

INVESTMENT IN AUSTRALIAN GOLD MINING SHARES

by

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Summary

I intend to introduce you to three reasons that will direct your interest towards consideration of investment in Australian gold mining shares:

1. Since the end of American dollar gold convertibility in 1971, the real price of gold has increased by more than any other commodity mined in Australia;
2. Australian gold mining costs have been reduced to the point where in American dollar terms they are lower than the average gold mining costs in South Africa; and
3. By prudent purchases and sales of Australian gold mining shares 1971 to 1979 an investment of \$200 could have been increased to \$4,000.

Definition of Terms

The Oxford English Dictionary suggests that one who employs money to realise a known return is an investor. However, one who engages in commercial operations where there is a risk of loss is a speculator. Thus, those who buy Government bonds, lodge money in savings accounts in Banks and Building Societies or buy company debentures are investors — those who buy company equities are speculators.

You might say that these are harsh definitions, however, they do give view to two aspects of all equity purchases. That we buy shares to receive a dividend makes share purchases an investment; that we buy equity and risk loss means that we are also speculating.

Nowhere are these two aspects of share purchasing more visible than in mining.

In buying mining shares, we are backing financially the judgment of an experienced

geologist who hopes to find a mine, or we are buying equity in a company that already has a mining operation.

Assessing Share Prices

In purchasing the equity of a mining company we assume that the company's employees have applied their skills of geology, mining engineering, metallurgy, marketing and finance to determine that by spending capital in developing a particular ore body a profit should be earned over the life of the mine and the profit should be sufficiently high to justify taking the risks. Management's expertise has been used to estimate the difference between estimated prices and costs for a particular mine. This estimate of mine cash surplus (or deficit) is then used to determine if the mine development should be undertaken. These cash flows are discounted by a rate of interest and their present value determined. The development is made provided the present value of the cash flows exceeds the estimated capital expenditure at a particular rate of interest.

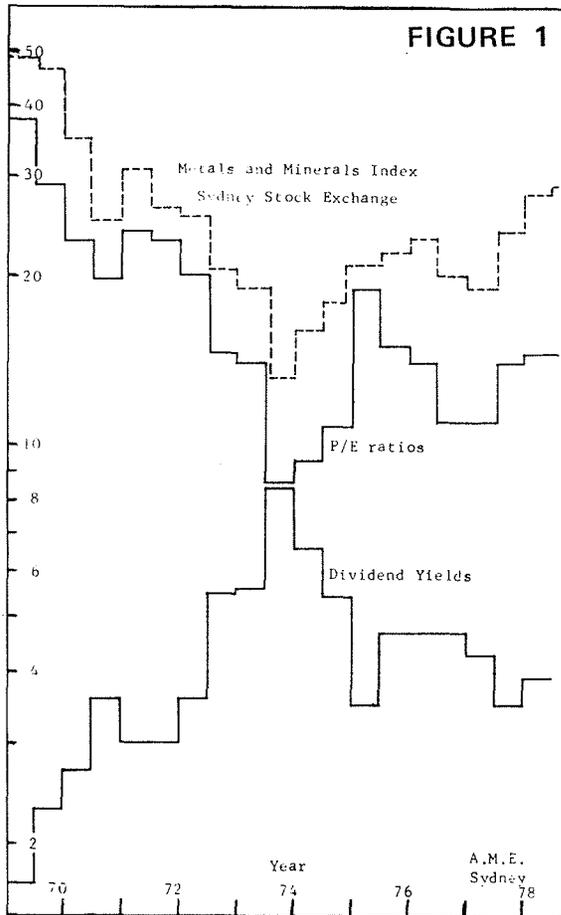
Some professional as well as individual investors employ similar techniques for the valuation of mining company shares before making their buy or sell decisions.

The results of these decisions to buy or sell shares and to open or close mines are reflected in the general trend of share prices.

Figure 1 shows trends in a mining company market capitalisation index, which is an index of the share market value of a major group of Australian mining companies and compiled daily by the Sydney Stock Exchange, the price/earnings ratio and the dividend yield for a similar group of major Australian mining companies. The price/

* The views expressed in this paper are those of the author and not necessarily those of Australian Mineral Economics Pty. Ltd.

earnings ratio is simply the share price divided by the latest annual profit per share and the dividend yield the latest annual dividend per share divided by the share price, this ratio being expressed as a percentage.



As you can see, and probably all remember, the Australian mining market fell 1970 to 1974 with a slight rally in 1972. Since the beginning of 1975, mining share prices have in general improved. Identifying market swings in the second half of 1974 and the first half of 1978, I think we can say that in general there is a tendency for mining shares to be purchased when share prices represent 9 to 11 times last year's earnings (or annual profits) and sold when prices exceed 20 times last year's earnings; investors seem prepared to accept a dividend yield of about 4% per year.

We must remember that in buying or selling shares, we are making assumptions about the near-term future; we sell shares because we think share prices will fall and in a well informed stock market such as we have in Australia there is a tendency for share prices to fall if company profits fall. Mining company profits fall when metal prices fall.

However, mining companies develop mines that can be expected to remain in operation for several years 10 to 20 years being the normal expectation. Because of this, the investor should have an eye to the long-term trend in metal prices and although we may sell mining company shares because of an expected short-term fall in metal prices, we as investors, should remain interested in that particular mining company's share price since there will be a share price and short-term metal price view at which we should again buy the shares.

Because Section 26 AAA of the Income Tax Act enables the authorities to tax profits on sharetrading realised within 12 months, the buying and selling of mining shares that I have mentioned is confined to the major mining market swings associated with metal price changes accompanying the four-to-five-year business cycle.

The Special Reasons For Buying Gold Shares

Having made a few general points about investment in mining shares, I suppose we should see if there are any special reasons for buying gold mining company shares.

Gold as an ultimate store of value implies that the possession of the metal represents a hedge against the ultimate breakdown of our society. If our society ever reached total disorder, precious metals would again become the preferred medium of exchange. In such a situation, it is unlikely that there would be an organised stock market but there would probably continue to be gold mining.

Presumably, gold miners would be paid in gold and perhaps shareholders able to reach the mine might receive their dividends in gold. If this did occur, then perhaps gold mining company scrip could become a form of promissory note.

Social disorder is a difficult circumstance to imagine. But in the event, I think the metal rather than gold mining company scrip would be the preferred currency. This suggests that there are no special reasons for buying gold mining company shares.

The Gold Market – Demand, Supply, Price

Table 1 summarises the supply and demand position of the western world's gold market 1975 to 1978. The first thing we notice is that the market is not physically large — an average of 1,690 tonnes of gold made up the market in 1977 and 1978, this being very small in comparison with the 8 million tonnes of copper, the 15 million tonnes of aluminium or the 490 million tonnes of steel consumed in those two years in the western world.

Even in terms of dollar values, the gold market does not appear very large. Using the average metal prices of 1977 and 1978, the gold market was valued at \$US9,600 million, copper \$US12,300 million, aluminium \$US17,900 million and steel \$US194,000 million. These values ignore the re-sale of the metals concerned.

The second point from Table 1 is the precarious balance of supply and demand. In 1977/78, 60% of the gold consumed went into jewellery and 14% each went into industrial demand (electronics, dentistry and other) coins and net private purchases of bullion for so-called investment use. This demand was balanced by supplies from three sources: 20% from the sales of Government stocks, 25% from sales by the Communist bloc and 55% from mine production. Should western country governments — the Americans and/or the IMF — stop selling from stocks or should the Russians decide they no longer need foreign exchange, the western world's gold market would move out of balance quickly. Presumably gold prices would move upwards accordingly to both reduce demand and stimulate new production.

Thus new gold producers should find a ready outlet for their production.

The mining share market receives its interest in the gold market via the trading of shares of companies involved in either the search for, or the mine production of gold. Table 2 summarises the mine production of gold by country for the period 1975 to 1978.

TABLE 1
GOLD BULLION SUPPLY AND DEMAND

	tonnes			
	1975	1976	1977	1978
Demand				
Jewellery	519	931	996	1001
Electronics/Dentistry	129	152	159	172
Other	60	66	67	75
Coins	265	231	184	305
	973	1380	1406	1553
Net Private Purchases	138	57	233	189
	1111	1437	1639	1742
Supply				
Government Sales from stocks	9	58	269	362
Trade with the Communist bloc	149	412	401	410
Mine Production	953	967	968	969
	1111	1437	1638	1741

Source: Gold 1979, Consolidated Gold Fields Ltd.

TABLE 2
WESTERN WORLD MINE PRODUCTION OF GOLD

	tonnes			
	1975	1976	1977	1978
South Africa	713	713	700	706
Canada	51	52	54	53
U.S.A.	32	32	32	30
Papua New Guinea	18	20	22	23
Philippines	16	16	19	20
Australia	16	15	19	20
Rhodesia	19	17	20	17
Other	88	102	102	100
	953	967	968	969

Source: Gold 1979, Consolidated Gold Fields Ltd.

Gold production over the last three years in the western world has been remarkably constant; this constant output compares with the steadily declining trend evident since 1970 when a record 1,274 tonnes of gold was mined.

As Table 2 shows, three quarters of the western world's gold is mined in South Africa; Australia is the sixth largest producer of gold producing some 20 tonnes in 1978.

This small production compares with Australia's mine production of 90 million tonnes of iron ore, 482,000 tonnes of zinc and 87,000 tonnes of nickel in the same year.

A further indication of the size of the Australian gold mining industry — note that I am talking about size rather than importance — can be gauged by the fact that the production of gold in Papua New Guinea is from one mine and is the by-product of the production of copper concentrates by Bougainville Copper Ltd. Indeed, the largest gold producer in South Africa at Vaal Reefs produced 67 tonnes of gold in 1978 or more than all the gold produced in the same year in Canada, the western world's second largest producing area.

One further point raised by the production of gold at Bougainville is that much of the western world's gold is produced as a by-product of base metal mining. In South Africa, 93% of the gold produced is produced from gold mines; in the remainder of the western world, some 40% of the gold produced is produced as a valuable by-product in the mining of other base metal ores.

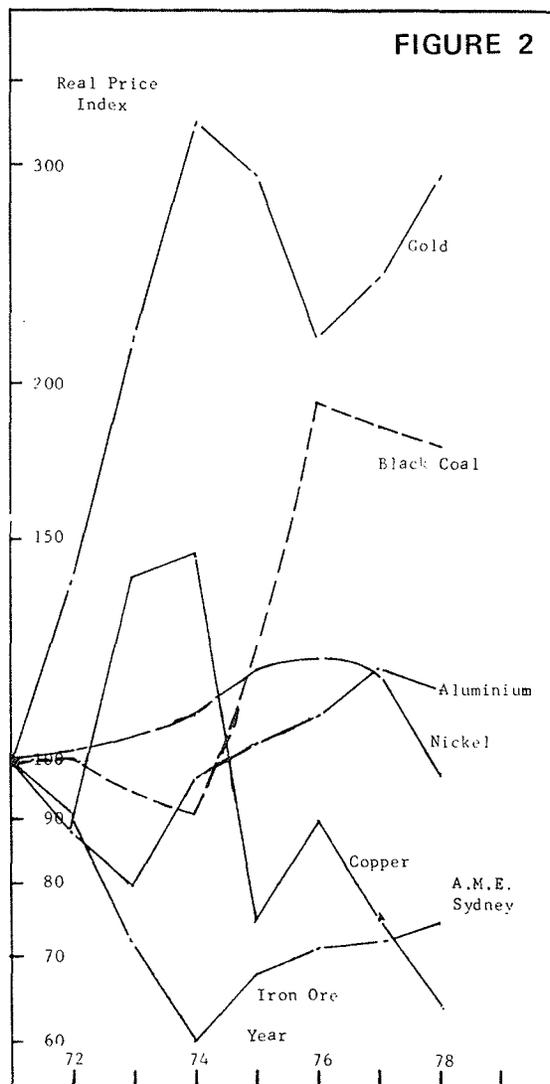
In Australia, approximately 28% of our mine production of gold, over the last decade, has been as a by-product from base metal mines.

Nevertheless, I am sure that you will be pleased to learn that of the remaining 72% of gold that is produced in the form of bullion from the mining of gold ores, over two-thirds has been produced in West Australia.

As I have pointed out that gold can be produced as a by-product of the mining of other ores, the investor also has available the possibility of say investing in copper shares with the possible profits from gold being an additional sweetener.

Figure 2 shows what we all know — that

gold prices have increased dramatically since 1971 when the American dollar to gold convertibility was dropped. However, Figure 2 presents this price increase in comparison with the prices of other major commodities produced in Australia and points out *the first compelling reason* why you should be interested in investing in gold shares. The real price of gold has since 1971 increased by more than the commodities shown; only black coal prices have approached the performance of the gold price.



I should add that in compiling Figure 2, I have taken annual price averages, the black coal and iron ore prices were the average export values per tonne of these commodities exported from Australia, inflated these

prices by the appropriate consumer price index so that all prices were expressed in terms of 1978 American dollars and then equated each 1971 average price to 100 and constructed the price indices shown.

Gold prices in real terms have outperformed all other major metal prices over the last 8 years.

Gold Mining Production Costs

Earlier, I mentioned that share prices respond to anticipated company profits and that in determining to open a new gold mine some assessment of mine cash surplus was necessary. Having talked of gold prices, we need now direct our attention at production costs. Two aspects need be considered; the level of production costs and how these compare with our competitors, and, the trend in production costs in Australia and how these compare with gold mining production costs elsewhere.

Figure 3 shows a comparison of some Australian gold mining costs with those of the gold mines in South Africa. South African costs were used because as these mines dominate mine production a good

competitive cost position against them is required; also the reporting procedures of the gold mines via the South African Chamber of Mines facilitates comparisons.

In preparing Figure 3, I have listed 32 South African gold mines in order of their 1978 cost of production with their 1978 annual production. By adding the annual production of successively higher cost mines the curve of Figure 3 can be determined. This shows that in 1978, no gold in South Africa was produced at working costs of less than \$US47 per ounce, 50% of output from South Africa was produced at less than \$US95 per ounce and all production was achieved with a working cost of less than \$US233 per ounce.

Stated another way, as the average price of gold in 1978 was \$US193 per ounce approximately 4% of South Africa's output was from mines (4 in number) that did not have a positive mine cash surplus. Further, if the price of gold had fallen to say \$US120 per ounce in 1978, one quarter of the mine production of gold in South Africa would have been unprofitable.

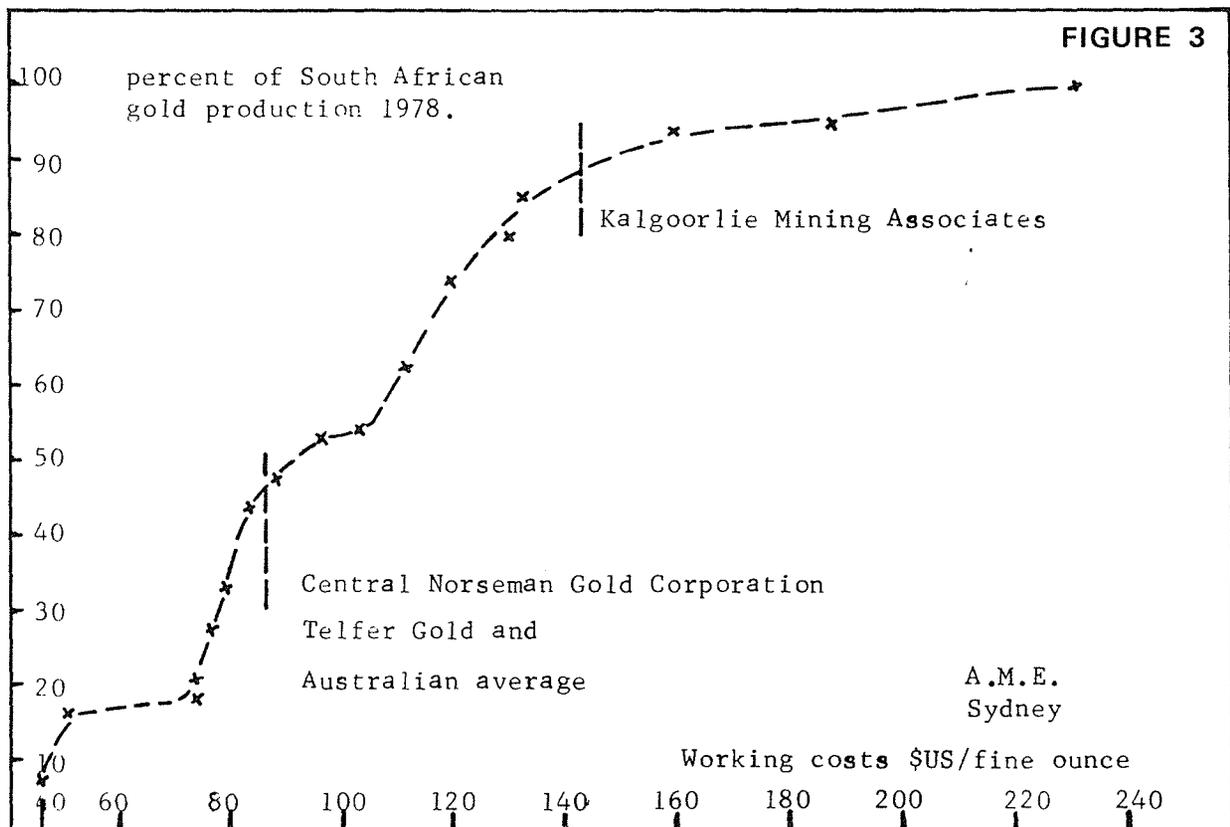


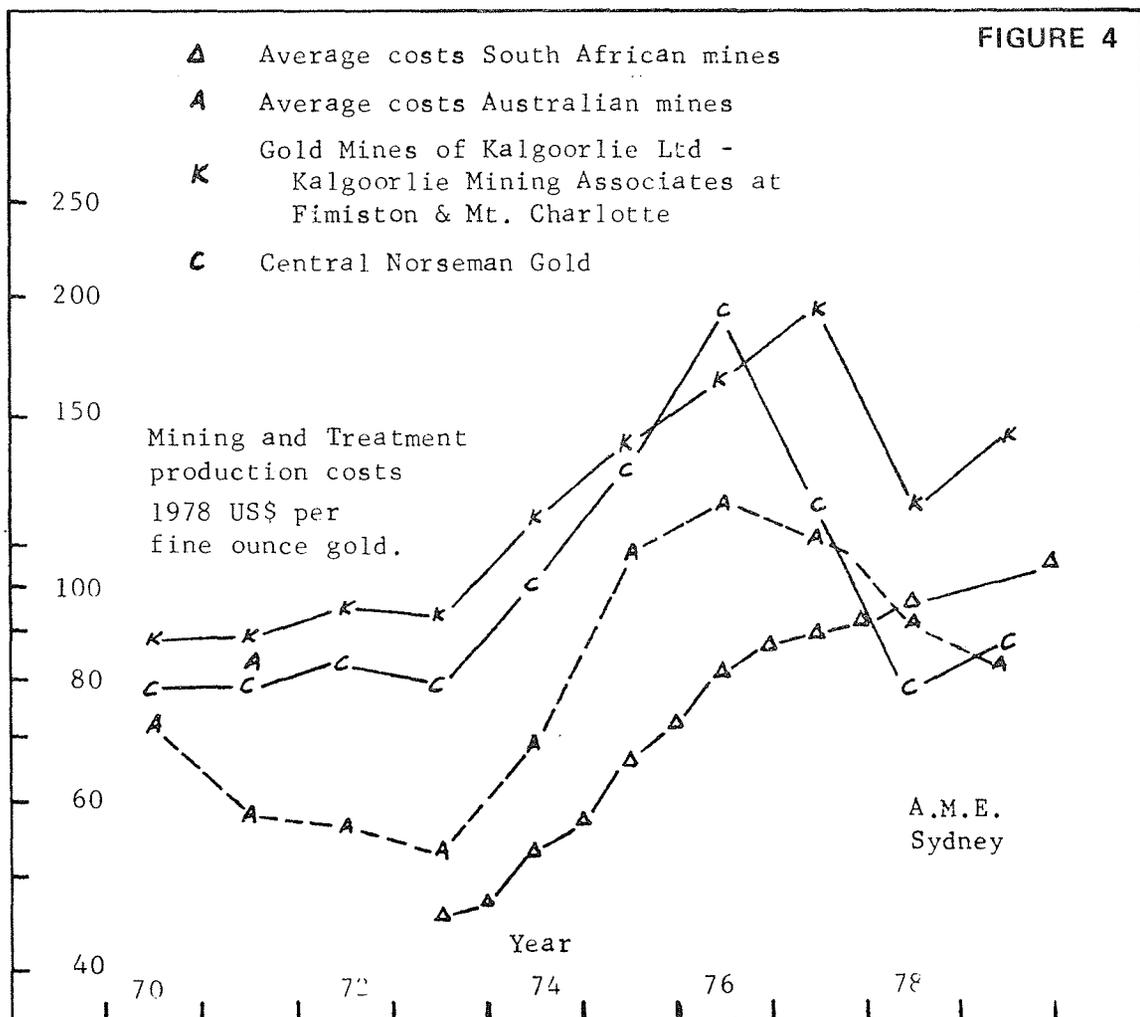
Figure 3 also lists my estimates of the working costs of Kalgoorlie Mining Associates (estimated from information in the 1978 annual report of Gold Mines of Kalgoorlie Ltd.), Central Norseman Gold Corporation (from that company's 1978 annual report) and for Australia's largest gold mine at Telfer (from the 1978 annual report of Newmont Mining Corporation). The average cost data for Australia have been derived from the "Census of Mining Establishments, Details of Operation by Industry Class" and published by the Australian Bureau of Statistics, Catalogue No. 8402.0.

I leave you to make your own judgments on the competitive position of the costs of Australia's gold mines. I would add one personal observation which is that the mining costs shown indicate that gold mining in Australia does have a future;

perhaps the costs at Kalgoorlie could be a little lower and to be safe, production with costs less than \$US120 per ounce in 1978 American dollars would be desirable of any new venture.

Figure 4 shows the trend in average gold mining costs in Australia and South Africa over the last decade. Again, the records of the Chamber of Mines provide the South African data and ABS Catalogue No. 8402 provides the Australian data. The annual reports of the companies shown on Figure 4, together with my estimates, were the source of the Australian company cost data. All costs in Figure 4 are shown in constant 1978 American dollars per ounce so that comparison in real costs can be made.

Figure 4 also shows the second compelling



reason why you should be interested in investing in Australian gold mining shares. In 1977/78, average Australian costs were lower than average South African costs and Australian producers seem to have brought real costs down from the unprofitable levels of earlier years. Their challenge is that in the future, they will need to prevent real production costs increasing by more than 6.5% per year — this is the trend in real cost increases incurred by South African mines since 1975.

The dramatic turnaround in the trend in Australian costs has been accompanied by an increase in labour productivity — due no doubt to increased capital investment — with productivity increasing from a low of 166 ounces of gold per employee per year in 1974/75 to 464 ounces of gold per employee per year in 1977/78.

Total employment in the industry has fallen from 3,229 in 1968/69 to 2,186 in 1974/75 to 1,264 in 1977/78. Perhaps underlining the fact that Australian gold mining is small and fragmented 31 establishments were involved in producing 16,343 kgs. of gold in the 12 months to 30 June 1978.

In thinking about those figures, you should remember that in 1978, Telfer produced 227,006 ounces (7,060 kgs.), Central Norseman Gold produced 85,874 ounces (2,670 kgs.), and Kalgoorlie Mining Associates 84,281 ounces (2,621 kgs.). That is, these three producers in West Australia produced 12,351 kgs. or just over three quarters of Australia's total output of gold from gold ores.

Before leaving this section on costs, perhaps a few other figures will help complement your investment analyses. In 1977/78, the Australian gold mining industry consumed 0.5 bbls. of oil products per ounce of gold produced. Capital cost figures for opening new gold mines in Australia or rehabilitating old mines are not plentiful. However, from reported capital expenditures at Telfer and press comment concerning the possible reopening of the Beaconsfield mine in Tasmania and the redevelopment of mines in Kalgoorlie, capital costs in 1979 Australian dollars are unlikely to be less than \$100 to \$130 per ounce recovered and should not be more than \$150 to \$180 per ounce recovered. Finally, recovered grades. In South Africa,

the average recovered grade of the gold mines has fallen from 12.7 gms. per tonne in 1972 to 9.4 gms. per tonne in 1978 — as gold prices have increased lower grades have been mined, thereby benefiting mine life. In Australia, recovered grades of the profitable mines vary from about 4¼ gms. per tonne to 18 gms. per tonne with mill recoveries typically being 88 to 95 per cent.

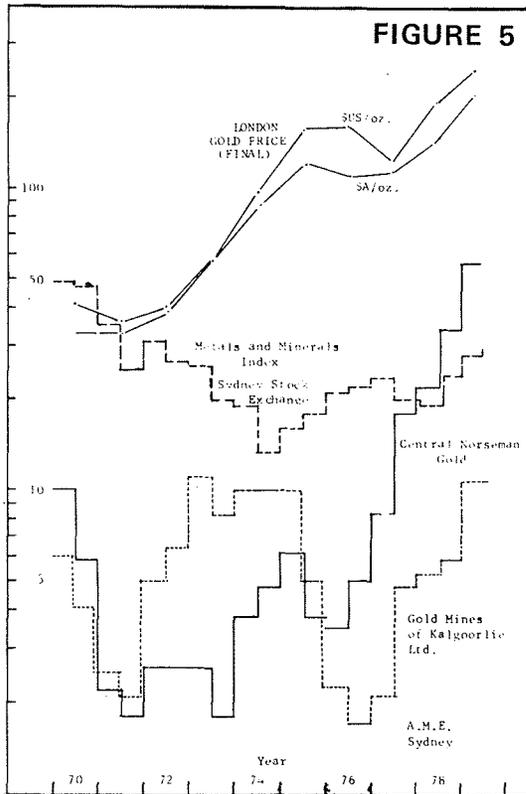
Some Examples

So far, I have made four points about investment in Australian gold mining shares.

1. The speculative nature of purchasing shares in exploration companies — remember where the risks are high so can be the rewards. Exploration company share prices move in sympathy with the company's exploration efforts and the commodities being searched for.
2. When buying or selling the shares of an operating gold mining company an assessment of the general trend in mining share prices, price/earnings ratios and dividend yields should be made. Of equal importance is the future trend in gold prices both short (12 months) and medium (2 years) term.
3. There are no special reasons for holding gold mining shares; special in the sense that there may be a special reason for holding gold.
4. Two compelling reasons for developing an interest in investing in Australian gold mining shares have been identified
 - (a) the rate of gold price increases continues to outperform the changes in prices of other minerals mined in Australia, and
 - (b) the average costs of Australian gold mines appeared in 1978 to be below the average costs of the major producing mines in South Africa and when compared individually Australian gold mining costs compared favourably with those of individual South African gold mines.

It has not been my purpose this afternoon to identify investment opportunities. Rather, I have attempted to introduce you to the subject of buying and selling Australian gold mining shares and then provide you with some facts and figures that might help you reach a decision.

I would like to conclude with two examples. Figure Five shows the variation in the 6 monthly averages of the share market capitalisation of Gold Mines of Kalgoorlie (GMK) and Central Norseman Gold (CNG) in millions of Australian dollars. The changes



can be compared with the general share mining index and the gold price.

In 1971, we had some 12 months to ponder the future of gold. Had we decided to invest \$100 each in a general portfolio of Australian mining shares and the two companies shown (Australians could not legally hold gold until after 30 January 1976) by 1974 our general portfolio would have fallen to \$50 whilst our \$200 investment in the two gold mining companies would have increased to \$650. Throughout 1974 and 1975, we would have been able to judge whether attempts to reduce world inflation would be successful and if so, would metal prices ease with the onset of recession. Had we decided to sell our gold shares in 1975, we would (ignoring brokerage charges, stamp duty etc.) have realised \$570. Note, that the anticipation of a fall in the price of gold sent the share prices of our two gold mining companies tumbling particularly as in the

case of GMK there was the view that a fall in the gold price unaccompanied by a decline in costs would lead to a closure of the Mt. Charlotte and Fimiston mines. Throughout 1976, we could have again pondered the outlook for the price of gold and had we invested our \$570 equally into GMK and CNG's shares sometime in the 12 months ended mid 1977 by the middle of this year our original \$300 investment in 1971 would be \$4,175.

The third compelling reason for your interest in investing in Australian gold mining shares is that in the last 8 years you could have turned \$200 into \$4000 by prudently investing in Australian gold mining shares. And whilst you ponder making that return, may I issue one warning. Company profits from gold mining in Australia remain free of income tax.

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