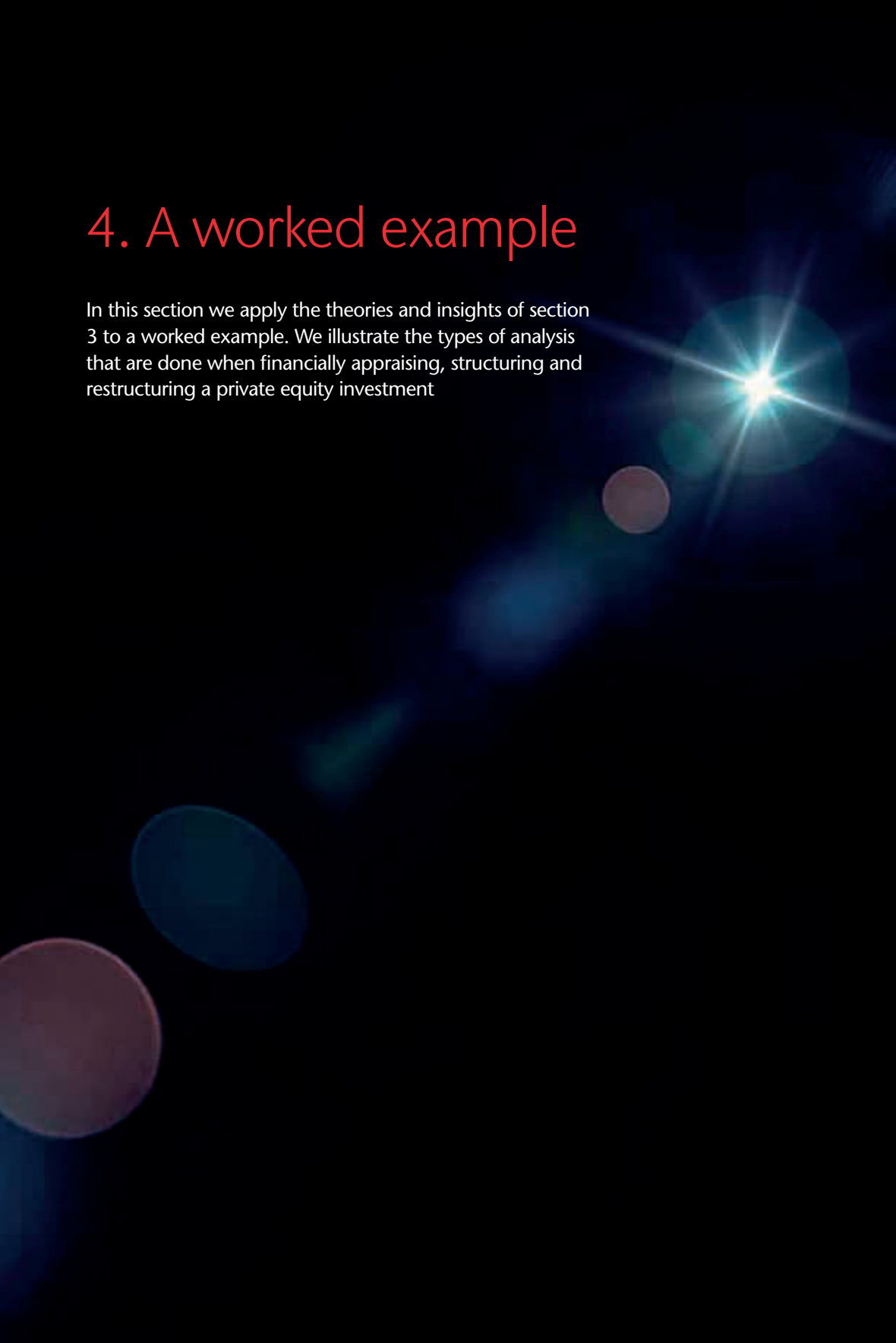


4. A worked example

In this section we apply the theories and insights of section 3 to a worked example. We illustrate the types of analysis that are done when financially appraising, structuring and restructuring a private equity investment



4.1 A detailed worked example of a leveraged buy-out

This section presents a necessarily detailed, but fictional, worked example of a transaction structure. It is intended to illustrate a financial structure and explain both the logic of the tailoring of the financial package and the complicated tax impacts of financial engineering. Our intention is to give an insight into the questions being asked and the analyses undertaken prior to and during an investment.

4.1.1 Operating profit projections

The operating projections of the target company are summarised in Table 4.1 and Figure 4.1 below.

The fictional business plan of a company is being evaluated by a private equity investor and bankers. The actual figures represent the performance in the year prior to the proposed investment. The subsequent years are forecasts.

Table 4.1: Operating profit projections

Operating projections	Actual £000s	Year 1 £000s	Year 2 £000s	Year 3 £000s
Turnover	167,250	158,888	163,654	168,564
Cost of goods	(91,988)	(87,388)	(83,464)	(85,968)
Gross margin	75,263	71,499	80,191	82,596
Overheads	(62,500)	(60,938)	(61,547)	(63,393)
Lease costs		(400)	(800)	(800)
EBITDA	12,763	10,162	17,844	18,403
Depreciation	(5,000)	(4,167)	(2,639)	(2,616)
Restructuring costs	0	(3,500)	0	0
EBIT	7,762	2,495	15,205	15,787
Growth in turnover		-5.0%	3.0%	3.0%
Gross margin	45.0%	45.0%	49.0%	49.0%
Overhead inflation		-2.5%	1.0%	3.0%
EBITDA %	7.6%	6.4%	10.9%	10.9%
EBIT %	4.6%	1.6%	9.3%	9.4%

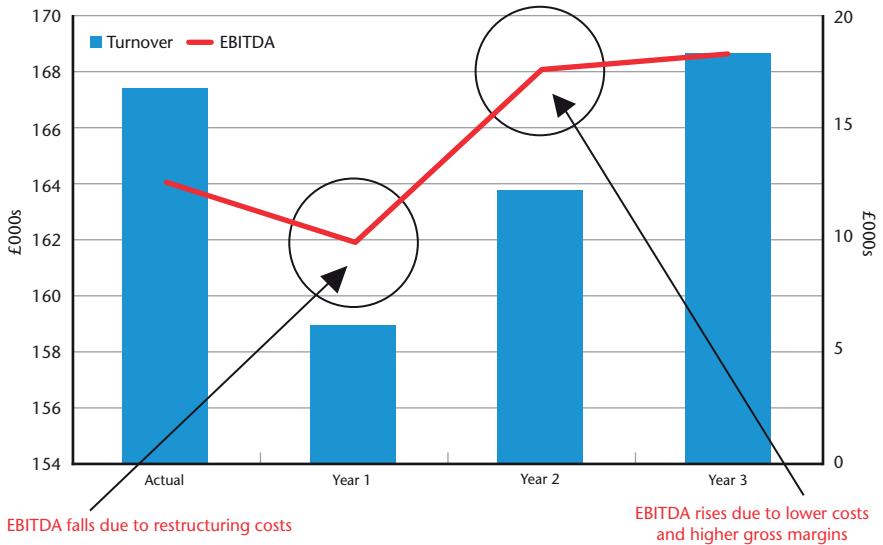
Sales fall due to increased pricing and stock clearances at lower prices

Gross margins rise after stock clearances due to increased pricing

Lease charges arise from the sale and leaseback of properties

Restructuring costs of £3.5m reduce overheads by £1.6m per annum

Figure 4.1: Actual and forecast sales and profit



The cash flows of the business reflect one-off costs and gains, followed by the ongoing cash generation of the restructured business. The one-off costs and gains are:

- the restructuring of overheads;
- the inflow from the sale and leaseback of £10m of freehold properties; and
- material changes in the working capital profile of the business.

The ongoing changes include both the resulting changes in margins and the costs associated with the new lease arrangements put in place as part of the sale and leaseback.

4.1.2 A note on valuations

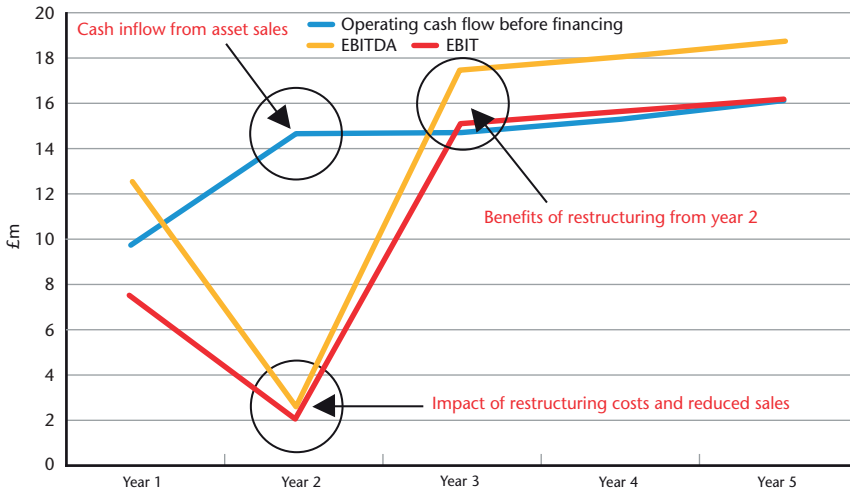
Note that in this example any valuation completed at the end of year 2 based upon an earnings multiple or net assets would result in a reduction in the investment's value. This is clearly a planned consequence of the investment strategy. In consequence, despite the valuation discussion above, this investment could be argued to be carried at cost. The example highlights the difficulties that mechanistic valuations can create.

4.1.3 Cash flow projections

Table 4.2: Actual and forecast operating cash flows

£000	Actual	Year 1	Year 2	Year 3
EBITA	7,762	2,495	15,205	15,787
Ongoing capex	(2,000)	(2,500)	(2,500)	(2,500)
One-off capex	–	(2,500)	–	–
Depreciation	5,000	4,167	2,639	2,616
Working capital	(500)	3,262	(292)	(301)
Proceeds of sale of fixed assets	0	10,000	0	0
Operating cash flow	10,263	14,924	15,052	15,602

Figure 4.2: EBITDA and operating cash flows



The illustration is based upon a number of structural and strategic changes to the business acquired that are commonly seen in private equity transactions, including the following.

- **Asset disposals:** the plan assumes a sale and leaseback of £10m of assets during the first year after the transaction. This creates a new lease charge in the profit and loss account as well as a cash inflow from the sale. Note that the depreciation charge falls in year 2 because of the sale of assets.
- **Overhead reduction:** there is a planned reduction of overhead costs by £1.6m (-2.5%) in year 1. It is assumed that the restructuring costs will be £3.5m in year 1. The reduction might be achieved by simple cost cutting but might also involve staff redundancies.
- **Price increases:** the plan projects an increase in gross margins from 45% to 49% by increasing prices. This price rise is projected to result in a 5% fall in sales in year 1. Year 1 also includes a stock clearance sale that temporarily holds gross margin at 45% by changing the mix of products sold.
- **Increased investment:** to achieve efficiency gains, a one-off increase in capital expenditure of £2.5m is included to update the assets of the business.
- **Working capital improvement:** the amount of working capital in the business is also forecast to reduce in year 1, generating a positive cash flow. This reflects a step change in the rate at which debtors are collected and creditors are paid and the stock clearance noted above.

Thereafter, both costs and revenues are forecast to grow at 3.0% pa and working capital grows proportionate to sales growth.

4.1.4 A profit bridge

A common analysis undertaken in most major restructurings is to construct what is known as a profit bridge. This seeks to isolate the impact of each of the various actions on overall profitability. It always needs to be appreciated that the arithmetic presentation necessarily disguises the interaction of the various factors; for example, restructurings

impact morale which may impact the motivation and productivity of the people of a business in complex and unpredictable ways. No profit bridge can illustrate these interconnections.

While recognising its limitations, it is very commonly used by financial analysts, investors and accountants.

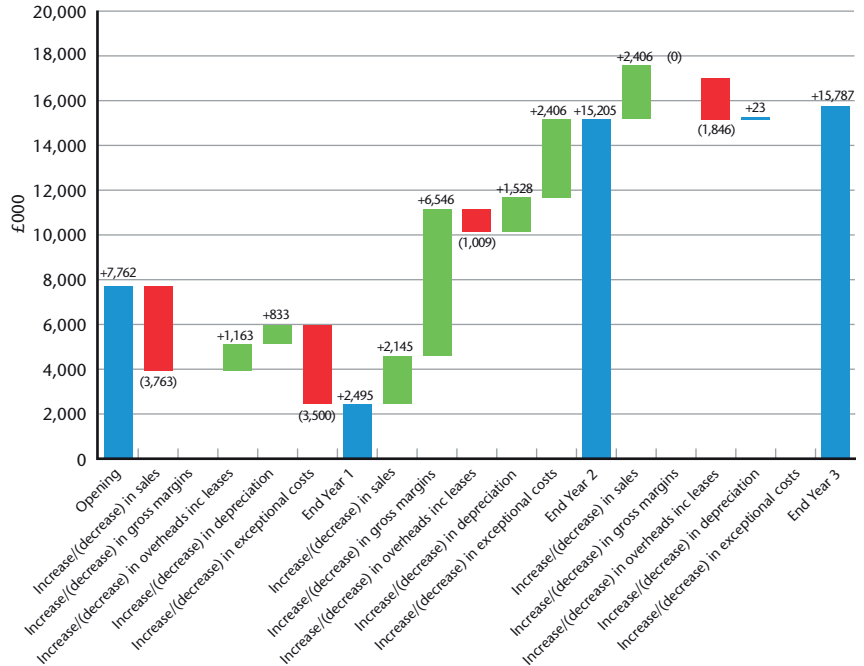
Table 4.3: Profit bridges

£000	Year 1	Year 2	Year 3
Incr/(Decr) in sales	(3,763)	2,145	2,406
Incr/(Decr) in gross margins	0	6,546	(0)
(Incr)/Decr in overhead inc. leases	1,163	(1,009)	(1,846)
Incr/Decr in EBITDA	(2,601)	7,682	559
(Incr)/Decr in depreciation	833	1,528	23
(Incr)/Decr in exceptional costs	(3,500)	3,500	0
Incr/Decr in EBIT	(5,267)	12,710	582
Opening EBITDA	12,763	10,162	17,844
Incr/Decr in EBITDA	(2,601)	7,582	559
Closing	10,162	17,844	18,403

Step change in profit is driven by higher gross margins

One-off restructuring costs

Figure 4.3: EBIT: profit bridge



The profit bridge highlights the salient features of this investment proposal. The business is restructured to achieve higher gross margins. Thereafter it grows at a broadly inflationary rate. This is important in structuring the investment since the vast majority of value will be created by the implementation of the plan in the early years of the investment. Thereafter, unless a new strategy is put in place that will accelerate growth in profitability, value accrues more slowly.

4.1.5 Funding requirement

The task for investors is to structure an investment proposal against these projections (and the sensitivities) and offer an assumed purchase price (enterprise value) of £100m to the shareholders, representing a ratio of enterprise value/EBIT of 12.9 times. The purchaser must also fund ongoing periodic working capital requirements (overdrafts, letters of credit, hedging etc) and pay the costs of the funders and advisers. Furthermore, if UK shares are acquired, stamp duty may be payable at 0.5% of the value of the offer.

Table 4.4: Funding requirement

Requirements	£000	
Purchase of 100% of shares	90,000	← Equity value or market capitalisation
Refinance 100% existing debt	1,000	
Enterprise value	100,000	← Enterprise value
Periodic working capital	2,500	
Stamp duty @ 0.5%	450	← 0.5% of the price paid
Transaction fees inc. VAT	5,550	
Total requirement	108,500	
Enterprise value	100,000	
Current EBIT	7,762	
EV/EBIT	12.9	
Equivalent P/E ratio	17.9	

4.1.6 What are the transaction fees and expenses?

Transactions costs are a significant element in the funding requirement. These fall into a number of categories.

Transaction taxes

Any acquisition potentially creates a number of taxes that have to be paid at completion; the most common of which is, in the UK, stamp duty. In the UK stamp duty is a tax payable on share purchases at 0.5% (subject to certain exemptions and reliefs).

In addition to stamp duty there is VAT payable on many of the advisory fees, some recoverable, some not, that are discussed below.

Investors' and lenders' fees

Arrangement fees: all lenders and investors generally charge fees as upfront payments when they invest. As discussed earlier these fees may result in changes in incentives and risk/reward profiles.

Monitoring fees: many lenders and investors charge further ongoing fees to recover the costs of their ongoing monitoring of any investment or loans.

Underwriting fees: where a lender or investor is prepared to temporarily take on the full amount of the loans and/or investment prior to a later syndication, this underwriter will charge an underwriter's fee.

From the perspective of the borrower all of these fees are simply costs of doing the transaction, and in assessing the overall cost of funding the transaction should be treated in the same way as interest or any other costs.

Advisers' fees

We saw in section 2 that there are a number of legal and financial advisers in any transaction. Each will require payment from the acquirer or vendor. The acquirer's costs will be recharged to the Newco set up to make the acquisition.

4.1.7 What are contingent fee arrangements?

Contingent fees are fees that are only payable on the successful conclusion of a transaction. They transfer the risks (and rewards) of providing a particular service from the private equity funder of a transaction to their advisers. They also reduce the fixed costs of the users of advisers, but increase their variable costs.

Where the advisers are retained to advise whether or not to pursue a particular investment, contingent fees create conflicts of interest for the advisers: the adviser has no incentive to advise against doing any particular deal, but strong incentives to promote a transaction. The constraint on promoting poor transactions is two-fold. Firstly, there is a direct liability issue for poor advice. The limit of the liability of advisers who give poor advice is defined in the terms of their engagement with their client. Secondly, there is the impact of reputational risk on the ability of an organisation to generate new business.

Over the years there has been a great deal of discussion between the professionals providing services and banks and private equity houses regarding contingency and the amount and form of the liabilities of advisers. In the UK, the Financial Reporting Council, ICAEW and other professional bodies place limits on the services that may be provided on a contingent basis.¹

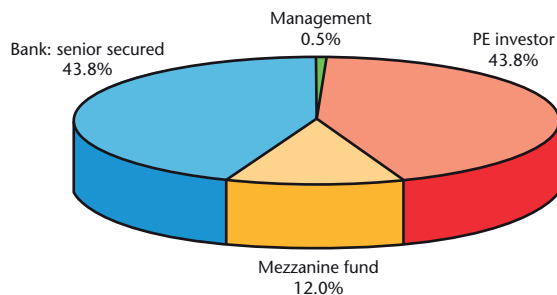
4.1.8 A funding structure

The funding structure needs to accommodate:

1. the purchase price of the shares;
2. the treatment of the expected proceeds from the planned sale of assets, which will enable some of the loans to be repaid early;
3. working capital requirements; and
4. fees and other costs associated with the transaction.

A wide array of potential funding solutions could be constructed. The version presented here is illustrative only.

Figure 4.4: Sources of funds



¹ See APB Ethical Standard 5 (Revised) *Non-Audit Services Provided To Audited Entities*, April 2008 and *Ethical Standards for Reporting Accountants*, October 2006, published by the Financial Reporting Council.

Table 4.5: Sources of funding

Funding structure	£000	%
Management	500	0.5
Private equity investor	47,500	43.8
Mezzanine	13,000	12.0
Bank	47,500	43.8
Total	108,500	100.0

Around 44% of all funding in the example comes from the private equity investors. The same amount (including working capital facilities) comes from secured banking and the balance (12%) is in the form of mezzanine finance, which would probably be provided by a specialist mezzanine fund.

In section 3, we explained how the layers of finance are structured to take account of the available security and cash flows. Using these methods and analytical techniques a detailed structure of the transaction is given below. It is important to understand that there may be a number of different capital structures that are appropriate to the business and that there is no one right answer to this type of analysis. There is an intimate relationship between the capital structure chosen and, for example, the future strategy of the business, as well as the expectations of the parties to the deal regarding the future volatility and growth in the external market and the appetite of all parties for risk.

Figure 4.5 shows the progression from the funding requirement to the detailed financial structure and finally the share:loan split. The graphic illustrates how risk is allocated between banks, mezzanine providers and equity investors, but nevertheless most of the invested monies are in loans, not shares.

Figure 4.5: The funding package is analysed by funding requirement, security available, source of funds, detailed financial instrument and type of financial instrument

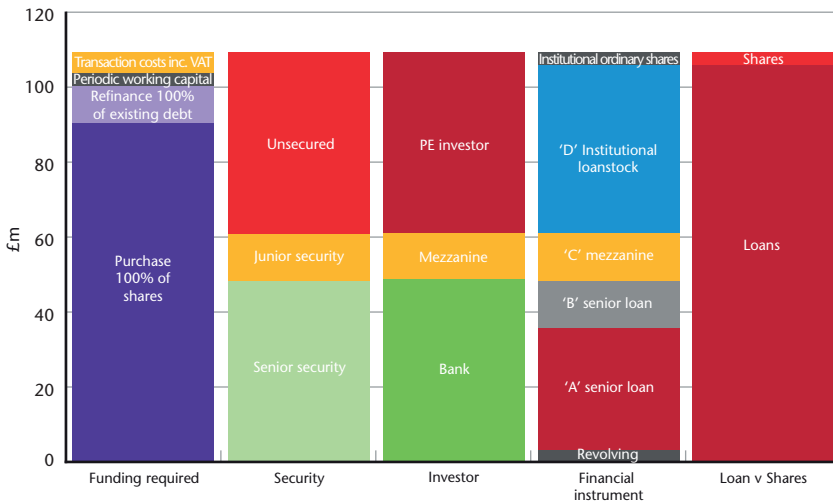


Table 4.6: Illustrative financing structure

Funding structure	£000	% of funding	% of equity
Management	500	0.5	17.5%
Private equity investor			
Institutional ordinary shares	2,300		80.5%
'D' institutional loanstock	45,200		
	47,500	43.8	
Mezzanine	13,000	12.0	2.0%
Bank acquisition finance			
'A' senior loan	32,000		
'B' senior loan	13,000		
	45,000	41.5	
Acquisition price + costs	106,000		
Periodic working capital	2,500	2.3	
Total funding	108,500	100.0	100.0%

Management 'hurt money' has no impact on equity percentage

Private equity invests in a mix of shares and loans

Mezzanine generates returns from both yield and capital gain using warrants

Bank invests in layers of debt

The overall structure contains seven different layers of finance as explained below.

The banking and mezzanine package (including the working capital facility) provides 55.8% of the total funding package and consists of four layers.

1. A revolving facility to fund periodic working capital movements during the trading year. This is in effect an overdraft facility and is secured alongside the senior loans.
2. 'A' senior loan: a loan at an interest rate of LIBOR² + a margin, generally with a flat repayment profile repaid in equal annual instalments. In this example there is a significant cash inflow from asset disposals which will be used to repay part of the 'A' loan in year 2. This payment is calculated using a so-called 'cash sweep' mechanism whereby all operating cash flow in the particular period is applied to repaying the loan.
3. 'B' senior loan: this is a loan that is repaid after the 'A' loan at a higher margin above LIBOR to reflect its longer term. For security purposes it ranks alongside the 'A' senior loan. Typically this would have been a 'bullet loan' ie, repayable in a single instalment after the 'A' Loan, but in this example it starts to be repaid after year 3 reflecting the early repayment of part of the 'A' loan.
4. 'C' mezzanine loan: a long-term loan ranking after the 'A' and 'B' senior loans for security purposes, and repayable after the senior debt has been repaid. To reflect the increased risk of this loan, the interest rate is higher and the loan also has an equity warrant entitling the mezzanine providers to subscribe for 2% of the equity of the group.

The private equity fund provides funding in two layers.

5. 'D' PIK institutional loanstock: this loan ranks after the senior debt and mezzanine, is unsecured and therefore carries significant risk. The loan is a PIK loan which, as explained in section 3, rolls up its interest by issuing further loan notes rather than paying interest in cash.

² See glossary for definition.

6. Institutional 'A' preferred ordinary shares: these shares will have preferential rights when compared to the other ordinary shares invested in by management.

As we illustrated in section 3, the private equity fund is seeking to maximise the blended return on their total investment in the scheme. The relative cost of each layer provided by the private equity fund is therefore less significant than the blended cost of the layers taken together.

As noted above, the management provide a nominal investment which is not significant in the total funding structure, but represents the 'hurt money' commitment of the key people that the private equity investor wishes to incentivise. This is provided as the following.

7. Ordinary shares: these have none of the preferred rights of the 'A' ordinary shares other than to share in capital gains.

4.2 The impact of leverage on profits and cash

The proposed funding structure is overlaid on the operating projections in Table 4.7 showing the projected profit and loss account ('P&L account') after funding costs.

Table 4.7: Summary of projected profit and loss after funding*

Summary of projected consolidated profit and loss accounts	Actual £000	Year 1** £000	Year 2 £000	Year 3 £000	Year 4 £000
Turnover	167,250	158,888	163,654	168,564	173,621
EBITA	7,762	2,495	15,205	15,787	16,383
Goodwill amortisation		(3,148)	(3,148)	(3,148)	(3,148)
EBIT	7,762	(652)	12,057	12,640	13,245
Interest					
'A' senior		(1,440)	(1,200)	(763)	(572)
'B' senior		(715)	(715)	(715)	(715)
'C' mezzanine		(1,560)	(1,755)	(1,755)	(1,755)
'D' institutional loanstock		(4,520)	(4,972)	(5,469)	(6,016)
Overdraft/cash on deposit		117	17	25	(35)
	(800)	(8,118)	(8,625)	(8,677)	4,203
Profit before tax	6,962	(8,770)	3,432	3,962	4,203
Tax	(1,950)	(1,750)	(3,371)	(3,751)	(4,039)
Deferred tax		(298)	(355)	(263)	(194)
Retained profit	5,013	(10,818)	(294)	(51)	(31)

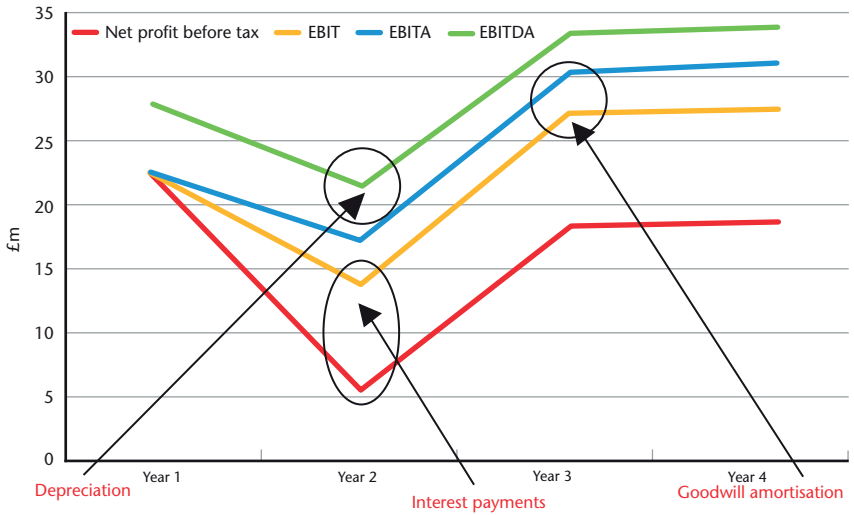
PIK interest rolled up

Simplifying assumptions:

* all costs are treated as being recognised at completion. This would not normally be the case. Costs of issuing debt instruments are accounted for under IAS 39, and costs of issuing equity instruments are accounted for under IAS 32. All other costs associated with the acquisition must be expensed; and

** all transaction fees have been omitted from the analysis.

Figure 4.6: Profit: EBITA, EBIT, NPBT



The business thus projects a fall in net profit before tax from £6,962k profit before tax in the year prior to the transaction to a (£14,770k) loss in year 1. However, this apparent reversal of performance reflects both the accounting treatment of goodwill, transaction fees and costs and interest charges (both paid in cash and rolled up) which are summarised in Figure 4.7 and Table 4.8.

Figure 4.7: Difference between interest accrued and interest paid

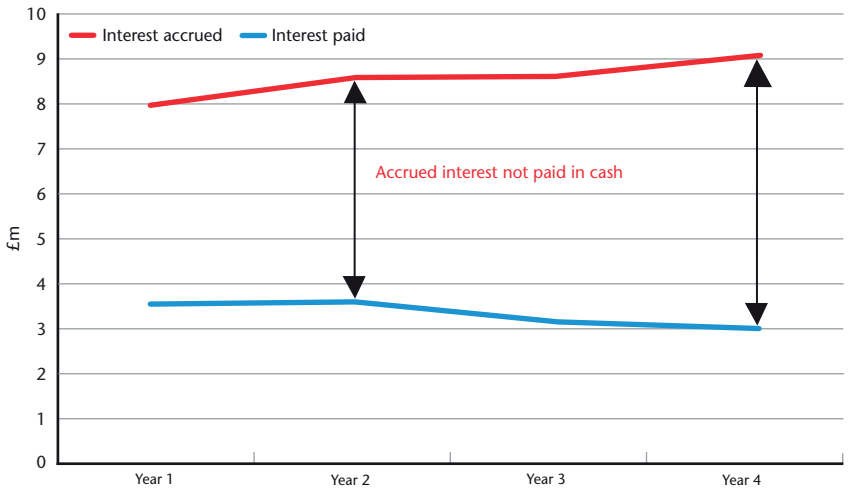


Table 4.8: Reconciliation of interest charges

	Actual £000	Year 1 £000	Year 2 £000	Year 3 £000	Year 4 £000
Profit and loss charge	(800)	(8,118)	(8,622)	(8,694)	(9,077)
Interest rolled up and not paid	0	4,250	4,972	5,469	6,016
Interest paid	(800)	(3,598)	(3,650)	(3,225)	(3,060)

The actual cash interest paid in each year is lower than the interest charge shown in the profit and loss account. The interest rolled up preserves the cash flows of the business and mitigates the financial risks of the highly geared structure to the company during the roll-up period.

The PIK interest increases as interest-on-interest is charged.

The cash flows of the business are therefore materially different to the reported profits, as shown in Figure 4.8 and Table 4.9.

Figure 4.8: Cash flows – before and after finance costs

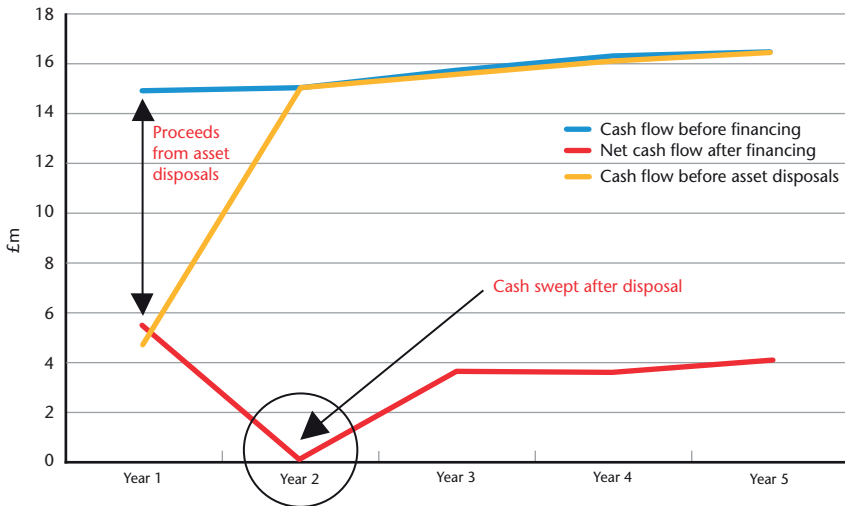


Table 4.9: Summary of cash flows after funding

Summary of projected cash flows	Actual £000	Year 1 £000	Year 2 £000	Year 3 £000	Year 4 £000
EBITA	7,762	2,495	15,205	15,787	16,383
Capex	(2,000)	(5,000)	(2,500)	(2,500)	(2,500)
Depreciation	5,000	4,167	2,639	2,616	2,596
Working capital	(500)	3,262	(292)	(301)	(310)
Proceeds of sale of fixed assets	0	10,000	0	0	0
Operating cash flow	10,262	14,924	15,052	15,602	16,169
Interest	(800)	(3,598)	(3,650)	(3,225)	(3,060)
	9,462	11,326	11,401	12,378	13,109
Tax	(1,950)	(490)	(1,321)	(3,250)	(3,957)
Draw down/ (repayment) of debt					
'A' senior	–	(5,333)	(9,715)	(4,238)	(4,238)
'B' senior	–	0	0	(1,096)	(1,096)
'C' mezzanine	–	0	0	0	0
'D' institutional loanstock – PIK	–	0	0	0	0
Net inflow/(outflow)	7,512	5,503	365	3,794	3,818
Opening cash/ (overdraft)	(17,512)	0	5,503	5,867	9,662
Closing cash/ (overdraft)	(10,000)	5,503	5,867	9,662	13,480

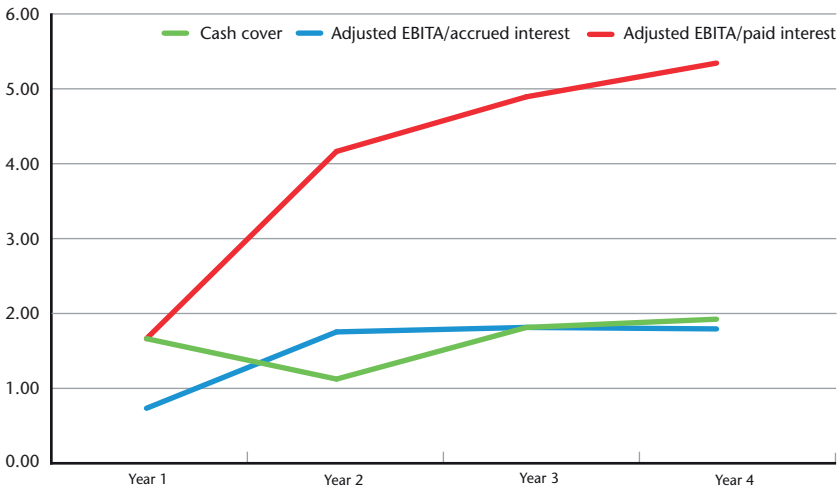
Proceeds from asset sale used to repay 'A' senior loan using a cash sweep mechanism

The business is acquired cash free/debt free therefore the borrowings are refinanced and the group has zero opening cash

Despite recording an accounting loss the business still has an increased liability to corporation tax. (This is explained in detail in section 4.5.)

In section 2, the basic banking financial covenants were explained and described. Figure 4.9 shows the projected values of three key ratios: cash generation to total debt service (cash cover), and two calculations of interest cover, one based on the charge in the profit and loss account, the other reflecting the actual interest payment made. Note that the definition used is adjusted to add back budgeted restructuring costs. It is not uncommon for the bank and company/private equity investors to negotiate the exact definition of each covenant, as well as the level at which it is set, so that it is tailored precisely to the individual assumptions that underlie the transaction.

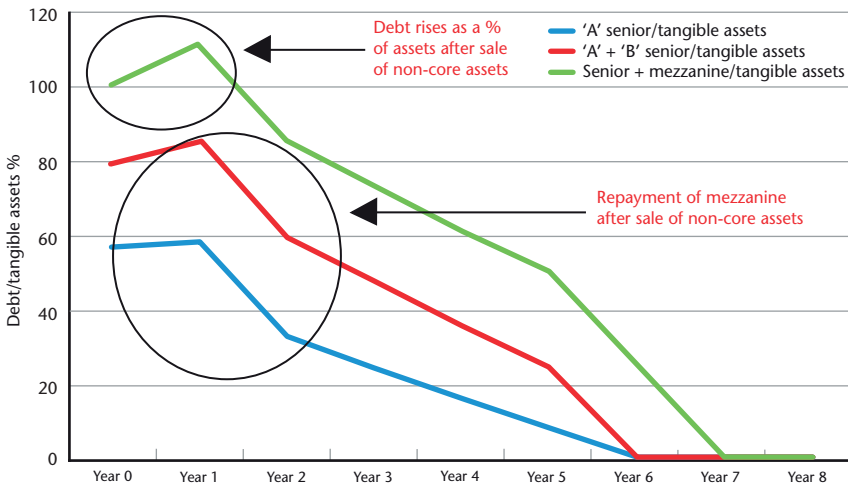
Figure 4.9: Forecast values of interest cover and cash cover



The ratio of total debt service to cash flow is analogous to the ratio of salary to total mortgage repayment in a house purchase: it measures the ability to service the loan.

Similarly the ratio of tangible assets (ie, excluding goodwill) to secured borrowings is analogous to loan-to-value ratios in a mortgage. It is summarised in Figure 4.10, showing each loan layered on the next separately. The bank 'A' and 'B' senior loans become progressively less risky as they are repaid.

Figure 4.10: Forecast security cover



These projected values of the various financial ratios would form the basis of the negotiation around setting the levels of the financial covenants in the banking agreements. Typically one might expect to set covenants with headroom of 20–50% before a breach would occur depending on the particular ratio and the dynamics of the business.

4.3 Restructured balance sheet

The output of the financial engineering process is a restructured balance sheet that is tailored to accommodate the plan of the business. The forecast balance sheet of the business is shown in Table 4.10. The rolled up PIK interest has been shown as an increase in the loanstock.

Table 4.10: Summary of projected balance sheets

£000	Opening	Year 1	Year 2	Year 3	Year 4
Fixed assets					
Goodwill	62,950	59,503	56,055	52,608	49,160
Tangible fixed assets	25,000	15,833	15,694	15,579	15,482
	87,950	75,336	71,749	68,187	64,642
Working capital					
Stocks	15,000	13,815	14,229	14,656	15,096
Trade debtors	20,000	18,565	19,122	19,695	20,286
Other current assets	2,500	2,375	2,446	2,520	2,595
Creditors	(22,500)	(22,246)	(22,913)	(23,600)	(24,308)
Other creditors	(2,000)	(2,771)	(2,854)	(2,939)	(3,028)
	13,000	9,738	10,030	10,332	10,641
Other creditors					
Corporation tax	(490)	0	(440)	(937)	(1,007)
Deferred tax	(460)	(758)	(1,113)	(1,376)	(1,571)
	(950)	(758)	(1,553)	(2,313)	(2,578)
Closing cash/ (overdraft)	(10,000)	5,503	5,867	9,662	13,480
Net borrowings					
'A' senior	(32,000)	(26,667)	(16,951)	(12,714)	(8,476)
'B' senior	(13,000)	(13,000)	(13,000)	(11,905)	(10,809)
'C' mezzanine	(13,000)	(13,000)	(13,000)	(13,000)	(13,000)
'D' institutional loanstock – PIK	(45,200)	(49,720)	(54,692)	(60,161)	(66,177)
Cash/overdraft	0	5,503	5,867	9,662	13,480
	(103,200)	(96,884)	(91,776)	(88,117)	(84,982)
Net assets	(3,200)	(12,568)	(11,550)	(11,913)	(12,276)
Ordinary shares	2,800	2,800	2,800	2,800	2,800
Reserves	(6,000)	(15,368)	(14,350)	(14,713)	(15,076)
	(3,200)	(12,568)	(11,550)	(11,913)	(12,276)

Sale of £10m property

Impact of fees paid at completion

Impact of rolling up interest on PIK debt

The presentation of the company's balance sheet above shows net assets as negative at completion. An alternative presentation commonly used in the management accounts of private equity-backed companies shows the loanstock as if it were equity as shown in Table 4.11. This presentation is justified because while the loan stock in isolation is a debt-like instrument, it is in fact part of the overall equity investment and has equity-like risks.

The presentation highlights a fundamental feature of many private equity-backed transactions: the net assets of the business attributable to the equity holders remain broadly constant in the medium term as profits are used to service the funding structure put in place to acquire the business. In a quoted company context this would be conceptually equivalent to distributing all profits as dividends at the year end.

Table 4.11: Alternative balance sheet presentation

£000s	Opening	Year 1	Year 2	Year 3	Year 4
Net assets per the accounts	(3,200)	(12,568)	(11,550)	(11,913)	(12,276)
'D' institutional loanstock	45,200	49,720	54,692	60,161	66,177
Net assets attributable to shareholders	42,000	37,152	43,142	48,249	53,902

4.4 PIK loanstock: What is the 'equity illusion'?

The representation of the balance sheet in Table 4.12 highlights a feature that has become increasingly common over the past decade: the growth in net assets is almost entirely paid to the holders of the PIK loan note, typically the private equity investor.

Table 4.12: PIK debt and the equity illusion

Alternative presentation of balance sheet	Opening £000	Year 1 £000	Year 2 £000	Year 3 £000	Year 4 £000
Net assets per the accounts	(3,200)	(12,568)	(11,550)	(11,913)	(12,276)
'D' institutional loanstock	45,200	49,720	54,692	60,161	66,177
Net assets attributable to shareholders	42,000	37,152	43,142	48,249	53,902
Increase/(decrease) in net assets		(4,848)	5,991	5,106	5,653
(Increase) in accrued value of 'D' loanstock		(4,520)	(4,972)	(5,469)	(6,015)
% of value accruing to loanstock		N/A	83%	107%	106%

In this type of structure the management only benefit from a high equity percentage if the business can grow more rapidly than the PIK debt accrues interest. When businesses cease to grow, value flows from the ordinary shareholders (ie, management) to the loanstock holders (the private equity investors) due to the rolling up interest-on-interest. This may be a deliberate trigger mechanism designed to force the earliest consideration of an exit, but in practice it can erode the managers' incentives significantly if it is, or is perceived to be, inequitable.

This issue may also arise in secondary buy-outs and recapitalisations where management roll over their original equity stake into a higher equity stake in the business, but a layer of high-cost PIK debt ranks ahead of that new equity. Integrated finance structures where one institution provides all the layers of capital are often characterised by high yield to the institution and higher equity stake to the management team. The structure increases the risks and rewards of the management while protecting the institutional investor against some of the risks of the investment.

We call the situation when managers have a high-equity percentage but a low share in the growth of the value of the business, the ‘equity illusion’.

4.5 Taxation: how much tax is paid by a private equity-backed company?

It is of the utmost importance for any commentator or analyst to clearly understand that there is almost always a difference between the profits reported in a company’s audited accounts and the profits calculated for taxation purposes. Failure to understand this results in misconceptions in the public understanding of how businesses are taxed and incentivised to act by the taxation system.

In the example, the profit for tax purposes is materially different from the pre-tax profit recorded in the accounts, and this is explained in detail below.

Figure 4.11: Taxable profit and accounting profit are different

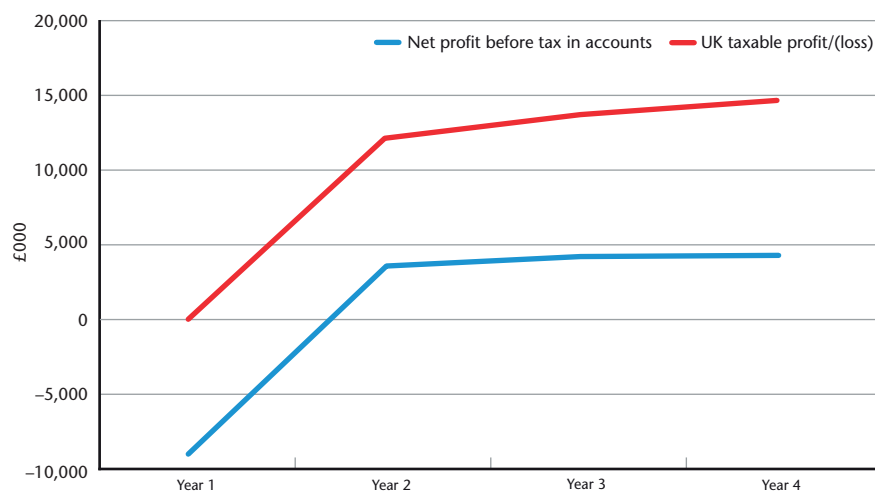


Table 4.13: Restatement of profit for tax purposes

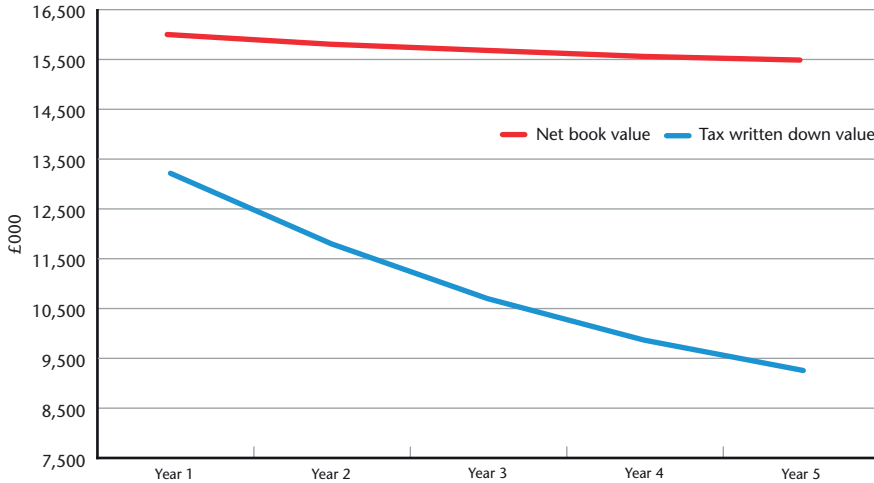
Tax computations	Notes	Year 1 £000	Year 2 £000	Year 3 £000	Year 4 £000
Net profit before tax		(8,770)	3,432	3,962	4,203
Depreciation	1	4,167	2,639	2,616	2,596
Writing down allowances	2	(4,375)	(3,906)	(3,555)	(3,291)
Disallowable interest	3	6,080	6,727	7,224	7,771
Disallowable fees		6,000			
Goodwill amortisation	4	3,148	3,148	3,148	3,148
Taxable profit/(loss)		6,249	12,039	13,395	14,427
Tax rate	*	28.0%	28.0%	28.0%	28.0%
Tax payable	5	1,750	3,371	3,751	4,039

* Assumption: a main rate of corporation tax of 28% has been used for the purpose of the case study. Actual rates can be found at www.hmrc.gov.uk.

Notes 1 and 2 – depreciation and capital allowance

Depreciation is calculated differently for accounting and tax purposes. Typically, capital investment is allowed to be deducted more rapidly for corporation tax purposes than it is depreciated in a company’s accounts, thus creating a positive tax incentive to invest in qualifying assets. This accelerated depreciation is achieved by adding back depreciation and replacing it with writing down or accelerated capital allowances.

Figure 4.12: The book value of assets is different to the tax written down value because of accelerated capital allowances



This is common to all companies. The timing difference between recognising depreciation and writing down allowances may give rise to a deferred tax asset/liability. This lies outside the scope of this discussion, but reflects future tax charges that have been deferred, not current ones.

Note 3 – interest accrued but not paid

Interest is generally allowed to be deducted when it is accrued in the company’s accounts, but there are a number of regulations that are designed to prevent the artificial creation of timing differences between when interest is paid and when it is accrued. As the interest on the PIK debt is not paid within a year of the date that it is accrued, in this example it is assumed that it would not be allowed to be deducted for tax purposes.

Thin capitalisation and the arm’s-length test

In tax terms a UK company may be said to be thinly capitalised when it has excessive debt in relation to its arm’s-length borrowing capacity, leading to the possibility of excessive interest deductions. Since March 2005, interest on loans from connected parties that are not on arm’s-length commercial terms is not allowed to be deducted for corporation tax.

In some countries there is a strict limit imposed which defines the amount of debt on which interest is allowed to be deducted against corporation tax. In the UK HMRC often uses rules of thumb relating to debt/equity and interest cover, but there is no strictly defined limit.

In this example, the debt capacity of the business is fully utilised to support the funding from the bank and mezzanine provider. It is therefore assumed that no third-party bank would provide the loanstock on the terms provided by the private equity investor and thus it is assumed that the interest would not be allowed to be deducted.

It is important for commentators and analysts to understand that the rules on interest deductibility have changed significantly to reduce the deductibility of interest in most leveraged buy-outs.

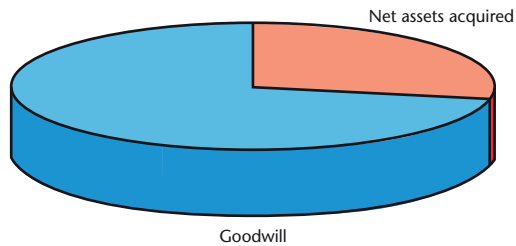
Note 4 – goodwill deductibility

In section 3, we explained that goodwill is the difference between the acquisition cost of a business and its net asset value. The calculation of the value of goodwill in the worked example is illustrated in Table 4.14.

Table 4.14: Calculation of goodwill

	£000
Purchase of 100% of shares	90,000
Net assets acquired	(27,050)
Goodwill	62,950

Figure 4.13: Representation of goodwill



In this example, the goodwill is written down in 20 equal annual instalments of £3.1m. When qualifying assets are acquired rather than shares, some or all of the goodwill may be deductible against corporation tax. However, when shares are acquired, goodwill amortisation is not allowed to be deducted against corporation tax and is added back to calculate the tax charge.

Note that if a company's goodwill is impaired, a company will report a loss in the year equal to the reduction in the value of the goodwill. A distressed company may therefore report both reduced trading profits and a significant increase in losses due to the one-off impairment in goodwill. This one-off impairment charge has no impact on taxation.

Note 5 – overseas profit and double taxation

Where profits have been earned and taxed in another country, there are treaties between countries that are designed to avoid the same income being taxed a second time.

For most companies, the payment of corporation tax is due nine calendar months and one day after the end of the accounting period. Large companies must pay their tax by quarterly instalments. The first of these is due six months and 13 days from the start of the accounting period. Therefore, three payments are made before or immediately after the accounting year end and one three months later.

When shares are acquired the purchaser is responsible for the payment of tax relating to the prior year, but in most cases the acquisition price is adjusted to reflect this.

4.6 Summary of company corporation tax

The detailed worked example is intended to illustrate a number of important facts about the taxation of UK corporations, including buy-outs.

- Writing off goodwill may materially reduce reported profits/increase reported losses, but does not reduce corporation tax where shares are being acquired.
- Not all interest in leveraged buy-outs is deductible against corporation tax, only arm's-length interest is deductible.

- As a result of these disallowances, even companies reporting a pre-tax loss may nevertheless still pay significant UK corporation tax.
- Corporation tax paid by a company may be materially different to the tax liability recorded in its profit and loss account. This difference is disclosed in the notes to the audited accounts of all larger companies.
- When a strategy is implemented that improves profitability, generally more corporation tax will be paid, even in highly leveraged structures.

To appreciate fully the impact on UK tax revenues it is necessary to track the cash paid to advisers and bankers by the new company. The strength of the UK banking and professional services industry in private equity makes it likely, but not certain, that a high proportion of the tax revenues is generated by interest and fees.

4.7 What is investment due diligence?

Due diligence is the process that is employed to check, to the extent that it is possible, that the assumptions that underpin the value of an offer are not incorrect. The private equity industry has been instrumental in the development of best practice in pre-acquisition due diligence. It is argued by some that these processes gave the industry a material advantage in the overall market for corporate control. The focus of pre-deal investigations on the cash flows of the target not only underpins a valuation, but also enables the private equity fund to avoid many expensive investment mistakes by withdrawing from deals that are not viable.

Due diligence will cover all material relationships, contracts and assets of the target company using a combination of legal, accounting, market, insurance, environmental and any other specialist advisers.

Typically full due diligence will take not less than three or four weeks to complete and will be a condition of any initial offer a private equity fund makes.

The outputs of the due diligence process will be extensive and have often enabled private equity purchasers to use their enhanced knowledge to negotiate from a position of strength after the completion of diligence. This may have contributed to the reputation of private equity buyers for ‘chipping’ the agreed price prior to completion.

4.8 What is vendor due diligence and how does it impact risks/rewards?

To address the problems that can arise if due diligence is performed by the acquirer, it became increasingly common for vendors to commission due diligence on behalf of the purchasers: so-called ‘vendor due diligence’.

Vendor due diligence is provided and addressed to the purchaser by the authors once a headline transaction is agreed, but the initial scope of the review is set by the vendor who has the opportunity to review the reports before the purchaser does. Arguably, this reduces the risk of diligence-backed price chips close to completion. Furthermore, as it can be completed prior to agreeing a deal, it enables the process to be streamlined by several weeks. The counter argument is that any purchaser will wish to choose their own advisers and the terms on which they are working, which may not be those that would have been chosen by the potential purchaser.

The use of vendor due diligence increased as market activity increased. When transaction activity is low, it is widely expected to decrease as funders of acquirers, particularly banks, wish to use their own advisers rather than have them imposed by the vendors. This seems to be consistent with a view that vendor due diligence transfers risk to the purchaser or equivalently captures a greater share of the rewards of a transaction for the vendor rather than the purchaser.

4.9 Sensitivity analysis

Sensitivity analysis is often completed by the providers of due diligence services, but it is strictly not a diligence activity as it relates to the impact of changing assumptions rather than the evaluation of the realism of those assumptions.

Prior to any transaction, a wide array of sensitivity analyses will be undertaken on the financial projections to ensure that the financing structure is robust to all reasonable outcomes. Sensitivities in the particular example above might include:

- failure to achieve, or a delay in, the planned asset sales at the assumed price;
- delay or failure to reduce overheads or greater costs of restructuring;
- greater sales loss due to increased prices, or failure to achieve higher pricing resulting in failure to achieve enhanced gross profit margins;
- delay in, or failure to achieve, improved working capital management;
- a combination of any or all of the above timing differences and changes in outcome.

An alternative approach is to test the financing package by finding the limits at which the business is unable to service its capital structure. For instance, one might analyse by how much sales can reduce before the banking covenants are breached or, conversely, by how much sales can grow within the working capital facilities of the structure.

It can be seen that even in this relatively simple stylised model, there are a wide variety of potential outcomes against which a financial structure needs to be stress tested. This process entails a great deal of analysis by the various advisers to the transaction (for example accountants, industry consultants and market researchers) and the outputs of the analyses will form a key part of the negotiation between the private equity investors, the management and the bankers.

If the due diligence process results in the private equity investor having to make material changes to the assumed risks and returns there may be a renegotiation with the vendor. This may result in:

- a simple price reduction;
- deferring payment, possibly contingent upon achieving a certain outcome (eg, winning a particular revenue stream or selling a particular asset);
- the vendor co-investing alongside the funders to reduce the funding requirement and to share a portion of the risk identified;
- a failure to complete the transaction.

4.10 Exits and returns

In this final section, we illustrate the combined effects of financial engineering and value creation on the returns to the various participants in the transaction.

There are three questions to address.

1. How much is the enterprise value changed by the trading improvements within the company?
2. How much is the enterprise value changed by market conditions outside the company?
3. How is the value apportioned between the various participants in the transaction?

Table 4.15 below shows the projected value of the business each year on the assumption that it was sold on a debt free/cash free basis at a value calculated using a P/E ratio of 12 (ie, 12 times forecast EBITA less a full tax charge).

Table 4.15: Enterprise value and equity value at exit

Exit value	Year 1 £000	Year 2 £000	Year 3 £000	Year 4 £000	Year 5 £000
EBITDA	5,995	15,205	15,787	16,383	16,399
Notional tax charge	(1,679)	(4,257)	(4,420)	(4,588)	(4,592)
	4,317	10,947	11,367	11,795	11,807
P/E ratio	12.00	12.00	12.00	12.00	12.00
Gross capitalisation	51,799	131,369	136,402	141,546	141,684
Less:					
'A' senior	(26,667)	(16,951)	(12,714)	(8,476)	(4,238)
'B' senior	(13,000)	(13,000)	(11,905)	(10,809)	(9,714)
'C' mezzanine	(13,000)	(13,000)	(13,000)	(13,000)	(13,000)
'D' institutional loanstock – PIK	(49,720)	(54,692)	(60,161)	(66,177)	(72,795)
Cash/(overdraft)	4,190	2,908	6,313	10,165	14,360
Net debt	(98,196)	(94,736)	(91,467)	(88,297)	(85,387)
Net equity value	(46,398)	36,633	44,935	53,248	56,298
Equity value as % of enterprise value	na	28%	33%	38%	40%

Adding back restructuring costs

Assumed to be lower than entry P/E ratio for prudence

Note PIK roll-up increases value

Some models deduct exit fees and costs

The equity value initially reduces sharply then is projected to rise due to operational improvements. Thereafter equity value grows slowly and is due primarily to the accumulation of cash surpluses and debt repayment.

Table 4.16: Allocation of net equity value

Split of proceeds	% equity value	Year 1 £000	Year 2 £000	Year 3 £000	Year 4 £000	Year 5 £000
Management	17.5	0	6,411	7,864	9,318	9,852
Private equity investor	80.5	0	29,490	36,173	42,865	45,320
'C' mezzanine	2.0	0	733	899	1,065	1,126
Equity value	100	0	36,633	44,935	53,248	56,298
Management percentage of enterprise value	n/a		4.9%	5.8%	6.6%	7.0%

As we have emphasised throughout the analysis, it is the blended return on the total amount invested that concerns the private equity fund, not the return on the equity element of their investment. The effect on incremental value growth of the total investment including the PIK loanstock is summarised below.

Table 4.17: Projected share of exit enterprise value by investor

Split of proceeds	Year 1 £000	Year 2 £000	Year 3 £000	Year 4 £000	Year 5 £000
Net debt including mezzanine warrant	48,476	40,776	32,204	23,185	13,717
Private equity investor	3,322	84,182	96,334	109,042	118,115
Management	0	6,411	7,864	9,318	9,852
Total value	51,799	131,369	136,402	141,546	141,684
Debt	94%	31%	24%	16%	10%
Private equity investor	6%	64%	71%	77%	83%
Management	0%	5%	6%	7%	7%
	100%	100%	100%	100%	100%

It can be seen that the absolute value and the proportion of value that accrues to the private equity fund increases over time due to a combination of the effects of increasing enterprise value, de-leveraging by repaying bank debt and the effect of the PIK roll-up on loanstock values.

The increase in value can be analysed further to isolate the impact of operational performance improvements and the impact of the financial engineering.

Table 4.18: Reconciliation of the cumulative effects of operating performance and financial engineering on projected equity value at exit in years 2 and 3

	Year 2 £000	Year 3 £000
Change of multiple	5,469	6,356
Change in EBITDA	25,900	30,046
Change in enterprise value	31,369	36,402
Change in net debt	8,464	11,733
Change in equity value	39,833	48,135
% due to operating performance	79%	76%
% due to financial engineering	21%	24%
Total	100%	100%

The majority of return comes from efficiency improvements not financial engineering

The analysis in Table 4.18 shows that by year 3, approximately three-quarters of the increase in value is attributable to an increase in enterprise value and one-quarter to the effects of financial engineering. This is despite assuming a reduction in the exit EBITDA multiple when compared to the acquisition price. There are further analyses that can be undertaken to more fully understand the interconnection of operating performance, external market conditions and financial engineering, but these are outside the scope of this report.

Table 4.19: Split of proceeds on exit

Split of proceeds	Year 1 £000	Year 2 £000	Year 3 £000	Year 4 £000	Year 5 £000
Net debt including mezzanine warrant	48,476	40,776	32,204	23,185	13,717
Private equity investor	3,322	84,182	96,334	109,042	118,115
Management	0	6,411	7,864	9,318	9,852
Total value	51,799	131,369	136,402	141,546	141,684
Debt	94%	31%	24%	16%	10%
Private equity investor	4,190	2,908	6,313	10,165	14,360
Management	0%	5%	6%	7%	7%
	100%	100%	100%	100%	100%

The initial decrease in enterprise value falls on the equity and loan stock

Table 4.19 summarises the projected capital returns to each party at the end of each of the first three years. At the end of year 1, management’s equity has nil value, but by the end of year 2 it has accrued value. However, achievement of the forecasts thereafter does not significantly enhance their equity value. This is due to the fact that almost all the projected value increase after the bank has been serviced is appropriated by the loanstock interest roll up. This position will either encourage management to exit after the achievement of the turnaround, or create the incentives to take the business forward with a strategy that continues to generate above normal value, perhaps by acquisition or by new product development.

Whichever route is chosen, the objective of the capital structure is to create the circumstances that will encourage both the creation and the realisation of value in the business with an acceptable level of risk.

Table 4.20: Projected returns (IRRs) by participant (exit year 3, P/E = 12)

Projected rates of return	%
Senior debt	4.9
Mezzanine	16.2
Private equity investment	25.4
Management	150.5
Weighted cost of capital	15.5

The project rates of return to the various participants based upon an exit in year 3 on a P/E ratio of 12 are summarised in Table 4.20. The higher returns are correlated to the higher risks that each participant takes.

The final table shows the sensitivity of the returns to the private equity investor in this particular example to achievement of exit in a timely manner and highlights the performance against a target rate of return of 25%. Exit at a lower price or after a longer time period will have a significant impact on returns.

Table 4.21: Private equity investor blended returns – sensitised by year of exit and exit P/E ratio

IRR sensitivities Years of exit	Exit private equity ratio		
	10.00	12.00	14.00
Exit in year 3	16.3%	25.4%	33.3%
Exit in year 4	16.2%	22.3%	27.6%
Exit in year 5	15.0%	19.3%	23.1%

Investment 'base case' forecast returns

4.11 Closing remarks

In this section we have described in some detail the process and logic of a particular fictional, but nevertheless realistic, leveraged buy-out. We have attempted to illustrate the way that each of the financial parties to the transaction layers their investment and how the risk and returns increase as each layer is structured.

We have briefly discussed how due diligence is used to verify the assumptions behind the plan and how sensitivity analysis is used to stress test the financial structure.

We have provided a detailed example showing why loss-making private equity backed companies nevertheless often pay corporation tax. We highlight the fact that contrary to some less well-informed commentaries, interest on buy-out debt is not all tax deductible, and the rules on tax deductibility have significantly tightened, mainly prior to the more recent interest in private equity.

