LIMITS OF CORPORATE GROWTH FROM TAXATION AND INFLATION

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The potential for internally generated growth in most firms will be limited by their financial structure. The tax structure and the dynamics of inflation provide two crucial restraints to growth. With double figure inflation these restraints, in many firms, will become a regressive influence which could terminate the viability of the enterprise. Evidence of the aggregate effects of high inflation and taxation in a market economy have been produced in the U.K. by Merrett and Sykes. Their macro-economic analysis of the U.K. situation indicates the regressive consequences of these factors on the private sector. The purpose of this discussion is to consider the problem at a micro-economic level. An attempt is made to quantify the problem and develop a model of a firm which can be used to predict the effects on growth with different levels of inflation and/or other factors such as taxation. Besides providing a basis for establishing corrective policy prescriptions the model could also assist corporations in financial forecasting and planning.

The model is based on typical manufacturing and trading enterprises. The symbols for 12 corporate parameters and equations defining their relationships will be found in Table 1. Table 1 also lists five corporate ratios. The first three are principally determined by the enterprise and affect its financial structure. The last two, interest and tax rates, are principally determined by government policy and affect the costs of capital of the firm. The five ratios are used to define eight of the corporate parameters in terms of sales so that the growth of the firm may be defined solely in terms of sales and the five ratios.

For the purposes of illustration, examples have been tabulated in Tables II and III. Specific values have been assumed for the five corporate ratios: r, p, g, i and t. The sales/capital ratio (r) has been taken to be unity. This is a typical value of the sales/capital ratio of many Australian manufacturing and trading firms though some will be found with ratios of r greater than 2. The equations developed in the table indicate that the limits to growth are inversely proportional to this ratio.

The second basic assumption of the specific examples is the values taken for p. This ratio (EBIT/TTA) indicates the earning power of all funds employed or the productivity of capital. The ratio is not distorted by any of the costs of capital such as interest, tax and dividends. It thus provides a fundamental criteria for evaluating the viability of an enterprise and the efficiency of a market economy in allocating resources in the most productive manner. As the Australian economy is inefficient according to this criteria a marginal value of 15% has been assumed for p as well as a more viable value of 20%. From Table II it will be noted that the 15% value of p produces a return on shareholders funds of 11%, with this rising to $16\frac{1}{2}$% for a p value of 20%. These returns would probably be too low to attract funds from a competitive capital market. Such returns would, however, exceed the average for listed Australian companies, a situation which is itself inflationary in times of excessive demand for corporate resources. Resources with low productivity would be unavailable for alternative utilisation by the constraints(1) imposed by corporate tenure with perpetual succession and the self perpetuating vested interests of managers and shareholders.

The third basic assumption in the examples of Tables II and III is the gearing ratio (g). A value of 50% has been assumed, this being a rule of thumb guideline for Australian financial managers and financiers for manufacturing and trading enterprises. It should be carefully noted that this assumption implies that new debt is obtained whenever new NTA is created.

The weighted average interest cost (i) assumed of 10% for all liabilities would have been on the high side in the past but is probably currently a realistic value. It should be noted that it averages the cost over trade creditors, tax, dividend and other provisions which carry no interest charge. The tax rate (t) is taken at its current value for public and private companies of 45%.

Table II considers the situation when there are cost increases of x% without any compensating increase in Sales Revenue. Table II also illustrates the limits to growth without inflation from internally generated equity for both private and public companies. The table indicates that with inflation exceeding 6.6% even viable private enterprises will atrophy with the current levels and structure of taxation. The same figures apply to public companies if the same dividend payout as private companies is assumed, i.e. 60% of PAT. Even if a public company pays no dividend, any growth is eliminated with cost increases of 11.76% for the marginal enterprise and 18.75% for viable operations. Levels of cost increases which are now currently common.

Table III illustrates the situation when there are both cost increases and price increases. However, the price increases have been limited to the value of the cost increases. Even with this limitation the constriction imposed by the capital required to finance the higher value of turnover becomes the determining factor. For the marginal enterprise the limits of growth are 12.36% and 19.76% for the viable operation. These limits are less than 10% greater than values obtained in Table II when prices were not allowed to be raised.

A vital assumption of the model is that there is no increase in the value of NTA other than from PAT. In practice, Australian firms can commonly achieve significant increases in their NTA by revaluation of their fixed assets. The value of real estate in the major metropolitan areas of Australia has been increasing from 3 to 4 times the inflation rate over the last 25 years (2). As real estate typically represents around one-third (3) of the value of trading and manufacturing enterprises in Australia, property revaluations would allow increases in the TTA to exceed the inflation rate:-

Let one-third TTA be real estate whose value increases 3 times the inflation rate so that

$$\Delta \text{ TTA from revaluations} = \text{inflation rate } (x) \text{ TTA}$$

As $S = r.TTA$ and $\Delta S = S.x$, then

$\Delta S = x.r.TTA = Sx$, so provided $r > 1$ growth in sales (ΔS) will be able to keep up with inflation even if PAT = 0. If $r = 2$ then growth in sales can be twice the inflation rate with PAT = 0.

Fixed asset revaluations not only provide a method for increasing the capital base of a firm but also a means of obtaining a cash flow from borrowing against the increment of revaluation. The cash flow providing a basis for expanding working capital and/or paying dividends. (e.g. GM-H directors revalued their freehold land and buildings when making their record bonus issue

and dividend during the two years they did not have to report their results in 1960/61.) The extensive use of this practice by many Australian-owned private and listed firms has provided a basis for their survival and is one factor contributing to the uncompetitive EBIT/TTA ratios and inefficiency in the operation of the private sector. With listed companies the practice is most commonly found with automobile distributors owning large areas of land for display purposes and central city retailers whose realty has become more valuable as office space.

With private companies the practice is far more widespread as it is a situation which is engineered to maximise net worth and minimise taxation. Increments in value from fixed asset revaluation not attracting a tax, unlike any increments in value from the production and exchange of goods and services. This situation will remain true with capital gains tax provided that the increments in value are not realized and even if they are eventually realized the tax rate is less. Private manufacturing and trading companies will often purchase large holdings of land for the express purpose of using the holding costs to "wash out" any trading profit to avoid paying any tax. This strategy is commonly used to the extent of making losses on trading activities in the expectation of the increase in net worth from land holdings being far greater.

The structure of the tax system provides a most compelling incentive for trading off increments in value from the production and exchange of goods and services (current account transactions) for increments in value from the transformation and exchange of property rights (capital account transactions) (4). The trade off being encouraged by inflation and business uncertainty. Privately owned manufacturing, trading and service industries seeking to maximise net worth rather than trading profits will be able to underprice and/or pay higher prices for labour and materials than listed firms seeking taxable profits which can be reported on an earnings per share basis. The resulting low current account profitability of either private or listed companies, foreign or locally owned has been used to provide a convincing case for tariff protection and other industry assistance. In many cases a further factor compounding the inefficient structure and operation of the Australian economy.

The realities of the opportunity and practice in the Australian economy to trade off "current account" taxable profits for unrealized capital profit will be ignored in the model. The model will thus be more consistent with the conventional economic wisdoms of the Prices Justification Tribunal (PJT), the Industries Assistant Commission (IAC) and other Government Agencies managing the private sector.

This assumption also makes the model much simpler and generally applicable to other countries where there may not be either the opportunity in their economy or the incentive in the tax structure to seek a trade off between capital and current profits. The limits to growth of a firm not seeking new capital are then defined by the ratios r, p, g, i and t and the inflation rate x. While the firm may finesse changes in i this like t will be controlled by government policy. Changes in r, p and g may be changed by the firm but except for g any changes that are possible will take time. The first choice of management is thus likely to be to change g. But if the firm is already appropriately geared an increase in g will increase the risk of: management; economic changes; and borrowing costs. The advantage of new capital from borrowing may thus be illusionary and self-defeating.

There are a number of points to be noted from the model:

(1) If external market factors are ignored the internal structural limits to growth can be quantified in terms of the 5 ratios r, p, g, i and t. The limits to growth (x) are maximised by maximising the productivity of capital (p) and minimising all other ratios. (Refer to equation for x in Table III.) Rising costs from inflation would reduce the productivity of capital (p) so the firm is left with either increasing g or decreasing r. Increasing (g) leads to higher interest costs and financial instability. Decreasing (r) by decreasing unit sales will increase overhead costs and reduce p and profits. Either way the firm is forced into a degenerating spiral.

(2) Table III illustrates that the inflation rate will place its own limit to increases in the turnover value and prices/unit. The limit is less than 10% higher than the internal limit determined in Table II where no price increases were permitted. The maximum affect of price control or a PJT would be limited to controlling a price rise of less than 10%. We may conclude that price control or a PJT cannot be justified. The effect of price control or a PJT being to accelerate the degeneration of enterprise as noted by Merrett and Sykes in the U.K.

(3) Inflation will limit the growth of marginal firms more than the more profitable ones and the tax on retaining profits in private firms places private companies at a greater disadvantage than public ones and this disadvantage increases with inflation. Table II indicates that even a viable private company would be limited from growing with an inflation rate above 6.6% (also public companies paying dividends of 60% PAT). Higher inflation rates would force the company to adopt a degenerating structure as noted in (1) above.

(4) Private foreign subsidiaries of public multinational companies have an advantage over private domestic firms as they are not required to pay taxes on retained profits and any tax paid in Australia is likely to become a tax deduction in its home country.

(5) When no growth in sales value is permitted as in Table II the limits to growth are not affected by the tax rate (t) - refer to note on line 21.

(6) The limits to growth illustrated in the examples may appear low. In reality they could be much lower because of accounting practices which do not report realistic values or do not make adjustments for inflationary changes in value. The effect of these shortcomings being to increase the tax and cash drain of the enterprise. The model assumes that the cost of using capital equipment has been included in the cost of goods sold. To the extent that depreciation changes are understated profits and taxes will be overstated. The limits for growth in public companies would be reduced to the extent that they pay dividends.

(7) From the model it is evident that with cost increases currently being experienced of around 20% growth would not be possible. If labour represented half the costs then a wage increase of 25% would limit any growth in marginal firms.

The models indicate the regressive affect of high inflation and tax rates on growth. They also indicate that the destructive affects and consequences may be greater than generally realised. This supports the U.K. evidence produced by Merrett and Sykes.

Notes

1. An explanation of the constraints will be found in a paper delivered by the author in January 1975 to the 46th ANZAAS Congress in Canberra on New Methods for Distributing Wealth- to correct the defects of capitalism. Refer to section on "Defects in corporate tenure".
2. Information obtained by the author from research work for property trust prospectus. Data based on Government Unimproved Capital Values (U.C.V.) for whole municipalities.
3. Information based on estimate made by the author from acquisition research into Australian Listed companies.
4. A full explanation of this concept will be found in the paper referred to above in Note 1.

TABLE I

Symbols for Corporate Parameters and their Relationships

S - Sales or Revenues
NTA - Net Tangible Assets or Shareholders Funds
DEBT - All liabilities and provisions
TTA - Total Tangible Assets = NTA + DEBT = Capital
EBIT - Earnings Before Interest and Tax
CGS - Cost of Goods and Services sold = S - EBIT
INT - Interest (weighted average on all debt)
PBT - Profit before tax = EBIT - INT = S - CGS - INT
TAX
PAT - Profit after Tax = PBT - TAX = EBIT - INT - TAX
DIV - Dividend
RE - Retained Earnings = PAT - DIV
= NTA (period 2) - NTA (period 1).

NB: Assumes no increases in NTA from asset revaluations.

Corporate ratios and symbols

Sales/TTA - r revenues to capital ratio
EBIT/TTA - p productivity of capital
DEBT/TTA - g gearing ratio of liabilities to assets
INT/DEBT - i interest rate
TAX/PBT - t tax rate

Corporate parameters as a function of sales

$EBIT = S.\frac{p}{r}$

$CGS = S.(1 - \frac{p}{r})$

$DEBT = S.\frac{g}{r}$

$NTA = S.(1 - g)\ \frac{1}{r}$

$INT = S.\ i.\frac{g}{r}$

$PBT = S.(p - ig)\ \frac{1}{r}$

$TAX = S.(p - ig)\ \frac{t}{r}$

$PAT = S.(p - ig)\ \frac{(1-t)}{r}$

TABLE II

Limits to corporate growth with cost increases and no price increases

Public and private companies with r = 100%, p = 15 or 20%, g = 50%, i = 10%, t = 45%

Line 1	Return on Shareholders funds	%	Marginal		%	Viable		
2	EBIT/TTA% (p)	15			20			
3	Sales (S)	100			100			
4	S/TTA = r	1.00			1.00			
5	TTA = S.r	100			100			
6	DEBT = g.TTA	50			50			
7	INT = i.DEBT	5			5			
8	Cost Increases (x%)	0	10	15	0	10	15	20
9	$CGS_x=(1-r.p)(1+x)$	85	93.50	97.75	80	88	92	96
10	$EBIT_x=S - CGS_x$	15	6.50	2.25	20	12	8	4
11	$PBT_x=EBIT_x-INT$	10	1.50	3.75	15	7	3	-1
12	TAX = $t.PBT_x$	4.5	.68	-	6.75	3.15	1.35	-
13	PAT = $(1-t)$ PBT_x	5.5	.82	-	8.25	3.89	1.65	-
14	RE (40%.PAT)	2.2	.27	-	3.3	1.54	.66	-
15	DIV (60%.PAT)	3.3	.50	-	4.95	2.31	.99	-
16	TAX (66%)	2.2	.33	-	3.30	1.54	.66	-
17	Personal Income	1.1	.17	-	1.65	.77	.33	-
18	Limits to Growth Δs	4.4	.54	-	6.6	3.08	1.32	-
19	PAT/NTA	11.0	1.64	-	16.5	7.78	3.30	-
20	DIV/NTA	6.6	1.00	-	9.9	4.62	1.9	-
21	Growth Limit x% (Private & public companies)		11.76			18.75		

Notes: refer to line:-

14 RE allowed in practice is 50% on first $10,000, 45% on next $10,000 and 40% on excess for non-investment companies.

15 DIV just sufficient to avoid undistributed profits tax.

16 Maximum marginal tax rate assumed consistent with significant profits inferred in note 14.

18 $S = r\Delta TTA = r(\Delta NTA + \Delta DEBT)$ but with r = 100% & g = 50%

then $\Delta DEBT = \Delta NTA = RE$

so $\Delta S = \Delta NTA + \Delta NTA = 2RE$

19 Return on shareholders funds, see 1.

$$PAT/NTA = \frac{S(p-ig)(1-t)/r}{S(1-g)/r} = \frac{(p-ig)(1-t)}{(1-g)}$$ by substitution

21 Growth Limit occurs when:

$INT \geqslant EBIT_x = S-CGS_x$

or by substitution when: $S.i.g/r \geqslant S-S(1-\frac{p}{r})(1+x)$

i.e. $x \geqslant \frac{p - ig}{r - p}$

TABLE III

Limits to corporate growth with cost increases and price increases

Public companies only with r = 100%, p = 15 or 20%, g = 50%, i = 10%, r = 45%.

1	Return on Shareholders Funds	Marginal				Viable			
2	EBIT/TTA = p	15%				20%			
3	$\Delta\frac{S}{S}=\frac{S2-S1}{S}=x$	0	.10	.15	.20	0	.10	.15	.20
4	$Sales_x=S(1+x)$	100	110	115	120	100	110	115	120
5	$CGS_x=CGS(1+x)$	85	93.5	97.75	102	80	88	92	96
6	$EBIT_x=EBIT(1+x)$	15	16.5	17.25	18	20	22	23	24
7	$DEBT_x=S_x.g/r$	50	55	57.5	60	50	55	57.5	60
8	$INT_x=S_xig/r$	5	5.5	5.75	6.0	5	5.5	5.75	6.0
9	$PBT_x=S_x(p-ig)/r$	10	11.0	11.50	12	15	16.5	17.25	18.0
10	$TAX=S_x(p-ig)t/r$	4.5	4.95	5.18	5.4	6.75	7.43	7.76	8.1
11	$PAT_x=\Delta NTA_x$	5.5	6.05	6.33	6.6	8.25	9.08	9.49	9.9
12	$\Delta DEBT_x$	0	5.0	7.5	10	0	50	7.5	10
13	$\Delta TTA_x=\Delta NTA_x+\Delta DEBT_x$	0	11.05	13.83	16.6	0	14.08	16.99	19.9
14	$\Delta S=x.S_1=S_2-S_1$	0	10.0	15.0	20.0	0	10	15	20
15	Limits of Growth x%	12.36				19.76			

Notes: refer to line:-

1 PAT/NTA refer to Table II lines 1 and 19

2 x% increase in costs and prices so:

$$\Delta\frac{S}{S_1}=\frac{S2-S1}{S1}=x=\frac{\Delta GGS}{CGS1}=\frac{\Delta EBIT}{EBIT_1}=\frac{\Delta TTA}{TTA1}$$

10 $PAT=\frac{s}{r}(p-gi)(1-t)$ by substitution of $sx=s(1+x)$

$PAT_x=s_1/r\ (1+x)(p-gi)(1-r)$

12 $\Delta DEBT_x = DEBT_2 - DEBT_1$ and kept at maximum allowed by g.

$= S_1(1+x)g/r - S_1\ g/r$

$= S_1\ gx/r$

13 $\Delta TTA_x = \Delta NTA_x + \Delta DEBT_x$

$= PAT_x + S_1gx/r$

$= S_1((1+x)\ (p-gi)(1-t) + gx)\ /r$

14 Limits to Growth when:

$$\Delta S = r.\Delta TTA$$

Substituting $S_1.x = S_1\ ((1+x)(p-gi)(1-t) + gx)$ (from 13 above)

solving for $x = \frac{(1-t)(p-gi)}{gi\ (1-t)-p(1-t)+r-g}$