

Chapter 37

INTERNAL FINANCING: REINVESTING CASH FLOW

It's all grist to the mill

An often-heard precept in finance says that a company ought to fund its development solely through internal financing – that is, by reinvesting its cash flow in the business. This position seemingly corresponds to the interests of both its managers and its creditors, and indirectly to the interests of its shareholders:

- For shareholders, reinvesting cash flow in the business ought to translate into an increase in the value of their shares and thus into capital gains on those shares. In virtually all of the world's tax systems, capital gains are taxed less heavily than dividends. Other things being equal, shareholders will prefer to receive their returns in the form of capital gains. They will therefore look favourably on retention rather than distribution of periodic cash flows.
- By funding its development exclusively from internal sources, the company has no need to go to the capital markets – that is, to investors in shares or corporate bonds – or to banks. For this reason, its managers will have greater freedom of action. They, too, will look favourably on internal financing.
- Lastly, as we have seen, the company's creditors will prefer that it rely on internal financing because this will reduce the risk and increase the value of their claims on the company.

This precept is not wrong, but here we must emphasise the dangers of taking it to excess. A policy of *always* or *only* reinvesting internally generated cash flow postpones the financial reckoning that is indispensable to any policy. It is not good for a company to be cut off from the capital markets or for capital mobility to be artificially reduced, allowing investments to be made in unprofitable sectors. The company that follows such a policy in effect creates its own *internal capital market* independent of the outside financial markets. On that artificial market, rates of return may well be lower, and resources may accordingly be misallocated.

The sounder principle of finance is probably the one that calls for distributing all periodic earnings to shareholders and then going back to them to request funding for major projects. In the real world, however, this rule runs up against practical considerations – substantial tax and transaction costs, shareholder control issues – that make it difficult to apply.

In short, internal financing enjoys an extraordinarily positive image among those who own, manage or lend to the company. However, although internally generated cash flow belongs fundamentally to the shareholders, they have very little control over it. The result is that a policy of reinvesting cash flow can prove to be a time bomb for the company.

Section 37.1

REINVESTED CASH FLOW AND THE VALUE OF EQUITY

1/ INTERNAL FINANCING AND VALUE CREATION

We begin by revisiting a few truisms.

- Does the reader fully appreciate that, given unchanged market conditions, the value of the company must increase by the amount of profit that it reinvests? This much occurs almost automatically, one might say. The performance of a strategy that seeks to create “shareholder value” is measured by the extent to which it **increases the value of shareholders’ equity by more than the amount of reinvested earnings**.
- **The apparent cost of internal financing is nil.** This is certainly true in the short term, but what a trap it is in the long term to think this way! Does the reader know of any good thing that is free, except for things available in unlimited quantity, which is clearly not the case with money? Reinvested cash flow indeed has a cost and, as we have learned from the theory of markets in equilibrium, that cost has a direct impact on the value of the company. It is an **opportunity cost**. Such a cost is, by nature, not directly observable – unlike the cost of debt, which is manifested in an immediate cash outflow. As we explained previously, retaining earnings rather than distributing them as dividends is financially equivalent to paying out all earnings and simultaneously raising new equity capital. **The cost of internal financing is therefore the same as the cost of a capital increase: to wit, the cost of equity.**
- Does this mean the company ought to require a rate of return equal to the cost of equity on the investments that it finances internally? No. As we saw in Chapter 19, it is a mistake to link the cost of any source of financing to the required rate of return on the investment that is being financed. Whatever the source or method of financing, the investment must earn at least the cost of capital¹. By reinvesting earnings rather than borrowing, the company can reduce the proportion of debt in its capital structure and thereby lower its cost of debt. In equilibrium, this cost saving is added on top of the return yielded by the investment, to produce the return required by shareholders. Similarly, an investment financed by new debt needs to earn not the cost of debt, but the cost of capital, which is greater than the cost of debt. The excess goes to increase the return to the shareholders, who bear additional risk attributable to the new debt.
- **Retained earnings add to the company’s financial resources**, but they increase shareholder wealth only if the rate of return on new investments is greater than the weighted average cost of capital. If the rate of return is lower, each euro invested in the business will increase the value of the company by less than one euro, and shareholders will be worse off than if all the earnings had been distributed to them. This is the market’s sanction for poor use of internal financing.

¹ At the same level of business risk as for the company’s existing operating assets.

Consider the following company. The market value of its equity is 135, and its shareholders require a rate of return of 7.5%.

Year	Book value of equity	Net profit	Dividend (Div)	Market value of equity (V) $P/E = 9$	Gain in market value (ΔV)	Rate of return $(\Delta V + Div) / V$
1	300.0	15.0	4.5	135.0		
2	310.5	15.6	4.7	140.4	5.4	7.2%
3	321.4	16.2	4.9	145.8	5.4	7.1%
4	332.7	16.8	6.7	151.2	5.4	8.0%

Annual returns on equity are close to 7.5%. Seemingly, shareholders are getting what they want. But are they?

To measure the harm done by ill-advised reinvestment of earnings, one need only compare the change in the book value of equity over 4 years (+32.7) with the change in market value (+16.2). For each €1 the shareholders reinvested in the company, they can hope to get back only €0.50. Of what they put in, fully half was lost – a steep cost in terms of forgone earnings.

Think of reinvesting cash flow (internal financing) as a machine to transform energy (money) into work (value). When the return on reinvested cash flow is equal to the cost of capital, this machine has an energy yield of 1. Its energy yield falls below 1 whenever the return on incremental investment is below the required return. When that happens, there is a loss of energy; in other words, value is destroyed, not created.

Beware of “cathedrals built of steel and concrete” – companies that have reinvested to an extent not warranted by their profitability!

Reinvesting earnings automatically causes the book value of equity to grow. It does not cause growth in the market value of the company unless the investments it finances are sufficiently profitable – that is, unless those investments earn more than the required rate of return given their risk. If they earn less, shareholders’ equity will increase but shareholders’ wealth will not. Shareholders would be better off if the funds that were reinvested had instead been distributed to them.

In our example, the market value of equity (151) is only about 45% of its book value (333). True, the rate of return on equity (5%) is in this case far below the cost of equity (7.5%).

More than a few unlisted mid-sized companies have engaged in excessive reinvestment of earnings in unprofitable endeavours, with no immediate visible consequence on the valuation of the business.

The owner-managers of such a company get a painful wake-up call when they find they can sell the business, which they may have spent their entire working lives building, only for less than the book value (restated or not) of the company’s assets. The sanction imposed by the market is severe.

Only investment at least at the cost of capital can maintain the value of reinvested cash flow.

2/ INTERNAL FINANCING AND TAXATION

From a tax standpoint, reinvestment of earnings has long been considered a panacea for shareholders. It ought to translate into an increase in the value of their shares and thus into capital gains when they liquidate their holdings. Generally, capital gains are taxed less heavily than dividends.

Other things being equal, then, shareholders will prefer to receive their income in the form of capital gains and will favour reinvestment of earnings. Since the 1990s, however, as shareholders have become more of a force and taxes on dividends have been reduced in most European countries, this form of remuneration has become less attractive.

Within a corporate group, the parent company rarely requires its subsidiaries to distribute all their earnings, except perhaps in the form of share dividends. This is surprising because receiving a dividend and then participating in a capital increase amounts, on the parent's books, to the same thing as revaluing the investment in the subsidiary – thereby reducing the amount of tax that will be due when that asset is sold.

A simple example should suffice to convince the sceptical reader. Consider a mini-group made up of a company and its wholly owned subsidiary, which it acquired at a cost of 100 and which has a net book value of 100. Suppose this subsidiary pays no dividend for 5 years but generates and retains cumulative earnings of 60 over that period.

On the consolidated balance sheet, the subsidiary will account for shareholders' equity of 160, but in the parent's individual company (i.e. unconsolidated) accounts, the investment in the subsidiary will still be carried at 100.

If the subsidiary had distributed all its earnings and also made capital increases in the same amount, the subsidiary would represent consolidated shareholders' equity of 160, and the carrying value of the investment on the parent's balance sheet would also be 160.

Suppose the subsidiary is sold at the end of the period at a price of 180. The capital gains tax liability would be calculated on a basis of 80 ($180 - 100$) in the first case but only 20 ($180 - 160$) in the second case.

Within a consolidated group, reinvestment of earnings at the subsidiary level leads to a divergence in values for tax purposes and values for financial reporting purposes, and consequently to a higher effective tax rate. Tax is assessed on the gain realised against the value carried on the parent's unconsolidated balance sheet. If we assume a capital gains tax of 20% and therefore a tax liability of 16 in the first case, the effective tax rate will be 80% ($16/20$), since the consolidated basis is 160 and the apparent gain is 20.

Section 37.2

INTERNAL FINANCING AND THE VARIOUS STAKEHOLDERS

1/ SHAREHOLDERS AND LENDERS

We have seen (cf. the discussion of options theory in Chapter 35) that whenever a company becomes more risky, there is a transfer of value from creditors to shareholders. Symmetrically, whenever a company pays down debt and moves into a lower risk class, shareholders lose and creditors gain.

Reinvestment of earnings can be thought of as a capital increase in which all shareholders are forced to participate.

This capital increase tends to diminish the risk borne by creditors and thus, in theory, makes them better off by increasing the value of their claims on the company.

The same reasoning applies in reverse to dividend distribution. The more a company pays out in dividends, the greater the transfer of value from creditors to shareholders. This is to be expected, since a high dividend policy is the inverse of a high earnings retention policy.

2/ SHAREHOLDERS AND MANAGERS

Under the agency theory approach, creditors and managers are seen as having a common interest in favouring reinvestment of earnings. When profits are not distributed, “the money stays in the business”, whereas shareholders “always want more”.

There is a sanction, however, for taking reinvestment to excess: the takeover bid or *tender offer* in cash or shares.

If a management team performs poorly, the market’s sanction will sooner or later take the form of a decline in the share price. If it lasts, the decline will expose the company to the risk of a takeover. Assuming the managers themselves do not hold enough of the company’s shares to ensure that the tender offer succeeds or fails, a change of management may enable the company to get back on track, by once again making investments that earn more than the cost of capital, and thereby lead to a rise in the share price.

A formalisation of agency theory as applied to tender offers has been made by Michael Jensen (1986). The key to Jensen’s approach is the notion of *free cash flow*.

If the manager directs free cash flow into unprofitable investments, his ego may be gratified by the size of the investment budget, or his position may become more secure if those investments carry low risk, but in no case will the shareholder be happy with the result. The sanction, according to Jensen, is a takeover bid. Tender offers constitute the market for corporate control, a market in which management teams compete to run companies.

Jensen defines the difference between the acquisition price and the new market value of the company as the value of the supervision provided by outside firms.

However, since Jensen’s work was published, managers have been apparently much more careful when using their cash reserves. They now seem to be aware of the takeover threat which has stricken several ill-managed companies since 1980 (ITT, ABN Amro. . .). Developing corporate governance principles² and share buyback policies³ are probably linked to this threat.

Mikkelson and Partch (2003) showed that companies with high cash reserves perform better or the same as companies with less cash reserves in the 5 following years. Furthermore, companies with higher cash reserves had invested more (particularly in R&D) than companies with less cash for the 5 previous years.

Similarly, Ferreira and Vilela (2004) Ozkan and Ozkan (2004) observed on a sample of European companies that the more profitable investment opportunities are, the higher the cash reserves on assets ratio.

Retained earnings, on the other hand, are one source of financing about which not much disclosure is necessary. The cost of any informational asymmetry having to do with

² See Chapter 41.

³ See Chapter 38.

internal financing is therefore very low. It is not surprising that, as predicted by Jensen and observed in a study conducted by Harford (1999), companies that have cash available make less profitable investments than other companies. Money seems to burn a hole in managers' pockets.

We should also point out the pernicious relation between stock options held by management and the company's free cash flow. For managers who have call options on the company's shares, retained earnings are a costless resource that can be applied to enhance their personal wealth by boosting the valuation of the shares.

Section 37.3

INTERNAL FINANCING AND RETURN CRITERIA

1/ INTERNAL FINANCING AND ORGANIC GROWTH

A company with book value of equity of 100 and return on equity of 15% will make a profit of 15. If its payout ratio is 33.3%, it will retain two thirds of its earnings – that is, 10. Book value of equity will increase from 100 to 110, an increase of 10%, in Year 1. If these rates are maintained, the results will be as shown in the table opposite.

Year	Book value of equity at beginning of year	Net profit (15% of equity)	Retained earnings	Book value of equity at end of year
1	100.0	15.0	10.0	110.0
2	110.0	16.5	11.0	121.0
3	121.0	18.2	12.1	133.1
4	133.1	20.0	13.3	146.4

The book value of a company that raises no new money from its shareholders depends on its rate of return on equity and its dividend payout ratio.

The growth rate of book value is equal to the product of the rate of return on equity and the earnings retention ratio, which is the complement of the payout ratio.

We have:

$$g = ROE \times (1 - d)$$

where g is the rate of growth of shareholders' equity,⁴ ROE (Return On Equity) is the rate of return on the book value of equity, and d is the dividend payout ratio.

This is merely to state the obvious, as the reader should be well aware.

In other words, given the company's rate of return on equity, its reinvestment policy determines the growth rate of the book value of its equity.

2/ MODELS OF INTERNAL GROWTH

If capital structure is held constant, growth in equity allows parallel growth in debt and thus in all long-term funds required for operations. We should make it clear that here we are talking about book values, not market values. In effect, the model assumes that there is a direct and systematic relation between the accounting value of shareholders' equity and the market value thereof; that is, the price-to-book ratio is constant.

⁴ Note that in this section, since no new shares are issued, the growth rate of book value per share is always equal to the growth rate of book value.

At constant capital structure, growth in book equity determines growth in capital employed.

The preceding model can be generalised to companies with debt as well as equity capital. To do so, we need only recall that the rate of return on book value of equity is equal to the rate of return on capital employed adjusted for the positive or negative effect of financial leverage (gearing) due to the presence of debt.

$$ROE = ROCE + (ROCE - i) \times D/E$$

or:

$$g = \left[ROCE + (ROCE - i) \times \frac{D}{E} \right] \times (1 - d)$$

where g is the growth rate of company's capital employed at constant capital structure and constant rate of Return On Capital Employed (ROCE).

This is the **internal growth model**.

It is clear that the rates of growth of revenue, production, EBITDA and so on will be equal to the rate of growth of book equity if the following ratios stay constant:

$$\frac{\text{Revenue}}{\text{Capital employed}}, \frac{\text{Production}}{\text{Capital employed}}, \frac{\text{EBITDA}}{\text{Capital employed}}$$

Through the internal growth model, we establish a direct link between the rate of growth of the business and the rate of growth of capital employed.

To illustrate this important principle, we consider a company whose assets are financed 50% by equity and 50% by debt, the latter at an after-tax cost of 5%. Its after-tax return on capital employed is 15%, and 80% of earnings are reinvested. Accordingly, we have:

Period	Book equity at beginning of period	Net debt	Capital employed	Operating profit after tax	Interest expenses after tax	Net profit	Dividends	Retained earnings	Book equity at end of period
1	100	100	200	30	5	25	5	20	120
2	120	120	240	36	6	30	6	24	144
3	144	144	288	43.2	7.2	36	7.2	28.8	172.8

This gives us an average annual growth rate of book equity of:

$$g = [15\% + (15\% - 5\%) \times 1] \times 80\% = 20\%$$

The reader can verify that, if the company distributes half its earnings in dividends, the growth rate of the book value of equity falls to:

$$g = [15\% + (15\% - 5\%) \times 1] \times 50\% = 12.5\%$$

The growth rate of capital employed thus depends on the:

- rate of **return on capital employed**: the higher it is, the higher the growth rate of financial resources;
- **cost of debt**: the lower it is, the greater the leverage effect, and thus the higher the growth rate of capital employed;
- **capital structure**;
- **payout ratio**.

For the shareholder, the growth rate of capital employed by the company corresponds to the growth rate of book value per share, provided there are no capital increases. The same is true of the growth rate of earnings per share and dividend per share.

In a situation of equilibrium, then, shareholders' equity, debt, capital employed, net profit, book value per share, earnings per share and dividend per share all grow at the same pace, as illustrated in the example above. This equilibrium growth rate is commonly called the company's **growth potential**.

We must admit, however, that this model is now somewhat old-fashioned. It lends itself to analysis of growth in earnings per share, and for this reason it was particularly relevant when equity valuation focused on EPS.

Furthermore, the gearing or financial leverage ratio (debt/equity) that this model strives to keep constant in the name of preserving the capital structure is no longer the principal analytical tool for evaluating capital structure. For one thing, market values can vary relative to book values; for another, ratios such as net debt/EBITDA or operating profit/interest expenses have largely supplanted debt/equity.

An alternative model can be used. This model has two major objectives:

- 1 to understand if the internal financing is adequate to guarantee a certain growth rate (*expressed in terms of revenue growth*);
- 2 to estimate the amount of external financing needed by the company, in case the internal financing is insufficient.

The answer to the first point is given by:⁵

$$\frac{\text{Capital employed}}{\text{Sales}} \times \Delta \text{Sales} \begin{matrix} > \\ < \end{matrix} \frac{\text{Retained earnings}}{\text{Sales}}$$

There can be three possible results:

- 1 If there is a perfect equivalence of the two terms, the growth rate of the company can be completely financed with internal resources.
- 2 If the left side is lower than the right side, the company generates internally an amount of resources that exceeds the financial needs for financing growth. The company can then decide to grow at a higher rate, distribute extraordinary dividends or increase liquidity.

⁵ The ratio Capital employed/Sales is also called "Capital intensity".

- 3 If the left side is higher than the right side, the expected growth rate cannot be financed entirely internally. The company has basically two alternatives: reduce the growth rate or raise external capital. In this case, the amount needed is given by:

$$\text{External financing} = \text{Retained earnings} - \Delta \text{Sales} \times \frac{\text{Capital employed}}{\text{Sales}}$$

A simple example will help us to understand the model. Suppose a company at time 0 (today) and 2 years later with these characteristics:

	Sales	Capital employed	Retained profits	$\frac{\text{Capital employed}}{\text{Sales}}$	Δ Sales	$\frac{\text{Retained earnings}}{\text{Sales}}$
t_0	500	700	150	1.4		0.3
t_1	700	980	210	1.4	40%	0.3
t_2	1400	1960	420	1.4	100%	0.3

In t_1 , the above inequality is:

$$1.4 \times 0.4 = 0.56 > 0.3$$

The internal resources cannot entirely satisfy the company needs. The external financing needed by the company is:

$$\text{External financing} = 150 - (200 \times 1.4) = -130$$

Similarly, in t_2 , the figures are:

$$1.4 \times 1.0 = 1.4 > 0.3$$

Again, internal resources are inadequate. The external financing will be higher:

$$\text{External financing} = 210 - (700 \times 1.4) = -770$$

We can also use the above inequality for determining the maximum growth rate of sales. We must solve the inequality for Δ Sales. In our example, the answer will be 21.43%.⁶

⁶ Since Capital employed/Sales and Retained Earnings/Sales do not change in both periods, 21.43% is simply the result of 0.3/1.4.

3/ ADDITIONAL ANALYSIS

The first of the models above – the internal growth model – assumes all the variables are growing at the same pace and also that returns on funds reinvested by organic growth are equal to returns on the initial assets. These are very strong assumptions.

A policy of reinvesting cash flow can be analysed only in terms of the *marginal* rate of return on reinvested earnings.

Suppose a company reinvests two-thirds of its earnings in projects that yield no return at all.

We would observe the following situation:

Period	Book equity at beginning of period	Net profit	Return on equity	Dividends	Retained earnings	Book equity at end of period
1	100	15	15.0%	5	10	110 (+10.0%)
2	110	15 (+0%)	13.6%	5 (+0%)	10	120 (+9.1%)
3	120	15 (+0%)	12.5%	5 (+0%)	10	130 (+8.3%)

We see that if net profit and earnings per share do not increase, growth of shareholders' equity slows, and return on equity declines because the incremental return (on the reinvested funds) is zero.

If, on the other hand, the company reinvests two-thirds of its earnings in projects that yield 30%, or double the initial rate of return on equity, all the variables are now rising.

Period	Equity at beginning of period	Net profit	Rate of return on equity	Dividends	Retained earnings	Equity at end of period
1	100	15	15.0%	5	10	110 (+10.0%)
2	110	18 (+20%)	16.4%	6 (+20%)	12	122 (+10.9%)
3	122	21.6 (+20%)	17.7%	7.2 (+20%)	14.4	136.4 (+11.8%)

Although the rate of growth of book equity increases only slightly, the earnings growth rate immediately jumps to 20%. The rate of growth of net profit (and earnings per share) is linked to the *marginal* rate of return, not the *average*.

Here we see that there are multiplier effects on these parameters, as revealed by the following relation:

$$\frac{\text{Change in net profit}}{\text{Net profit}} = \frac{\text{Change in net profit}}{\text{Change in book equity}} \times \frac{\text{Change in book equity}}{\text{Net profit}}$$

This means that, barring a capital increase, the rate of growth of earnings (or earnings per share) is equal to the marginal rate of return on equity multiplied by the earnings retention ratio (1 – dividend payout ratio).

Similarly, it can be shown that the rate of growth of free cash flow can be deduced from the rate of growth of net profit:

$$\text{Change in net profit} = \text{Growth of free cash flows} \times \left(\frac{V_D}{V_E} \right)$$

This is another manifestation of the leverage effect.

SUMMARY

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Internal financing by reinvestment of cash flow enjoys an excellent image: it reduces risk for the creditor and results in capital gains rather than more heavily taxed dividends for the shareholder. For managers, it is a resource they can mobilise without having to go to third parties; as such, it reduces the company's risk and increases the value of their stock options.

For the same reason, though, systematic reinvestment of cash flow can be dangerous. It is not appealing from a financial standpoint if it allows the company to finance investments that bring in less than the rate of return required given their risk. To do so is to destroy value. If the penalty for value destruction is delayed, as it often is because companies that reinvest excessively are cut off from the capital markets, the eventual sanction is all the harsher.

The trap for the unwitting is that internal financing has no explicit cost, whereas its true cost – which is an opportunity cost – is quite real.

Reinvesting cash flow makes possible organic growth at a rate equal to the rate of return on equity multiplied by the earnings retention ratio (1 minus the payout ratio). With constant financial leverage and a constant rate of return on capital employed, the organic growth rate is the same as the growth rate of book equity and capital employed. Lastly, the rate of growth of earnings per share is equal to the marginal rate of return on book equity multiplied by the earnings retention ratio.

- 1/Why does internal financing enjoy such a positive image?
- 2/Why is a policy of sticking strictly to internal financing unsound?
- 3/What determines the rate of growth of capital employed?
- 4/What should a company do if its rate of return on reinvested earnings is below the weighted average cost of capital?
- 5/By what criterion should a policy of reinvesting cash flow be judged?
- 6/In your opinion, which theory best explains the interest of internal financing from an overall standpoint?
- 7/Show with an example why reinvestment of earnings by the company has no cost for a holder of options on the company's shares.
- 8/What is the market's sanction for over-reliance on internal financing?
- 9/What kind of companies rely heavily on internal financing? What kind do not?
- 10/Can internal financing lower the cost of capital?
- 11/What are the advantages and drawbacks of 100% internal financing for family shareholders?
- 12/Why is internal financing the financial resource with the lowest implementation cost?
- 13/Under what condition is the dividend growth rate at least equal to the growth rate of free cash flow?

QUESTIONS



quiz

EXERCISES

- 1/ An entrepreneur is determined to retain control of his company and refuses to accept any outside investors. The company's return on capital employed is 10% after tax. He wishes to achieve growth of 25% a year. The cost of debt is 7% before tax, and the tax rate is 40%.
 - (a) If he has no earnings distribution policy, what capital structure is he choosing implicitly?
 - (b) If instead he has to pay out one-third of the company's earnings, what capital structure is he choosing?
 - (c) If he chooses financial leverage (debt/equity) equal to 1, what is the implied normal growth rate of the company?
 - (d) Which other parameters can he play with?
- 2/ Choose an example of "death spiral" deterioration of capital structure, with an initial positive leverage effect and then a negative leverage effect. Construct tables like those presented in this chapter.

ANSWERS

Questions

- 1/ *Because it reduces risk to creditors, results in capital gains rather than more heavily taxed dividends, and increases the value of managers' stock options.*
- 2/ *It isolates the company from the capital markets.*
- 3/ *The rate of return on capital employed, the capital structure and the interest rate on debt.*
- 4/ *Pay out all its earnings.*
- 5/ *The marginal rate of return on investment.*
- 6/ *Agency theory.*
- 7/ *Holder of options get no benefit from earnings paid out as dividends, but retained earnings increase the value of the shares and therefore the value of their options (assuming they are call options, of course).*
- 8/ *A takeover bid.*
- 9/ *Growth companies with high rates of return. Mature companies that generate cash.*
- 10/ *No. Unless it changes the risk on capital employed, it has no impact on the cost of capital.*
- 11/ *Capital increases that could dilute the family's shareholding are avoided, but potential dividends are reduced.*
- 12/ *Because nobody else's agreement need be sought before going ahead with it.*
- 13/ *When the company has positive net debt.*

Exercises

- 1/ (a) $D/E = [(g/(1-d)) - r_{ce}] / (r_{ce} - i(1-40\%)) = 2.6;$
 (b) $D/E = 4.7;$
 (c) $g = 15.8\%$ if he pays no dividend, $g = 10.5\%$ if he pays out one-third of earnings;
 (d) He can try to improve his rate of return on capital employed.
- 2/ *Moulinex is a good example of a death spiral with a high leverage effect. This group financed fast growth mainly with debt. When interest rates rose sharply in the late 1970s, its difficulties accelerated. Consider the following example of a company for which the leverage effect changes sign in year 4.*

	Equity	Debt	Capital employed	Operating earnings after tax	Interest expenses after tax	Net profit	Dividends	Reinvested earnings	Equity at end of period
1	100	100	200	20	8	12	2	10	110
2	110	140	250	25	12	13	1	12	122
3	122	190	312	28	17	11	0	11	133
4	133	258	391	31	26	5	0	5	138
5	138	350	488	34	35	-1	0	-1	137
6	137	474	611	43	47	-4	0	-4	133

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