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THE EFFECT OF CHANGES IN TAXATION LEGISLATION ON AUSTRALIAN MINING COMPANY PROFITABILITY

By

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ABSTRACT

In the economic evaluation of any Australian mining project, changes in taxation can significantly affect viability. Australian tax laws, particularly in the period since early 1973, have undergone many changes which have led to shifts in the profitability of mining companies.

This paper examines the sensitivity of a selected, broadly based sample of Australian mining companies to the changes that have occurred, or are reasonably likely to occur, in taxation legislation.

In the past, tax systems have been altered for a variety of reasons, such as

1. reduction in the impact of inflation
2. neutralization of incidence between different sections of the economy
3. as an incentive to encourage expansion and growth in a particular industry or area, and
4. increase in the real "take" of government.

In this paper, conventional rate of return analyses are applied in a study of how profitability is affected under various taxation systems.

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INTRODUCTION

The significant expansion experienced by much of the Australian mining industry in the 1960's was undertaken against a background of stable taxation legislation. While there were some changes during this decade - as discussed by Timbs (1975) the company tax rate moved through a small number of percentage points and some adjustment in depreciation provisions occurred - no change was significant enough to upset the established form. However, since the beginning of 1973, the number of changes which have occurred in taxation legislation affecting the mining industry has caused this aspect of any project evaluation study to be approached with uncertainty.

In broad terms, the position faced by public mining companies at the beginning of 1973 was that profits were taxed at the uniform rate of 47.5 per cent after allowances and deductions available to all sectors of industry in Australia had been applied and after special concessions available solely to the mining industry had been included. The most significant of these concessions are listed.

1. In the hands of investors, tax deductions were allowed on calls on shares in exploration companies and on dividends paid from one-fifth of profits generated from the mining of "prescribed products" as listed in Table 1.
2. Exemption of payment of tax by mining companies on one-fifth of profits

- generated from the mining of these "prescribed products".
3. Accelerated depreciation allowances on exploration expenditure, mine development and infrastructure.
 4. Exemption from tax for company profits generated from gold mining and also, in the hands of shareholders, tax deductibility of dividends from gold-mining companies.

Table 1
"Prescribed products" attracting
taxation concessions,
after Commerce Clearing House (1969)

Metal/Non Metal	Mineral
Antimony	Asbestos
Arsenic	Bauxite
Beryllium	Chromite
Bismuth	Emery
Cobalt	Fluorspar
Columbium	Graphite
Copper	Ilmenite
Lithium	Kyonite
Mercury	Magnesite
Molybdenum	Manganese Oxide
Nickel	Mica
Osmiridium	Monazite
Platinum	Piezo-electric Quartz
Selenium	Pyrites
Strontium	Radioactive ores
Tantalum	Rutile
Tellurium	Sillimanite
Tin	Vermiculite
Tungsten	Zircon
Uranium	
Vanadium	

TAXATION CHANGES SINCE EARLY 1973

During 1973, changes which were to affect both the overall company taxation structure operated under by the mining industry and all important concessions received by the industry

were set in motion. In that year, shareholders of mining companies were the first to be directly affected with the removal of tax deductibility of calls on shares and on some dividends.

In 1974, major changes occurred.

1. The company tax rate was reduced from 47.5 to 45.0 per cent.
2. Depreciation provisions applying to the mining industry were revised. With a stated intention as outlined by Australia - Department of the Treasury (1974) of bringing about "equity and neutrality" in legislation, the thrust of the changes was to extend most mining capital expenditure depreciation write-off times to life-of-mine or twenty-five year periods.
3. Tax exemption on one-fifth of profits from "prescribed products" was removed.

During 1975, the first change was a substantial coal export levy introduced by the Australian government. Although this paper makes no attempt to analyse the incidence of royalty payments on mining company profitabilities, royalty imposition varying on a state-by-state and product-by-product basis throughout Australia, the coal export levy is worthy of mention as it was imposed specially as a form of taxation, being referred to by Hayden (1975) as a tax on windfall export earnings. A second tax charge occurring in 1975 was the further lowering of the company tax rate from 45.0 to 42.5 per cent.

Finally, throughout 1976 the pace of change in taxation legislation has not slowed, although the reasons for change may have altered. The most significant developments during the year are as follows.

1. An investment allowance was introduced on new capital expenditure.
2. Exploration expenditure was made

deductible against a wider range of income sources.

3. The minimum period for most forms of capital expenditure depreciation write-offs was considerably reduced. Capital expenditure on mining developments was made deductible on a diminishing basis over 5 years rather than 25 years as had previously been in force.
4. Phasing out of the coal export levy was begun.
5. As a first step to reducing the impact of inflation on taxable company incomes, partial indexing of trading stock valuation accounts was introduced. The method of indexation adopted was broadly along lines recommended by Mathews (1975). At this time, it was stated by Lynch (1976) that the impact of inflation on depreciation allowances was being closely examined by the Australian government.
6. A decision was made to phase out tax exemption of gold mining profits and place gold mining on the same basis as other mining activities.

METHOD OF ANALYSIS

This study of the effects of taxation on Australian mining company profitability has been undertaken with the intention of determining and reporting factual observations while leaving conclusions and interpretation largely to the individual reader. With this in mind an attempt has been made to ensure that a wide coverage of enterprises is included in the study to make sure that no one mineral or local factor is given undue influence, factors external to the topic under review do not cause distortions and results can in some way be quantified.

The study has been based on examination

of data from the published annual reports and financial statements of eight significant Australian mining companies. This procedure was largely followed by Fitzgerald (1974). The selection made by Fitzgerald has been maintained in this paper, with the exception that the two companies engaged in petroleum mining have not been included. (Historically, petroleum companies have operated under somewhat different tax regulations to other mining enterprises and it was considered that their inclusion here may complicate trends exhibited by other representative mining companies.) A supporting reason for basing the study on published company statements was that by using only truly non-confidential information the analysis could be more impartial and less restricted.

To avoid distortions in company financial results caused by external economic forces, the financial statements of the eight companies studied have been compared over the same time period. The period chosen for study was the 1975 calendar year, or the closest annual period to that date covered by individual annual reports. Companies studied report at different dates and so the time interval covered extends over the range July 1st, 1974, to December 31st, 1975.

Where quantitative comparisons have been made, the method of analysis has unless otherwise noted been by the cashflow rate of return method. This technique is widely accepted and applied to comparative project feasibility studies within the mining industry and described by many authors, for example Stermole (1974). The total cashflow figure for a company is obtained by adding annual profit (after tax) to other cash sums generated during the period but not specifically allocated to some form of "provision" fund. The most important of these cash sums is the depreciation allowance. The rate of return figure is then obtained by dividing cashflow by shareholder equity ownership.

EFFECTS OF TAXATION CHANGESCOMPANY TAX RATE ADJUSTMENT

As listed above, two changes in the company tax rate have occurred since 1973. Adjustments such as these have not been infrequent throughout the history of Australian taxation laws. They have been used at different stages by governments either to increase their share of revenue or conversely to encourage business profitability. In Table 2, profitability sensitivity of the eight selected firms to five different tax rates is shown.

The result for Peko Wallsend Limited, with an increased rate of return index at the upper end of the tax rates investigated would initially appear to be anomalous. However, in the year under analysis, this company recorded a profit-before-tax less than its entitlement for exempt mining income and so was liable for no payment of income tax. In fact a negative income tax was recorded, presumably under the assumption that a positive taxable income would be earned in future years from which the loss could be deducted.

Table 2

Dependence of cashflow rate of return on income tax rate for selected mining companies*

Company	1975 statement cashflow rate of return at tax rate indicated - %				
	40.5	42.5	45.0	47.5	50.0
Comalco Limited	12.9	12.6	12.4	12.0	11.9
Consolidated Gold Fields Australia Limited	29.2	28.8	28.3	27.9	27.5
Hammersley Holdings Limited	30.2	29.7	29.2	28.7	28.2
MIM Holdings Limited	30.6	29.6	28.7	27.9	27.1
North Broken Hill Limited	8.0	7.8	7.8	7.6	7.5
Peko-Wallsend Limited	15.6	15.6	15.6	15.7	15.7
Utah Development Company	92.7	89.3	85.9	82.5	79.1
Western Mining Corporation Limited	17.5	17.3	16.9	16.7	16.4

* All data from published annual reports. Where appropriate accounts referred to are those prepared on a consolidated group basis.

Table 2 shows that the particular sensitivity of each company is related to the relative balance in the cashflow of taxable profit on the one hand and deductible revenue such as depreciation allowances and exempt income on the other. A company with small taxable profit therefore has low sensitivity.

REMOVAL OF PARTIAL TAX EXEMPTION FOR
PRESCRIBED PRODUCTS

The concession extending tax exemption to one-fifth of profits derived from the mining of "prescribed" metals, non-metals and minerals dates from 1942 when it was instituted to encourage exploration for and production of

these resources. Reference to Table 1 shows that a substantial proportion of production from the Australian mining industry comes from these products and hence underlines the importance of this study. Its removal as a deduction for companies in 1974 automatically reduced profitability for these companies engaged in mining "prescribed products". Also, its removal as a tax deduction on dividends for shareholders could be expected in the long term to reduce expectations for company share values. While this latter effect is difficult to quantify with any precision, the effect on company profitability can be examined readily.

For a company engaged wholly in the mining of any of the "prescribed products", the effect of the granting of an exemption from tax for one-fifth of income has the same result on a financial statement as a reduction

in the tax rate applied to the whole of company income by 20 per cent. For a company mining "prescribed products" as well as unprescribed products, a pro-rata reduction follows.

Consequences of the withdrawal of this concession on the Australian mining industry can be seen by examination of the effective tax rate which the eight selected companies would have operated under had it still been in force in 1975.

From Table 3, it can be seen that in 1975 five of the eight companies would have been taxed at a rate considerably lower than the actual rate if the concession had not been withdrawn. Companies which have been most affected by the change are Comalco Limited, which generates most revenue from bauxite mining, and Western Mining Corporation Limited, where profitability is based predominately on sales of nickel.

Table 3
Effect of 20 per cent taxation exemption on profits from "prescribed products",
as indicated by variation of cashflow rate of return

Company	1975 actual result - cashflow rate of return, at 42.5% tax rate - %	Revised 1975 result after reintroduction of concession, 42.5% tax rate - %	Effective tax rate with concession applied - %
Comalco Limited	12.6	13.5	34.0
Consolidated Gold Fields Australia Limited	28.8	29.8	35.8
Hammersley Holdings Limited	29.7	29.7	42.5
MIM Holdings Limited	29.6	31.1	38.2
North Broken Hill Limited	7.8	7.8	42.5
Peko Wallsend Limited	15.6	15.6	39.1
Utah Development Company	89.3	89.3	42.5
Western Mining Corporation Limited	17.3	18.3	34.0

REMOVAL OF TAX DEDUCTIBILITY FOR SOME
SHARE CALLS

The removal of this concession for some shareholders and potential shareholders in mining companies no doubt had a bearing on the amount of mineral exploration undertaken in Australia, and especially that undertaken by the smaller companies. A reduction in the willingness of investors to finance exploration must lead to an increase in its cost and consequently in the cost of proving a new ore deposit. To quantify changes in this area is however difficult, the topic being inseparable from other uncertainties inherent in exploration financing.

CHANGES IN DEPRECIATION WRITE-OFF PERIODS

Since 1973, taxation legislation relating to depreciation write-off periods on most capital expenditure in the mining industry has moved from short time spans which allowed recoupment within a few years, through a situation in the financial years 1974-75 and 1975-76 when it was measured in decades, back to very much reduced periods in 1976-77. Any realistic study of the effect of these changes on company profitability must be based on the implications of changed attitudes in investment decision making for particular projects and plant. The Industries Assistance Commission (1976a) considered evidence supplied by a

Table 4

Effects of changes in depreciation provisions* on company profitability**,
after Industries Assistance Commission (1976a)

Firm	Mine Details	Previous tax depreciation provisions	Current tax depreciation provisions
CRA	Hammersley operations based on the replacement value of Hammersley operating:		
	a) Mt. Tom Price Mine	8.1%	5.8%
	b) The addition of an oxide pellet plant as a marginal operation	0.0%	0.0%
	c) The Paraburdoo mine as a marginal operation	8.0%	5.8%
	d) The total operation	6.4%	4.3%
	New coal ventures		
	Steaming coal	2.5%	2.0%
	Coking coal	15.0%	13.0%
Goldsworthy	Mining Area "C"		
	- assuming a 60% increase on current price - economic evaluation - 15 years	16.3%	15.0%
WMC	A nickel project		
	- period between development expenditure and production - 2 years - economic evaluation - 31 years	20.8%	17.6%

* At time of Industries Assistance Commission Report, May 1976.

** Assessment is by discounted cash flow rate of return on funds invested.

number of companies on the effects of changed depreciation provisions on mine evaluations. In Table 4, some of these case studies are reproduced.

The marked effect changes in depreciation provisions can have on mine profitability is amply demonstrated by the data in Table 4. (Since this evidence was released in May 1976 relaxation of the minimum period for which most classes of depreciation allowances can be recouped would have moved profitability levels back closer to those pre-1974.)

CHANGES TO ACCOUNT FOR EFFECTS OF INFLATION

It has long been recognised that inflation affects in different ways the various components of a company profit and loss statement. These differences, in turn have various effects in constant terms on company taxation liability, earnings and cashflow.

In 1974, the Australian government formed a committee to enquire into inflation and taxation (on both personal and company earnings) and to make recommendations on appropriate methods for accounting for rapid inflation. The committee recommended a number of changes and in particular for company taxation, that a modified concept of taxable income based on the current value concept of accounting be adopted. Briefly, as outlined by Mathews (1975), it was recommended that two valuation adjustments be made in the form of allowable deductions from assessable income, these deductions being

1. a cost of sales valuation adjustment to be calculated by firms on the difference between their opening stocks valued at the same prices as closing stock, using actual stock schedules and price lists as the basis of the calculation, and
2. a method of indexing depreciation

allowances to be adopted for the purpose of calculating the depreciation adjustment. For this, a separate co-efficient is applied to the historical cost depreciation charges in respect of each year's asset purchases in order to calculate the indexed cost of depreciation. The committee recommended the use of a single index based on the implicit price deflator for gross private fixed capital expenditure (all other) in the Australian national accounts.

It was recommended that the two components of inflation accounting be introduced together. While at present the Australian government has stated that it will attempt, as a broad objective to work towards these goals, it has only definitely announced adoption of part of the first component - stock valuation adjustment.

In an attempt to quantify the effects of the adoption of a system of inflation accounting on mining company profitability, the recommendations made by Mathews (1975) have been applied (where sufficient information was available) to the financial statements of the selected companies. The results of this study appear in Table 5.

The methods adopted in calculating the figures reported in Table 5 are detailed below.
Depreciation adjustment

The appropriate implicit price deflator index for the annual periods (company reporting periods) under review was on average slightly over 20 per cent. For simplicity, this inflation rate was standardized at 20 per cent, this level being convenient as it simplified comparison with casestudy examples published by Mathews (1975) also undertaken at this inflation rate. This inflation index was applied to the depreciation allowance deducted by the selected company in its previous year of operation and the sum

Table 5
Sensitivity of cashflow rate of return to adjustment of depreciation allowances and stock valuations to account for inflation

Company	1975 actual cashflow rate of return - %	Result after depreciation adjustments for 20%inflation-%	Result after stock valuation adjustment for 20%inflation-%	Result after adjusting both factors for 20%inflation-%
Comalco Limited	12.6	13.3	15.4	16.0
Consolidated Gold Fields Auatralia Limited	28.8	31.0	29.8	32.1
Hammersley Holdings Limited	29.7	31.3	30.4	32.0
MIM Holdings Limited	29.6	30.3	30.2	30.9
North Broken Hill Limited	7.8	8.0	8.1	8.2
Peko-Wallsend Limited	15.6	16.5	16.1	16.8
Utah Development Company	89.3	90.1	89.8	90.6
Western Mining Corporation Limited	17.3	18.0	17.6	18.9

subtracted from trading income before calculation of tax liability.

Stock valuation adjustment

Without the availability of detailed opening and closing stock inventories, an inflation index for the annual period of 20 per cent was assumed. Also, it was difficult to define just which assets of the company qualify to be included in the valuation adjustment calculation. Under the entry "current assets" in a company balance sheet, terms such as inventories, trading stocks, stores and work in progress are used and this terminology and its particular interpretation vary from company to company. Wherever a clear distinction was available, the figure selected for use in the analysis was that covering the value of inventories of materials and supplies, but not including the value of stocks of products awaiting sale. It could logically be argued that this latter

category should be included in the valuation calculation, but as the cost to government revenue of this would be high it is the authors' view that it will not be included by legislation in the immediate future. Some reported balance sheets studied did not include sufficient information for a close delineation of stock valuation to be made, in which case the nearest aggregate figure was used. The stock valuation adjustment was obtained by multiplying the selected stock figures from the preceeding year by the inflation index and deducting this from trading income before tax.

Considering the results in Table 5, it is worthy of note that application of an inflation accounting technique leads to a significantly greater increase in profitability for some companies than others. This can be explained by differences in nature of operations of one company to another such as relative sizes of

depreciation allowances and stock inventories and by limitations in the comparative calculations due to lack of detailed information reported in company publications.

INTRODUCTION OF RESOURCE RENT TAXATION

Although no legislation has been introduced in Australia for the operation of a resource rent taxation system, in recent years there has been considerable discussion on the merits of taxing sections of Australian industry through use of this principle. Two recent reports by the Industries Assistance Commission (1976a, 1976b) have made reference to applications of such a system. Under a resource rent tax system as described by Garnaut (1975), natural resource projects would operate under varying taxation conditions with tax introduced and its rate increased when certain threshold internal rates of return had been realised. Assessment under the scheme requires the accumulation at specific interest rates of all payments and receipts in respect of the establishment and operation of the project. One characteristic of the scheme is that separate taxes on a project may be levied at more than one threshold return rate; for example a 50 per cent tax may be levied beyond the threshold of a 10 per cent return rate and a further 25 per cent tax beyond the level of a 20 per cent return rate.

One particular feature of a resource rent tax system is that tax liability in any one year (if any) is calculated with reference both to earnings within that period and within all preceding periods of the life of the project. This differs from the present tax structure in Australia where calculation of tax payments involves no direct reference to the past for continuing profitable enterprises. Before a resource rent tax system could be introduced in Australia, consideration would have to be given to how existing enterprises

would be incorporated under it without all past tax payments having to be reviewed.

A taxation scheme very similar to that theoretical model proposed by Garnaut is that imposed by the Papua New Guinea government with respect to Bougainville Copper Limited (BCL). The present scheme was introduced in 1974, two years after production from the mine had commenced. The BCL scheme is also based on a tax rate which varies with the rate of return achieved by the mine. A tax rate of 33.3 per cent applies on earnings to 15 per cent return rate and earnings above this level are taxed at a rate of 70 per cent. The scheme differs from the Garnaut model in that tax liability in any one year is not directly dependent on assessable payments and receipts in past years of project life. For the BCL scheme, the rate of return calculation is made by dividing profit after tax (base rate tax at 33.3 per cent) by cumulative capital investment.

In an attempt to quantify the effects of introduction of a resource rent tax (rate of return based) system in Australia, the profitabilities of the eight selected companies have been analysed. In this regard, the BCL scheme has been superimposed on the earnings of the companies. The capital investment figure used in the rate of return calculation is derived by summing the value of company fixed assets, investments and stocks and stores. This varies from the figure for shareholder equity and total funds employed by the company but is close to the figure stipulated for use under the BCL scheme.

In Table 6, the effects on profitability of tax assessment under the BCL scheme are shown.

Of the eight companies studied, seven achieved a rate of return on capital investment of less than 15 per cent and so paid tax at the base rate of 33.3 per cent. For six of

Table 6
Effect of applying resource rent taxation, under BCL terms

Company	1975 actual cashflow rate of return - %	Result if BCL scheme applied - %	Profit rate of return on capital investment if BCL scheme applied - %	Average tax rate on income - %
Comalco Limited	12.6	13.6	2.9	33.3
Consolidated Gold Fields Australia Limited	28.8	30.3	4.8	33.3
Hammersley Holdings Limited	29.7	31.5	5.2	33.3
MIM Holdings Limited	29.6	32.8	13.7	33.3
North Broken Hill Limited	7.8	8.3	7.2	33.3
Peko-Wallsend Limited	15.6	15.5	5.3	33.3
Utah Development Company	89.3	72.4	24.1	54.9
Western Mining Corporation Limited	17.3	18.2	4.4	33.3

these, the cashflow rate of return on shareholder funds is increased under BCL taxation. For Peko-Wallsend Limited, a very small negative taxable income was recorded in the year under review and so changes in tax rate have very little effect on company profitability. The eighth company, Utah Development Company, under a BCL tax scheme would have had to pay tax at the surcharge rate on a considerable proportion of income and would have suffered a reduction in cashflow rate of return on shareholder funds.

CONCLUSIONS

This study has endeavoured to examine taxation legislation which the Australian mining industry has operated under over the four year period 1973-1976, changes that have occurred within the structure of this legislation and effects the more important of these changes have had on company

profitability. The scope that a study of this type could adopt is extremely wide and so detailed analysis has been restricted to those changes that have had, or are likely to have industry-wide repercussions.

Broad conclusions from the study would indicate that within the confines of the taxation changes studied, different sections of the mining industry have reacted with extremely varied responses. These variations may result from the different nature and level of profitability of diverse sections of the industry, variations in financial accounting methods used and limitations in the method of comparison based on cashflow rate of return analyses. Notwithstanding these limitations, the study does indicate that company profitability is more sensitive to some types of taxation changes than others.

It is felt that for a study of this kind, only broad conclusions can be reached as to its results. The reader is left to draw appropriate conclusions in line with his perspective of the future of mining industry taxation.

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