By I. S. Davies

Investment basics – XIII

An introduction to gold mining tax

Part 3

In the first two parts we went through the mechanics of the calculations of lease and taxation payments for gold mines. In this third and final part we will look at some shortcuts which can be used from quick exercises and examine the implications of the formula method of taxation.

Firstly, let us express the taxation formula in a different way which makes it easier to use for quick calculations. If we take the formula:

$$y = 60 - \frac{480}{x} \text{ this is really}$$

$$y = 60 - \frac{480}{\frac{P}{R} \times 100}$$

$$= 60 - \frac{480\,R}{100\,P}$$

But tax $= y\,\%$ of P

$$= \frac{y}{100}\,P$$

Substituting for y we get

$$\text{Tax} = \frac{P}{100}\left(60 - \frac{480\,R}{100\,P}\right)$$

$$= \frac{60\,P}{100} - \frac{480\,R}{10\,000}$$

$$= 0{,}6\,P - 0{,}048\,R$$

or 60% of profit – 4,8% of revenue

This conversion can be done for all the different tax formulae. In our first example the taxable profit (P) was R35,173 million and revenue (R) was R100 million. Substituting these values gives:

$$\text{Tax} = 0{,}60 \times 35{,}173 - 0{,}048 \times 100$$

$$= 21{,}104 - 4{,}8$$

$$= 16{,}304$$

which is the same figure as we had previously before the addition of the 15% surcharge. The surcharge can either be added to the calculated tax or to the percentages in the formula to give:

$$\text{Tax} = 0{,}69\,P - 0{,}0552\,R$$

A similar conversion can be made to the lease formula. However, it will not give an exact answer because the above conversion assumes that the P used in calculating x and the P to which y is applied are the same. In the case of the lease calculation this is, of course, not the situation, but provided there are no unredeemed capital allowances brought forward from the previous year the error is relatively small. Let us go back to our first example and see what the overall error is. For lease we had profit equal to R40 million and revenue of R100 million. Using the converted formula of:

lease payment = 0,15 profit – 0,012 revenue

and adding the 1,25% we get a lease payment of R4,86 million compared to the correct figure of R4,827 million – an error of less than 1%. If we then continue through to the tax calculation our tax payment including surcharge becomes R18,727 million. Reproducing the table in Part 1 gives:

		Rm
Profit		50
Less: Lease	4,86	
Tax	18,727	23,587
Profit after tax		26,413
Less: Capex		10,0
Available for distribution		16,413

In this example the simplified version understates the final figure by less than 0,1% which, for everybody except the Receiver of Revenue, is probably close enough. However, remember the earlier warning that this simplification gives greater errors when there are unredeemed allowances brought forward. To prove this to yourself use it to calculate the lease and tax payments for each year in our second example and check the errors.

Let us now look at some of the implications of the formula method of taxation. If we look at the formula:

$$y = 60 - \frac{480}{x}$$

which, as we have seen above, can be expressed as:

$$\text{Tax} = 0{,}6\,P - 0{,}048\,R$$

it is clear that when the taxation payable becomes zero, then:

$$0{,}6\,P = 0{,}048\,R$$

$$\text{or } P = 0{,}08\,R$$

In other words taxation only becomes payable when the taxable profit reaches 8% of revenue or $\frac{P}{R} = 8$. Similarly with the formula $y = 60 - \frac{360}{x}$ taxation only becomes payable when the taxable profit reaches 6% of revenue or $\frac{P}{R} = 6$, and, in the case of the formula used for mines qualifying for State assistance the value of x which gives a zero value for y is 8,838, which is the value referred to in Part 2.

Finally, let us look at the marginal rates of tax which apply to changes in revenue or costs. (For the sake of simplicity we will initially ignore the surcharge.) It is easy

to show mathematically that, provided the mine is in a tax paying position both before and after the marginal change in revenue or costs, the change in taxation can be calculated by applying the tax formula to the marginal amount.

If we assume that revenue increases by 10 units with no change in costs, then profit will also increase by 10 units. The additional tax payable before any surcharge or loan levy is added can then be calculated as:

Additional tax $= 0{,}6 \times 10 - 0{,}048 \times 10$
$= 5{,}52$

In other words any additional profit resulting from an increase in revenue is taxed at a marginal rate of 55,2%. Similarly any reduction in profit resulting from a reduction in revenue attracts tax relief at a rate of 55,2%. (Note that in the case of a mine with a formula of $y = 60 - \frac{360}{x}$ the marginal rate is 56,4%.)

At this stage we are ignoring the effect of the lease formula, but we will build that in after looking at the marginal tax rate on a change in costs.

If costs decrease by 10 units with no change in revenue, profit increases by 10 units and we get:

Additional tax $= 0{,}6 \times 10 - 0{,}048 \times 0$
$= 6{,}0$

In this instance the additional profit resulting from a reduction in costs is taxed at a marginal rate of 60%. Similarly a marginal reduction in profit resulting from an increase in costs bears tax relief at a rate of 60%.

In the case of taxation the marginal rate applicable to a change in profit resulting from a change in costs is the same for both standard formulae because the revenue element in the formula does not have any effect. In addition changes in profit resulting from changes in either operating costs and/or capital expenditure have the same effect because there are no capital allowances to be taken into account. When calculating marginal rates for lease payments the current capital allowance on any change in capital expenditure should be taken into account. However, in the type of exercise for which these quick calculations are likely to be used the error created by ignoring the capital allowance will probably be insignificant.

To conclude it is useful to combine the marginal rates of lease and tax resulting from the two formulae used in examples throughout of:

lease	= 15% of profit	−1,2% of revenue
tax	= 60% of profit	−4,8% of revenue

1 Change in profit resulting from change in revenue

Marginal rate for lease payment = (15% − 1,2%) x 1,0125	=	13,9725%
Marginal rate for tax payment if no lease = (60% − 4,8%) x 1,15	=	63,4800%
		77,4525%
As lease is a cost for tax must deduct 60% of percentage applicable to lease = (0,6 x 13,9725) x 1,15	=	9,6410%
		67,8115%

2 Change in profit resulting from change in costs (ignoring capital allowance)

Marginal rate for lease payment = (15% − 0) x 1,0125	=	15,1875%
Marginal rate for tax payment if no lease = (60% − 0) x 1,15	=	69,0000%
		84,1857%
Deducting lease as a cost for tax − (0,6 x 15,1875) x 1,15	=	10,4794%
Marginal rate of lease and tax		73,7063%

These overall marginal rates will vary slightly, depending on the lease and tax formulae applicable to a specific mine.

What is clear is that in the region of 70% of any increased profit resulting from an increase in revenue or a reduction in costs is paid to the State in lease and taxation, which hardly provides an incentive to maximimise efforts towards becoming more cost efficient.

Deur J. M. Annandale

Book review

Beleggingsbestuur

L. M. Brümmer en W. F. Rademeyer
J. L. van Schaik, Pretoria 1982

Dit is die eerste boek in die Republiek van Suid-Afrika wat die dissipline van beleggingsbestuur direk toelig binne die Suid-Afrikaanse beleggingsomgewing en beleggingsstruktuur.

Die boek is sterk gebind, die omslag aantreklik en funksioneel terwyl die teks duidelik leesbaar is en met goeie tabelle en grafieke toegelig. Die hoofstukke is goed gebalanseer en in 'n aanvaarbare volgorde.

Die tegniese inhoud vergelyk goed met oorsese literatuur oor dieselfde onderwerp en 'n relatief wye verwysingsbiblioteek word aangebied.

Die grootste deel van die boek behandel beleggingsbeginsels en tegnieke uit die oogpunt van die individuele belegger en die stelling word gemaak dat dieselfde beleggingsbeginsels vir beide die individuele en die institusionele belegger geld. Hierdie stelling kan bevraagteken word vanweë die verskil in, onder andere, die tydspan en risikodoelwitte van die institusie (instelling) soos verteenwoordig deur die professionele belegger en die beleggingsdoelwitte van individuele beleggers. Dit word egter duidelik in die boek gestel dat die primêre doelwit by die bestudering van die beginsels en tegnieke van toepassing by die beleggingsbestuurder slegs die neem van meer wetenskaplike toegeligte en doelmatige beleggingsbesluite is en uit hierdie oogpunt gesien slaag die skrywers daarin om die leser uitstekend toe te rus.

Die boek is die resultaat van 'n uitstaande spanbydrae deur vakkenners by verskeie universiteite en staan onder redaksie van prof. L. M. Brümmer, Nagraadse Bestuurskool, Universiteit van Pretoria en prof. W. F. Rademeyer, Departement Bedryfsekonomie, Randse Afrikaanse Universiteit.

'n Brawe poging word aangewend om Afrikaanse benamings te vind vir tradisionele Engelse begrippe (termelys).

Die benadering tot die onderwerp is geredelik sistematies en dek die volgende gebiede:

DEEL I

Inleiding en begripsbepaling

Hoofstuk 1 Inleiding en terreinverkenning
Hoofstuk 2 Die kapitaalmark
Hoofstuk 3 Opbrengskoerse en risiko

DEEL II

Fundamentele en tegniese ontleding

Hoofstuk 4 Makro-ekonomiese ontleding
Hoofstuk 5 Ontleding van die bedryfstak
Hoofstuk 6 Ontleding van die individuele onderneming en die waardering van gewone aandele
Hoofstuk 7 Die waardering van vaste rentedraende effekte
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DEEL III

Die beplanning en bestuur van doelmatige portefeuljes

Hoofstuk 10 Portefeuljeteorie en -bestuur
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Hoofstuk 12 Effektebeurspraktyke en -prosedures

DEEL IV

Die praktiese toepassing van die finansiële ontleding van 'n genoteerde onderneming: tradisionele en moderne perspektiewe

Hoofstuk 13 'n Toepassing van die finansiële ontleding van 'n genoteerde onderneming

Vaste eiendom as 'n beleggingsgebied word kortliks in drie bladsye bespreek aangesien die boek slegs op die belegging in finansiële bates soos aandele en effekte toegespits is.

Die bespreking van enkele basiese beginsels by die waardering van goudaandele word as uitsonderlik beskou – geen ander teksboek bied hierdie fasiliteit nie, terwyl dit 'n wesenlike deel vorm van die Suid-Afrikaanse beleggingsomgewing.

Elke hoofstuk deel met 'n beleggingsvorm wat 'n vakgebied op sy eie is en aldus verskeie teksboeke sou moes beslaan om in besonderhede bespreek te word.

Die boek kan as 'n algemene inleiding tot die beleggingsomgewing beskou word. Verdere studie in die verskillende gebiede sal dus nodig wees vir die persoon wat meer spesialiteitsdiepte wil opbou.

Die boek kan met vrug op 'n voorgraadse vlak by Afrikaanse universiteite gebruik word asook deur persone wat in die besigheidswêreld optree en spesifiek ook gemoeid is met beleggings.

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