98</td>
<td>32.0</td>
<td>4.26</td>
<td>77.6</td>
<td></td>
<td>+ 143</td>
</tr>
<tr>
<td></td>
<td>ctg. 4.2</td>
<td>1.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western Mining</td>
<td>f.p. 3.9</td>
<td>2.75</td>
<td>8.3</td>
<td>6.90</td>
<td>69.3</td>
<td></td>
<td>+ 345</td>
</tr>
<tr>
<td></td>
<td>ctg. 2.4</td>
<td>1.95</td>
<td>15.5</td>
<td>2.8</td>
<td>4.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td></td>
<td></td>
<td>470.2</td>
<td></td>
<td>1150.4</td>
<td></td>
<td>+ 145</td>
</tr>
</tbody>
</table>
Clearly then, our overseas trade balances will become more dependent upon our ability to sell minerals abroad at reasonable prices, and investors in companies which are exporting these minerals may look forward to steady growth in the earnings, providing we are able to renew export contracts for increasing mineral volumes, and providing prices on overseas markets remain reasonably stable.

It would be unrealistic, however, not to mention the possible effects of factors which could periodically be causes for apprehension to shareholders in companies enjoying this prosperity. These could arise on two fronts:

(1) Minerals which have not been sold forward under long-term contracts at fixed prices could be subject to periodic price fluctuations on world markets. Such minerals would include lead, zinc, copper, tin, tungsten and some coal. (2) Renewals of contracts at satisfactory prices with countries which are purchasing minerals for the purpose of re-exporting them in a processed form could be dependent upon cycles in world trade and offers made by other exporting countries. In this regard a portion of our coal, iron ore and bauxite sales could be vulnerable.

A Broad Idea of Share Market Expectations

A comparison of stock market capitalisations at the close of 1962 and 1966 illustrates the share market’s increased enthusiasm for certain sectors of the industry during this period. If the market capitalisation of a company at any one time may be taken as the present worth of the then expected sum of future payments to shareholders, it is surprising that the present worth, or prospects, of any group of leading companies could change so dramatically over a period as short as five years. It must be noted, however, that many new share issues have been made to finance new projects, and it is the additional worth of these new projects which investors are attempting to assess. (Table p.4.)

If the mining investment analyst could make two basic assumptions about (a) an acceptable discount factor which the market should be applying to future receipts by shareholders, and (b) the life of the mining company, it would be possible to gain a somewhat clearer view of the cash flow which the subject company must ultimately generate and pay to shareholders in order to substantiate share market expectations.

An obvious weakness in such an exercise is that it would assume that cash flow generated would be at a constant annual rate, averaged over the selected term; whereas in fact this would be most unlikely. However, despite this shortcoming and other inexact features, the exercise would permit some perspective to be taken on share market expectations of future shareholder benefits.

(a) An acceptable discount factor should be determined by the cost of money plus an increment to discount risks involved in the assumptions surrounding an investment in the mining industry. In some cases of high risk, the total discount factor might be as high as 15 per cent per annum; for others where risks are minimised by long-term agreements.
APPENDIX 1
List of Companies Selected to Provide a Basis for the Compilation of a Cash Flow Index
Broken Hill South Limited Mount Isa Mines Limited
Conzinc Riotinto of Australia Ltd. Mount Lyell Mining & Railway Co. Ltd.
(Zinc Corporation prior to 1962) New Broken Hill Consolidated Ltd.
E.Z. Industries Limited North Broken Hill Limited.

APPENDIX 2
Examples of Exploration Spending
Mining Companies 1965 1966 1967
                          ($'000) ($'000) ($'000)
Aberfoyle 278 453
Barrier Exploration 90 145
B.H.P. ± 1,000 (May 31) ± 1,000 (May 31)
Broken Hill South 504 736
Consolidated Gold Fields 826 (Dec. 31) 300
C.R.A. n.a. n.a.
E.Z. Industries n.a. n.a.
Metals Exploration 75 350
Mount Isa Mines 960 1,570
Mount Lyell Mining 330 570
Mount Morgan 34 66
New Broken Hill 764 (Dec. 31) n.a.
North Broken Hill 391 535
Peko Wallsend 328 407
Renison 21 253
United Uranium 209 (Dec. 31) n.a.
W.M.C. 354 (March 31) 581 (15 mths.)

Oil Exploration Companies
Oil Exploration Companies 1965 1966 1967
                          ($'000) ($'000) ($'000)
A.O.G. 722 935 650
Ampol Exploration 1,600 1,700
Associated Group 1,950 1,400
Santos 2,000 1,650
Woodside 927 1,250

APPENDIX 3
Current and Projected Investment in Australian Mining
Reported or Estimated Cost $ million Reported or Estimated Labour Required Nature of Development
IRON
Mt. Bundey 3 60 Construction
Francis Ck. 3 50 Construction
Savage River 80 500 Construction
Koolyanobbing 1 50 Construction
Mt. Goldsworthy 50 350 Construction
Mt. Newman 140 500 Construction
Hamersley Range 156 1,300 Construction
Robe River 130 420 Construction
Nimigiona 90 350 Construction
Robe River (BHP) 50 350 Construction
Tallering Pk. and Koolyanooka 26 180 Expansion
Yampi Sound 14 100 Expansion
Newcastle Steelworks 40 400 Expansion
Port Kembla Steelworks 180 500 Expansion

MANGANESE
Grooty Eylandt 5 200 Construction
Filabara (see Iron, Ninningarra) n.a. Testing

ALUMINIUM
Gove 100 800 Construction
Weipa 10 300 Expansion
Kalumburu 100 800 Expansion
Alcoa in W.A. 45 350 Expansion
Point Henry 40 300 Expansion
Gladstone 135 1,000 Construction
Newcastle Alumimum 30 400 Expansion
Bell Bay Aluminium 100 350 Expansion

LEAD AND ZINC
McArthur River 200 1,500 Testing
Port Pirie 12 100 Construction

COPPER
Mt. Isa 50 300 Expansion
Bougainville 100 300 Testing
Cobar 17 600 Construction

OIL AND GAS
Moonie and Alton 5 25 Expansion
Roma 35 100 Planning
Gippsland Shelf 200 200 Testing
Mereenie 20 50 Planning
Gidgealpa 55 100 Planning
Barrow Island 25 100 Testing

PHOSPHATES
Cloncurry 100 n.a. Planning

SALT
Shark Bay 6 100 Construction

BEACH SANDS
Gladstone 4 50 Construction
South Brisbane 1 25 Expansion

COAL
Queensland 28 350 Expanding
New South Wales 6 100 Expanding

TIN
Renison Bell 8 50 Expansion

TOTAL 2,571 16,100
the discount factor could be as low as 8 per cent per annum.

(b) Briefly, the mine life of a company is determined by the size and grade of its reserves in relation to throughput, the cost of extracting the mineral and its selling price. The longer the life one assumes for a mine, the easier it is to substantiate the present market evaluation of the mining company. However, a point is reached (depending upon what discount factor is employed) when after twenty to thirty years assumed earnings have negligible present worth. Selection of a term might be complicated by a company having interests in more than one mine plus the fact that an active exploration and development programme might be in progress to extend mine life or develop new projects. In this case, it would be a matter of judgement whether to take the maximum meaningful period or something less.

When applying this approach to the comparative market capitalisations of the prominent twelve companies previously mentioned, the same two assumptions were made for all companies in an effort to simplify the exercise. A 10 per cent compound discount factor was applied for a twenty-year period.

This exercise would suggest that in some cases the share market is paying very little for possible discoveries from exploration activity; in other cases, it is assuming that great new potential will be developed from projects yet to be announced.

Outlook for 1967

One of the best general views on the outlook for world business during 1967 would probably be found in “The Economist”, and the following summaries are taken from the edition of December 31, 1966.

U.S.A.—Despite sizeable advances in military spending during 1967, prospects have suddenly declined. There has been a distinct softening in consumer markets. In particular, the impetus has gone out of the capital goods market. Total U.S. industrial production is expected to rise only about 4½ per cent during 1967 compared with 9 per cent during 1966.

U.K.—The economy could be just about bottoming out, but it is unlikely to pick up before the U.K. summer. By the end of 1967, it ought to be growing again, but perhaps no more than 1 or 2 per cent annually.

Germany—1967 threatens to be one of the worst years for German industry since the war. The motor industry is likely to have a particularly bad time. The days of apparently continuous prosperity are over.

France—Industrial productivity is expected to record another 6 to 7 per cent growth in 1967.

Japan—Mergers and over-capacity are the talking points in Japanese business circles. Rapid expansion of productive capacity has resulted in excessive competition in the home market and allegations of dumping abroad. Taking the iron and steel industry as an example, another round of possibly excessive plant expansion seems likely—unless the Ministry of International Trade and Industry somehow curbs the pace.

Against an overall picture of world business for the year ahead being not as prosperous as for 1966, the prospects for certain metal prices should be considered. For this purpose, the views on a few selected minerals expressed by leading international mining journals have been summarised.

Copper—Price movements are predictable only to the point where it is agreed that they will remain volatile. Political situations in Zambia and Chile threaten supplies from major producers, and the developments in the Vietnam war will be a significant factor affecting demand.

Lead and Zinc—Prices are expected to fall during the year. World production capacity is well ahead of demand.

Silver—it is widely agreed that prices will go higher, possibly by the end of 1968 or early 1969. A rise of at least 30 per cent is envisaged.

Tin—Production and consumption are almost in balance; prices could be steady or possibly weaker.

Aluminium—Recent overseas price increases appear secure, and Australian producers should have another good year.

Nickel—Present world shortages augur well for potential Australian producers.

Summary and Conclusions

Investors holding a diversified portfolio of leading Australian mining companies in 1950 would have enjoyed an outstanding rate of growth in capital appreciation if they retained all their holdings today and had taken advantage of their entitlements to new share issues during this period.

The principal capital growth would have occurred in the latter half of this period when growth of

(Continued on Page 12)
share market appreciation rapidly outstripped the growth rate of cash flow generated. Reasons for this higher growth of share market appreciation appear to be:

1. A long-term investment image of major mining companies has become accepted whereby the investor seems prepared to overlook the possibilities of periodic fluctuations in world trade and in metal prices and to take a sophisticated view of likely future returns from projects reaching production stages several years hence.

2. The enthusiasm of investors over significant mineral exploration programmes—the faith that, if a major company is actively looking for minerals, it stands an excellent chance of finding them.

3. Confidence at government level that the Australian minerals industry will enjoy an overall growth rate of at least 10 per cent per annum, and that our future balance of payments problems will, to a large degree, be solved by mineral exports.

Mining company share markets have always been prone to reasonably wide fluctuations, or cycles. Should there be an appreciable downturn in world trade which reduced demand for minerals, minerals prices could ease appreciably and provoke a degree of profit-taking by mining share speculators.

The companies most vulnerable to profit-taking are likely to be those where the share market is paying for potential cash flow from projects which have not as yet been reported.

However, with an increasing per capita consumption of the world’s leading minerals, and a rapidly growing world population, the long-term outlook for Australian mining companies has never been more promising.

**Statistics— from P. 11**

down their holdings of Government securities quite substantially.

For some purposes it is useful to isolate financial data relating to particular classes of claims or particular classes of borrowers or lenders. For other purposes it is useful to aggregate or consolidate. As an example of the latter, all the transactions of non-finance companies and persons and unincorporated enterprises may be brought together in the one table. Doing this for the five years 1960-61 to 1964-65 produces the fearsome looking schedule identified as Table III. To the extent, however, that the borrowings and lendings of the groups covered by this table represent a major field of focus for assessments of overall patterns of financial activity, study of the year to year changes in financing patterns evidenced in such tables may not be entirely unrewarding to those interested in the behaviour of money and capital markets.

---

**Calling All Chartists**

How many security analysts maintain share price charts? Who are they? Do they wish to exchange price data and charting information?

Let the Journal bring together these specialists. Send your name, business address and the names of the companies for which you keep price charts to

**The Editor,**

**Australian Society of Security Analysts,**

**Box 5085, G.P.O.,**

**SYDNEY.**

*If there is sufficient demand for this service, the information will be summarised and published in a convenient form to assist you.*