

**HANDBOOK OF
UK CORPORATE
FINANCE**

Butterworths

HANDBOOK OF UK CORPORATE FINANCE

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**HANDBOOK OF
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Preface

In the last ten years, there has been a revolution in corporate finance. Although the UK has long led many countries in the sophistication of its stock market and the international range of financing options available, UK companies today enjoy an unprecedented variety of financing options.

This change has given increased power to the finance directors and treasurers of companies. Gone are the days when, once financing had been arranged, it was left until maturity and then replaced. Gone also are the days when contact with the City consisted of a once-every-two-or-three-years equity rights issue, with the remainder of the finance coming from straightforward bank loans provided by the neighbouring clearing bank.

Nowadays, the structure of the liability side of the balance sheet can be altered at a moment's notice. Not doing anything to alter the portfolio of liabilities is as positive an action by the finance director as consciously altering it. The finance executives of companies are permanently bombarded with telephone calls from a bewildering variety of institutions offering new types of finance, securities, currencies, hedging and speculative instruments, and on- or off-balance sheet finance.

This handbook is designed to provide an up-to-date, practical guide through the maze of financing alternatives available in the field of corporate finance. It concentrates on the opportunities available to UK companies in particular and, where appropriate, details the UK legislative, accounting and tax implications of each financing decision.

The book is in four main parts:

Part A has an introductory chapter which considers the fundamental decisions to be taken in the corporate finance area before a particular type of finance is raised. It concentrates on three main issues: the objectives of the firm; the debt versus equity decision; and the management of risk. Chapter 1 concludes with a brief description of the major changes to corporate finance and to the structure of the finance markets which have taken place in recent years.

The remainder of *Part A* considers the sources of equity capital available to the firm, from a full listing on The UK Stock Exchange to the unlisted securities and third markets and, for start-up situations, venture capital. The important role of takeovers and mergers in the UK corporate sector as a means of expansion and rationalisation, a role with which the finance director of the company is intimately concerned, is also covered.

Part B describes the main sources of debt finance for UK companies, concentrating on sources of sterling debt. The variety of types of debt finance has increased widely. No longer do firms rely on overdrafts, with one or two debentures or loan stocks for longer-term funding. Companies have access to maturities of debt ranging from overnight to 30 years, to fixed- or floating-rate debt, to unsecured debt or to debt linked to asset purchase or to working capital, to straightforward loans or to debt securities.

Part C covers the international sources of finance which are now available. Since

the abolition of UK exchange controls in 1979, UK companies have had access to cheap and flexible overseas finance. The Euromarkets, centred in London, offer an efficient alternative to the more regulated and expensive UK markets. More recently, the swap markets have made the choice of geographic area for the source of finance irrelevant. Swaps allow companies to raise finance anywhere in the world, wherever is cheapest, and then swap into their preferred type of debt.

Part C also covers the all-important areas of futures and options and shows how the combination of options and futures contracts with more conventional forms of equity or debt finance allows the company to control the levels of risk in the balance sheet; in particular interest rate risk and currency risk.

Part D completes the survey by covering the legal and taxation aspects of corporate finance: factors which must be taken into account in any corporate funding decision.

August 1987

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The role of corporate finance

J. Rutterford

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1.01 THE FINANCIAL OBJECTIVES OF THE FIRM

Finance theory states that the principal objective of the firm is to maximise shareholder wealth. This should be done by investing in positive net present value projects: in other words, projects which are expected to return more than the cost of funds needed to finance them. The higher the cost of funds, the more profitable the project must be to warrant investment. The cost of funds will depend on three factors: the level of interest rates; the inherent risk of the project (its business risk); and the level of gearing in the company (its financial risk).

For example, a high technology or biotechnology start-up company will have high business risk; although it may be *expected* to make profits, the uncertainty attached to future cash flow estimates make it a risky project. Investors may require 30% or more expected annual return before being willing to invest their funds. In contrast, a well-established company making, say, knitwear, and contemplating the expansion of a production line by 20%, would have a much better idea of future cash flows and therefore require a lower expected return before being prepared to make the necessary financial investment.

The level of financial risk will depend on the relative proportions of debt and equity in the balance sheet in the company. The cost to the company of debt is cheaper than that of equity. Since creditors are promised a particular rate of interest and come before shareholders in the queue in the event of a default, they require a lower rate of return. However, the more debt in the balance sheet, the higher the interest obligations of the company, and the more likely that it will default if profits take a down turn. So, with a riskier investment and a higher proportion of debt, the shareholders will require a higher rate of return on their share of the funding. Table 1.1 below gives an example to illustrate the gearing effect of debt on the shareholders of the firm.

The cost of debt is straightforward: it is the interest cost, assuming that the principal amount of the debt will be repaid. So, on a 10% ten-year loan, the cost of debt is 10%. The cost of equity is less obvious. Many observers of capital markets consider the cost of equity to be the dividend yield on the shares. In the UK stock market, this is currently around 3%. But this concentration on cash flow cost ignores the fact that dividends are expected to increase over time, thereby increasing the cost to the company. The cost of equity is thus the dividend yield plus the expected annual growth rate on the dividends, giving a total cost to the firm higher than that of debt.

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Table 1.1 Effect of gearing on equity shareholders

	Profits before interest £	Interest £	Profits after interest £	Profits per £ share £
(A) All equity 100 £1 shares	50	—	50	0.50
	40	—	40	0.40
	30	—	30	0.30
	20	—	20	0.20
	10	—	10	0.10
	0	—	0	0
Range: £0 to £0.50				
(B) 50 £1 shares £50 debt @ 10%	50	5	45	0.90
	40	5	35	0.70
	30	5	25	0.50
	20	5	15	0.30
	10	5	5	0.10
	0	5	– 5	– 0.10
Range: – £0.10 to £0.90				

The overall cost of capital to the firm is the average cost of all the types of finance employed, weighted according to the amounts used. This is known as the weighted average cost of capital. Table 1.2 below gives an example of its calculation.

Table 1.2 Calculating the weighted average cost of capital

Cost of equity

Suppose DIV = expected dividend next year

PRICE = current share price

GROWTH = expected dividend growth rate per annum

$$\text{Cost of equity} = \frac{\text{DIV}}{\text{PRICE}} + \text{GROWTH}$$

If DIV = 4p, PRICE = 100p, GROWTH = 15% pa

$$\text{Cost of equity} = K_E = \frac{4}{100} + .15 = 19\%$$

Cost of debt

Suppose INT = pre-tax interest rate

TAX = corporate tax rate

Cost of debt = INT(1 – TAX)

If INT = 12% and TAX = 35%

$$\text{Cost of debt} = K_D = .12(1 - .35) = 7.8\%$$

Weighted average cost of capital

This is simply the average of the costs of debt and equity, weighted by the *market* values of the debt and equity liabilities of the company.

$$\text{Weighted average cost of capital} = K_O = \%D K_D + \%E K_E$$

$$\text{If } \%D = 30\% \text{ and } \%E = 70\%$$

$$K_O = .30 \times 7.8\% + .70 \times 19\%$$

$$K_O = 15.6\%$$

In summary, the role of the finance director is twofold. First, to ensure that profitable projects are entered into and, second, to minimise the cost of capital. This book concentrates on how the latter objective can be achieved through the optimal choice of finance for the company.

1.02 THE DEBT v EQUITY DECISION

One of the major unresolved problems in corporate finance is how a firm should decide on its level of gearing, in other words, how it should choose its debt-equity ratio. In practice, many firms conform to an industry norm, either because they feel comfortable with this or because the norm reflects limits imposed by banks and other creditors. For example, the covenant on a bank loan or trust deed of a debenture stock might allow no more than twice the shareholders' funds to be raised in debt, or an interest coverage ratio (earnings to interest due) might be imposed.

In theory, the choice of capital structure may be crucial to the long-run survival of the firm. It may be that there is an optimal level of debt in the balance sheet which would minimise the overall cost of capital. If this is the case, any firm which does not keep to this gearing ratio runs the risk of going out of business. Projects which are not attractive to the firm because it has too high a cost of capital could be attractive to firms who had attained this optimal ratio.

The main argument is as follows: the more debt (which is cheaper than equity) the company raises, the more expensive will be the equity cost because of the gearing risk to shareholders (see Table 1.1 above). So, on balance, the amount of debt should not make much difference to the weighted *average* cost of capital. However, other factors come into play: taxation; and bankruptcy risk. The interest payments on debt are deductible against profits for tax purposes. This is not generally true for dividend payments on equities. This lowers the cost of debt relative to the cost of equity and seems to encourage high gearing. On the other hand, the more debt there is, the more likely that the company will default and have to go into liquidation. If there are costs to this default, too much debt in the balance sheet could be expensive.

The conclusion to these arguments is that some compromise amount of debt is optimal. However, this is not very helpful to corporate finance managers, especially when an international comparison is made. Table 1.3 below shows typical debt-equity ratios for companies in the main industrialised countries. On a superficial analysis of column 1, using OECD data, companies in countries with higher post-war growth rates, in particular France, Germany and Japan, appear to use higher debt-equity ratios. However, there are problems of measurement of debt-equity ratios across national boundaries, with different accounting standards in each country. The ratios in column 2, derived from more recent and complete

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data, and adjusted where possible for accounting differences, show smaller variations between countries. Also, the tax and bankruptcy systems in these countries differ, so that the attractions of debt relative to equity may be very different.

Table 1.3 Corporate debt-equity ratios in the US, UK, France, Germany and Japan

	<i>Total debt to total assets (OECD, 1982) %</i>	<i>Total debt to total assets (Rutterford, 1984) %</i>
US	37	24
UK	50	21
France	73	30*
Germany	63	19
Japan	83	35

*1983 data

The attractions of debt relative to equity have also varied in the UK over time. Under the classical taxation system, in operation between 1965 and 1973, equity was less attractive than now, because dividends were taxed twice, once at the level of the firm and once in the hands of shareholders. Since 1973, the UK has operated an imputation tax system, which gives relief from double taxation at the basic rate of income tax, reducing the tax burden on dividends and hence the cost of equity to the firm. Indeed, the lower the corporate tax rate relative to the basic rate of income tax, the less attractive debt is for tax reasons. See Table 1.4 below for an example of this.

Historically, the tax advantages of debt relative to equity for UK companies have not been as low as current levels since before the Second World War. However, one very important point is that the tax advantage of debt will depend on whether or not the company does actually pay corporation tax. Although the apparent tax advantage of debt is currently low, UK companies do now have substantial corporation tax liabilities. They have lost the generous first-year capital allowances available in the 1970s which meant that many companies did not pay corporation tax and so were unable then to benefit in practice from the theoretical tax advantage of debt.

Average debt-equity ratios in the UK gradually increased after the Second World War, reached a peak around 1974 and have fallen somewhat since. A typical debt-equity ratio would now be around 20% to 30%, measured as debt to total capital (depending on whether balance sheet or market values are used), compared with 14% to 17% in 1950 and 25% to 40% in 1974. Bankers' limits tend to be expressed in book terms.

However, the problem of off-balance sheet finance has never loomed so large as now. Whatever gearing ratio appears on the balance sheet, actual gearing may be much higher. Although leases now have to be capitalised on the balance sheet (see ch 9 below), there are many property and asset financing schemes, for example, financing through subsidiaries which do not have to be consolidated and so do not appear on the group balance sheet of the company. Corporate finance has become more sophisticated in recent years but UK accounting standards have not kept up with the rate of change.

Table 1.4 Tax advantage of corporate debt

	<i>Gearred company £</i>	<i>Ungearred company £</i>
<i>(A) 52% corporate tax rate, 30% basic personal tax rate</i>		
Corporate profit	100	100
Interest	(20)	—
Pre-tax profit	80	100
Tax @ 52%	(41.60)	(52)
After-tax profit	38.40	48.00
<i>Total investor payout</i>		
Dividend*	38.40	48.00
Interest (after tax)	14.00	—
Total income	52.40	48.00
<i>(B) 35% corporate tax rate, 30% basic personal tax rate</i>		
Corporate profit	100	100
Interest	(20)	—
Pre-tax profit	80	100
Tax @ 35%	(28)	(35)
After-tax profit	52	65
<i>Total investor payout</i>		
Dividend*	52	65
Interest (after tax)	14	—
Total income	66	65

*Basic rate assumed already paid on dividends (ACT)

One final point on the debt versus equity decision. The choice of debt and equity may be affected by ownership considerations. The majority of equity finance for British companies is still provided by retained earnings with no ownership implications for shareholders. The raising of *new* equity, however, raises the spectre of dilution of ownership (which is why the Stock Exchange, until very recently, upheld the pre-emptive rights of existing shareholders to new issues of shares. (See ch 2 below.)

A small firm might therefore prefer to raise as much debt as possible to retain majority control of the shares or to issue non-voting shares, as was done in the past with companies such as Marks & Spencer and Rank Organisation. Eventually, though, these companies grew to such an extent that they reached the debt limits imposed by creditors and were forced to issue equity — with voting rights. The dilution of ownership control of course increases the risk of takeover.

It used to be thought that size would be protection against predators, but recent experience in the US and UK markets, for example the battle for Distillers in 1986, has shown this not to be the case. Firms can use high gearing ratios to finance the acquisition of other firms as large, or larger, than they are: this is known as leveraged buyouts. Again, we see how important the gearing ratio can be.

1.03 THE MANAGEMENT OF RISK

The objective of the corporate finance director is, as we have seen, to minimise the cost of capital to the firm. Once he has decided on debt or equity, the next question is which *type* of debt or equity. For equity, there is usually only one type — voting ordinary shares — although the use of debt convertible into equity and the use of preference shares are reasonably common: see ch 2 below. For debt, the decision is more complex, given the range of choices available in terms of maturity, type of interest payment, market-place, currency, etc.

When deciding on the type of debt, the objective again will naturally be to minimise the cost of the debt. But the risk to the company of the different kinds of debt must be borne in mind.

1 Interest rate risk

Suppose the finance director wishes to arrange the funding of a five-year project. Which maturity and interest type of debt should he choose? This will depend on three factors: how much the company wishes to relate the financing to the project; the relative costs of the different types of debt; and the company's view on what is going to happen to interest rates.

If the debt is to be closely linked to the project, then a five-year loan would appear appropriate or, rather, one whose cash flows are closely correlated with the cash flows of the project would be appropriate. The closer the correlation, the less the risk that the firm will at any point in time be unable to meet its interest payment commitments. So, for example, an investment in property, with low cash flows initially but a high expected capital gain, lends itself to the use of deep-discount or zero coupon fixed interest debt (see ch 7 below). A cash-generating project, on the other hand, could be financed with normal fixed or floating rate debt. Some firms prefer fixed interest rate debt because the cost of the financing is known in advance, facilitating forward cash planning. Others prefer floating rate debt, believing that their cash flows are correlated with interest rates.

Recently, combinations of fixed and floating rate debt have been made available through the use of options attached to debt. For example, a company can choose floating rate debt where the maximum and/or minimum interest rate is fixed. For example, if the current floating rate is 10%, the firm can lock in a rate of between 8% and 10%, using what is known as a 'collar'. Alternatively, it can choose to benefit from falling interest rates whilst protecting itself from higher rates by using only one side of the collar, known as a 'cap'.

As well as using the combinations of fixed and floating rate debt now available, the finance director can also choose to switch between fixed and floating rate debt at any time, through the mechanism of a swap (see ch 10 below). For example, the debt raised might be a five-year fixed rate eurobond issue, but this could be swapped immediately after the issue, or at any point during the life of the bond, into floating rate debt.

The swap mechanism allows firms to satisfy their second objective: to minimise the cost of debt. This is because swaps enable anomalies in the relative valuation of companies in the world's capital markets to be exploited. It may be that the extra interest coupon required of company B relative to company A in the eurobond market for fixed rate debt is different to the relative interest payments required of them in the floating rate bank loan market. By each raising debt in the cheapest market, and then agreeing to swap interest rate flows, they can minimise their cost of capital.

However, the choice of fixed versus floating rate debt, and short versus long maturity debt also hinges on the interest rate expectations of the finance director.

In efficient markets, interest rates should reflect expectations. In other words, if interest rates are expected to rise, the interest rate on long-term debt will be higher than for short-term debt, and vice versa. In a risk-neutral environment, long-term interest rates should just be the average of the constituent short-term rates. Thus, a company finance director should expect the same average cost of debt for his five-year project whether he raises five-year money, one-year money rolled over each year, or ten-year money repaid early.

In practice, this relationship between short- and long-term rates may not hold exactly, because of the maturity preferences of investors and companies seeking debt finance. It may be that companies wish to fund relatively long, to match long-term projects, whereas investors prefer lending short, because of uncertainty about the future. In these cases, long-term rates would be at a premium to the average of short-term rates. A finance director who funded his five-year project with one-year money rolled over could therefore expect a lower average cost of debt, but at the expense of uncertainty over his funding costs.

In the sterling debt markets, the evidence seems to point to a more complex picture. At the short end of the maturity spectrum, say up to five years, there is little or no premium on long rates relative to short rates. Also, at the long end, 15 years or over, the premium appears unimportant because of demand for long-term debt investments from the life assurance companies and pension funds. The premium is probably most important around 10-year debt, where there is no natural UK investment population.

Excluding the possible uncertainty premium, which is small in any case, the conclusion as far as funding is concerned is that the finance director cannot expect *ex ante* to reduce interest rate costs by selecting a particular maturity of debt or by choosing floating rate rather than fixed debt, unless he believes that he has a clearer view of future interest rates than the market as a whole. By constantly switching between maturities and fixed/floating rate debt, the finance director is attempting to 'beat the market'. There is no evidence that this can be done on a regular rather than random basis. Of course, if there are anomalies between markets, due to cross-border inefficiencies, as are exploited by interest rate swaps, interest rate costs can be reduced.

2 Currency risk

The same arguments apply to currency risk. If a finance director wishes to finance a US-dollar project, the best way to do this is with dollar debt. This gives the closest correlation between the project's cash flows and the debt's cash flows. The currency mix of the debt portfolio should therefore reflect the currency mix of the assets of the firm. Any mismatch means that the finance director is incurring currency risk, again because he believes that he has a better view of future interest rates and exchange rates than the market as a whole. Exchange rate