

CALCULATING P/E RATIOS

WHY GOLD IS A SPECIAL CASE

by R. J. McDONALD

Appropriate price/earnings ratios to be applied to gold producers depend on factors peculiar to the gold industry, including expectations about a gold tax.

Following its high point in late September, the Australian sharemarket declined by \$90 billion, or 40 per cent of its peak capitalisation of \$243 billion. The mining industry incurred a greater decline, with two-thirds of the mining companies on the *Top 150* list dropping down the list (with a similar percentage of industrial companies gaining ranking).

The latter effect is not surprising, given the greater volatility of the mining industry vis-a-vis the total sharemarket (i.e., mining has a higher beta factor than industrials).

The relative importance of the mining industry in the Australian economy helps to explain why the Australian sharemarket has dropped more than international markets.

Against this background, this note comments on the appropriate price/earnings ratio to apply to gold producers. (Rule-of-thumb measures such as price/earnings ratios and capitalisation per annual ounce of production often provide a good approximation of company worth. Their real strength, however, is more to do with identifying valuation discrepancies; discrepancies that deserve further investigation.)

Established producers with good reserve/discovery potential and gold companies showing strong growth (as indeed many have over the past three years) should continue to command P/Es of greater than 25.

Accepting that differences in operating-cost structure and capital

structure are already incorporated in earnings levels, the appropriate P/E ratio to assign to a particular gold stock is determined by the following considerations:

- Whether earnings are reported on a pre-tax or post-tax basis, and general expectations about the probability of a gold tax and its impact under the dividend imputation regime.

- Production growth; that is, the acceleration of the rate of exploitation of reserves.

- Discovery potential; that is, the ability of a company to replenish its depleted reserve base.

- Expectations about management and production performance.

- Expectations about future gold prices.

To simplify this exercise we shall investigate the case of a credible gold producer with an established track record, currently generating revenues of 100 with costs of 50 (costs include maintenance, capital expenditure and exploration expenditure). We note, however, that many emerging Australian gold companies will trade at a discount until they become established (i.e., the conventional market re-rating on commencing production).

Such a company with an infinite life, with no growth and paying no taxes, will be worth 500, based on a real discount rate of 10 per cent a year. In other words, its P/E would be 10. With a 50 per cent

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tax rate, the company would be worth 250, but would continue to show a P/E of 10 on after-tax earnings.

Using some straightforward mathematics, we show the impact on P/E (and valuation) of gold price increases, production growth, finite reserve life, and tax expectations.

Gold price increases

Gold can be likened to a zero-coupon bond, where the future price trades at a premium to the spot price, where the premium is the market rate of interest. With real rates of interest at around 5 per cent a year, an unbiased and neutral gold-price model is for future prices, in real terms, to increase at 5 per cent a year over spot prices.

With a real-term discount rate of 10 per cent a year, the present value of the cash flow components is as shown in Table 1.

As can be seen, an increasing gold price results in a P/E some three times that for a steady-state, no-growth company.

Production growth

(a) Continual growth: In the previous section we showed that with no growth our model company would exhibit a P/E of 10. Table 2 shows the impact of various growth rates on post-tax asset value and post-tax P/E (a similar exercise will show pre-tax company value at twice the post-tax level, but pre-tax P/E's will be identical to the post-tax figures).

This table highlights the impact of expected growth on asset valuation. Many Australian gold companies are clearly in a growth mode, independent of expected gold price increases, and therefore demand higher P/E's.

The table also helps to explain the across-the-board reduction in asset values in late 1987, when there was a reappraisal of expected growth in the world economy. A reduction in expected growth from, say, 4 per cent to zero means that across-the-board P/E's and asset values should have fallen by 40 per cent (from 16.7 to 10).

(b) Step growth: The above section considered continual growth. If we look at a situation where the gold company is poised to double production but where reported earnings relate to the lower production level, then clearly the appropriate P/E would be 20, without providing for expected gold price increases.

Finite life

We now address a company with a 10-year planning horizon, rather than

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an infinite life.

(a) With costs as before, and gold prices increasing at 5 per cent but with no production growth, the after-tax value of the company is 232.5, or a P/E of 9.3 on current post-tax earnings of 25.

(b) Under a finite-life, steady-state appraisal, it could be that no significant capital expenditure or exploration would be incurred to maintain current production levels. Were this to halve total costs, then course P/E would double to 18.3. (Kidston is such a case, with direct operating costs of about 25 per

cent of revenues and known reserves of 10 years.)

(c) Under a 15-year planning horizon with expected prices increasing at 5 per cent a year, and production increasing at 5 per cent a year, the post-tax value of the company would be 688, or a P/E of 27.5 on current post-tax earnings of 25.

Tax uncertainties

Most brokers currently report gold P/E's on the basis of before-tax earnings. It seems to us, however, that company valuations should allow for the possibility of a gold tax being introduced.

In the case illustrated in Table 1, showing P/E's of 30, the pre-tax company was worth 1500 and post-tax, 750. Table 3 shows the impact of tax on P/E's based on reported pre-tax earnings.

This paper has intended to provide a general framework for establishing appropriate P/E ratios for the Australian gold sector. The job is now to develop a reasonably robust algorithm to accommodate what are considered to be the key variables: growth potential and reserve position, both factors being interdependent and both encompassing an opinion about management quality. □

Table 1:

	Present value
Revenue (100/[0.1-0.5])	2000
Costs (50/0.1)	500
Pre-tax company worth	1500
Annual pre-tax profits	50
P/E	30
Post-tax company worth	750
Annual post-tax profits	25
P/E	30

Table 2:

Growth rate (revenue and costs)	Value of company	Current post-tax	
		profit	P/E
0%	(25/0.10) = 250	25	10
2%	(25/0.10-0.02) = 312.5	25	12.5
4%	(25/0.10-0.04) = 416.7	25	16.7
6%	(25/0.10-0.06) = 625	25	25
8%	(25/0.10-0.08) = 1250	25	50

Table 3:

Probability of gold tax (50%)	Company value	P/E (pre-tax earnings)
0	1500	30
0.2	1350	27
0.4	1200	24
0.6	1050	21
0.8	900	18
1.0	750	15

The tax situation is not this simple since, with dividend imputation, it raises the question of who is the marginal investor.