

# Financial policy

## Introduction

Financial policy considers the near-term and long-term corporate strategy to determine which policy measures optimally support the execution of strategic objectives. The strategic financial operations are guided by a set of high-level and strategic policy directions, often approved at board level. Tactical financial operations are rather mundane, and require adequate and effective processes and controls. For example, the capital structure, and the composition of the debt and equity structures within the capital structure reflect a company's funding needs, its need for flexibility and risk tolerance, debt covenants, credit rating, asset-liability mix, dilutive effects on equity holdings, and utilization of debt capacity, among other issues.

Dividend policy considers investor demands, competitor dividend yields, and internal funding requirements, and is linked to cash-flow projections in the long-term financial plan. It is used as an important indicator to investors regarding management's expectations of cash inflows, outflows, and sustainability. For example, share buybacks may be preferred to special one-time dividends if they are tax-advantageous to investors, and because of their anti-dilutive and generally positive effect on share prices.

Financing, operating, and investing activities are thus guided by strategy, and at the same time limited by prudent guidelines. For example, treasury and risk management follow specific policy directions set by the senior executives and board. Almost all of the best in class companies reviewed have a policy of not actively trading financial derivative instruments for speculative purposes. Most of these firms also have clear risk tolerance limits, and use either the duration-based sensitivity analysis or value at risk (VAR) based measurements of risk exposures estimation.

Financial institutions are subject to more rigorous regulatory compliance requirements than non-financial corporates. For example, the capital adequacy standards set by the Basel II Accord require strict adherence to risk capital requirements. It was interesting to see that, although not required to do so, some European corporates, such as DaimlerChrysler and Siemens, follow the stricter capital adequacy guidelines that are set for financial institutions according to the Basel II Accord.

Financial policy may specify use of EVA as a corporate performance standard, or use of enterprise-wide risk management (EWRM) systems to track real-time risk exposures at a total company level. Financial policy includes requirements and processes for independent internal and external audits of corporate affairs and financials.

Accounting policy is a key area for corporate boards to be especially vigilant on, since corporate controllers, with a green light from the CEO and CFO, and in association with their accounting audit firms, can manipulate the financials “at-will.”

Optimizing corporate financial policy is clearly a multi-faceted task. It requires careful assessment of corporate strategy and its implications for financial requirements. Advances in financial analysis and insights can help in decision support, while real-time financial systems help in the timeliness of execution.

## Capital structure

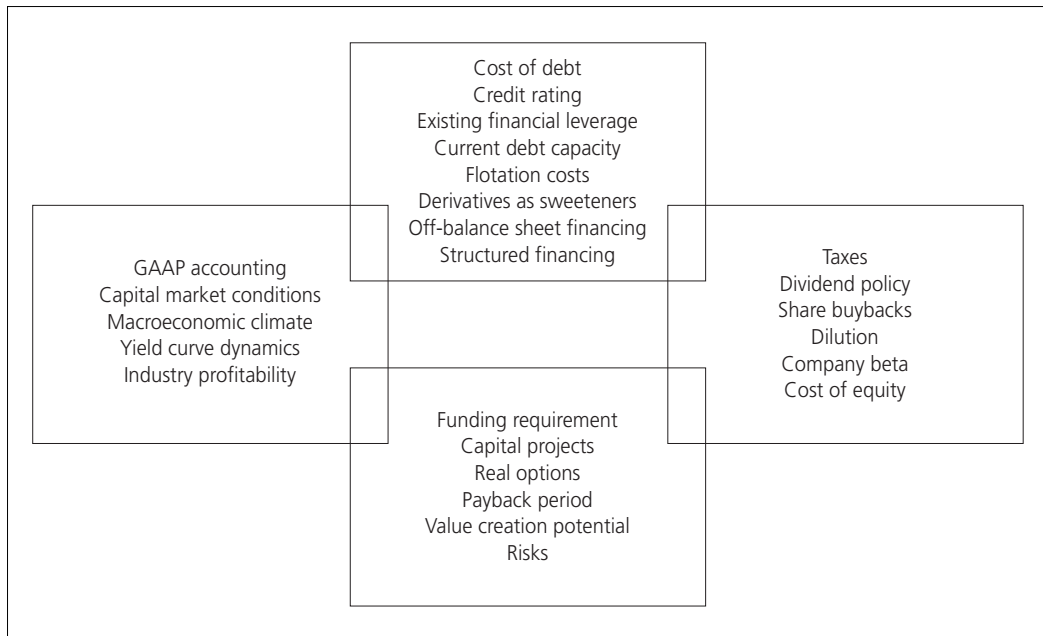
Capital structure management addresses this question: assuming the firm’s investment strategy is determined, what is the optimal proportion of debt and equity for the firm?

Just as the nature of the asset base impacts its rate of return, the structure of debt and equity impacts the firm’s cost of capital. For a wide variety of reasons, every company has its unique financial structure, resulting in financing costs that are very specific to that firm.<sup>1</sup> In its fullest sense, managing the liability side of the balance sheet involves determining not only the aggregate amount of debt to incur, but also the choice of maturities, the mix of fixed and floating rates, the use of options and other derivatives, and, in general, the selection of capital structure from the rich variety of alternatives available in the global capital markets.

Effective capital structure management focuses on the characteristics of the firm’s debt in a portfolio context. This can mean, for example, that new debt issues are structured to offset the interest rate risk of existing debt. It can also mean using the techniques of active liability management on outstanding issues to alter the characteristics of the debt portfolio.

Optimal capital structure means having the right balance of debt and equity financing in the business. Debt financing decisions for most corporations involves balancing a series of trade-offs involving cost, liquidity, choice of maturity, and the basis and frequency of interest rate resets.

In this light, the decision process of financing with debt typically represents a very large-scale, multi-variable risk management exercise. Effective planning to optimize these trade-offs requires a debt-financing plan well integrated into the operating and strategic fabric of the firm, that takes into account the drivers of optimal capital structure (see Figure 3.1)



**FIGURE 3.1 ■ Internal capital structure drivers**

Maintenance of adequate capital resources to meet diverse, ongoing funding needs and to deal with unforeseen contingencies is among the primary objectives of any CFO.

Some debt instruments have equity-like characteristics such as convertible debt, and some equity instruments have debt-like attributes like preferred stock. The exact level of fixed obligations may be different from traditional long- and short-term debt on the balance sheet. In addition, off-balance-sheet fixed obligations, like operating leases, should be capitalized to get a truer picture of effective debt obligations.

Since interest payments on debt are tax deductible, the effective cost of debt is lower than equity in most cases. Higher debt leverage also improves the return on equity measure of financial performance. Debt thus is an attractive funding source for companies, compared to equity. However, the cost of debt increases as leverage increases and credit ratings consequently deteriorate. Other things remaining equal, the benefits of debt are greater when tax rates are higher. Firms that have substantial non-debt tax shields, such as depreciation, should be less likely to use debt than firms that do not have these tax shields.

The types of debt financing used by a firm impact its overall cost of capital, or the weighted average cost of capital. For example, if a company's suppliers allow a long payment period, its accounts payable at all times would be larger than otherwise, possibly at a low cost. Similarly, if the company has a high proportion of short-term or floating rate debt, it may incur a lower cost of capital than another firm that uses more fixed-rate longer-term debt. However, with changes in market conditions, the relative financing costs would change.

As a firm increases debt relative to equity in its capital structure, the weighted average cost of capital initially decreases until a point, before increasing as a result of higher costs of debt. This is because of the interest tax shield. Eventually, higher cost of capital fully offsets the benefits of tax shields such as interest expenses, accounting depreciation, depletion allowances, investment tax credits, and tax-loss carry-forwards.

The financial leverage ratio that minimizes the weighted average cost of capital is the optimal debt-equity mix for the company since the firm value is maximized at that point, and beyond this point the firm value actually falls.

The actual rate of interest charged on incremental debt will depend, of course, on the credit rating of the company, and on the degree of leverage introduced into the capital structure by the new debt. The specific cost will be affected not only by current market conditions for all long-term debt instruments, but also as a function of the company-specific risk as perceived by lenders, underwriters, and investors.

Other costs implicit in raising long-term debt include legal and underwriting expenses connected with the issue, and the nature of covenants imposed by creditors. At times, a variety of specific provisions can involve implicit costs to the company.

In theory, the first Modigliani-Miller (MM) irrelevance proposition tells us that the value of a company is independent of its capital structure. In other words, financial leverage does not affect the value of the firm. According to the MM propositions, although debt appears to be a cheaper source of financing for a firm, issuing debt increases the risk of holding equity, thereby leading investors to demand a higher expected return on equity. This increase in the cost of equity capital exactly offsets the benefit of the cheaper debt in the firm's capital structure, leaving the overall cost of capital unchanged. However, imperfections in the capital market cause violations of certain MM assumptions. For example, unequal access of participants to the capital markets, taxes, and asymmetric information can all motivate firms to manage risk in a manner that is consistent with value-maximizing behaviour.

Risk management can add value when it reduces the firm's cost of capital or increases its expected future cash-flow. Empirical research suggests that generally, equity increasing transactions result in stock price decreases, while leverage increasing transactions result in stock price increases.<sup>2</sup> In practice, the optimal capital structure in the financial planning process is driven more by the need for external funds than specific attempts to reach an optimal capital structure. This can be explained by the pecking order hierarchy, according to which, debt is the second-best financing alternative after internal financing, and ahead of external equity. It may also be influenced by the transaction costs of issuance of equity versus debt, where the former is often the more expensive of the two.

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According to a survey of 176 corporate CFOs, 69 percent of respondents indicated a preference for the *pecking order hypothesis*.<sup>3</sup> In the pecking order theory, there is no well-defined optimal debt ratio. The attraction of interest tax shields and the threat of financial distress are assumed second-order. Debt ratios change when there is an imbalance of internal cash-flow, net of dividends, and real investment opportunities. Highly profitable firms with limited investment opportunities work down to lower debt ratios, while firms whose investment opportunities exceed internally generated funds borrow more.

## The life-cycle of the business

Any attempt to reach an optimal financial leverage must take into consideration the life-cycle of the business entity and its industry, and the ensuing business risks. High-risk businesses, for example, should have low-leverage financial strategies that allow sufficient bandwidth to play in times of demand volatility. Lower-risk businesses that have more stable cash-flows can afford to have more aggressive gearing.

If we look at Microsoft's business planning, for example, it is a mature company but sits on a huge cash balance. With an asset base of \$79.6bn, Microsoft had literally no debt and \$49.0bn of total cash and short-term investments on its books as of June 2003. We would therefore expect Microsoft to get more levered in the future.

The currency composition of debt and equity is crucial to the determination of the cost of capital. Companies have a choice of financing much of their global activity with base or parent's reporting currency debt, or with local currency denominated debt from outside sources.

In most cases, foreign subsidiaries carry only local currency debt to match local currency assets. This is often accomplished by the parent lending in the local currency of the subsidiary, regardless of whether third-party debt is in the base currency. The net result of such financing activity is that the asset, and hence the income, is in the local currency of the subsidiary, while the liability and the net interest expense are in the reporting currency of the firm.

This currency mismatch of revenues and expenses, and assets and liabilities is not clearly visible when each entity is separately analysed. However, the parent's reporting currency rate of return and cost of funds are being impacted by exchange rate movements.

Microsoft is both profitable and cash generative, but has only recently started paying dividends. The company does not have a formal stock repurchase plan. However, since its flotation in 1986, it has frequently bought back shares from its shareholders. The conservation of cash reduces the risk profile of Microsoft's business, thereby increasing its share price.

Capital structure choices of firms in developing countries are affected by the same variables as in developed countries, although the institutional features differ.<sup>4</sup> Both the Anglo-Saxon capital markets model and the Continental-German-Japanese banking models were studied by Booth *et al.* Industry average leverage, however, does not appear to be a significant factor in market valuations for companies. The market does not consider industry averages for leverage as discriminators for firms' financial leverage.<sup>5</sup>

Financial leverage rises with increasing cash-flow requirements of the business, whether for investments, capital expenditures, or working capital needs. Focusing on the cash-flow cuts though many of the accounting issues.

The cash-flow statement provides the best information about a highly leveraged firm's financial health, given the overriding importance of generating cash to retire debt. Business enterprises typically go through phases of development. Accordingly, it is necessary to condition the financial plan of the business based on its stage of maturity.

From negative cash-flow start-ups to heavily positive cash generating mature companies, optimal cash management is key to maintaining appropriate levels of financial liquidity. Consolidation is a typical feature of mature industries, where companies seek to bolster their diminishing profit margins by capturing economies of scale. Declining companies, on the other hand, struggle to generate sufficient cash as a consequence of meagre earnings from deteriorating core businesses.

A careful evaluation of capital structures shows a common pattern in the way highly successful companies have financed themselves. This pattern corresponds to the corporate life-cycle.<sup>6</sup>

When a company first begins, it typically is dealing in a new product market. In this introductory stage, the best companies will generally have very little debt. There is plenty of risk to shareholders in the product market, and hence no reason to add more risk by leveraging the capital structure. At this stage of the company's life, it has little taxable income, so the tax shield from any meaningful level of debt is irrelevant.

In addition, in this *introductory phase*, a company must often move extremely quickly on new investment opportunities. If its actions are restricted by debt covenants, the most important projects may have to be delayed while the company negotiates with its creditors. On balance, many start-up companies view the expected opportunity losses on foregone projects as far more costly than avoiding tax payments.

Private equity is often sought by a company at the start-up phase of its growth-cycle. The private equity market is one of the fastest growing capital markets for corporate finance. In fact, the amount of capital raised through private equity has competed directly with initial public offerings (IPOs) and gross issuance of public high-yield corporate bonds. Private equity is an important source of funds for new firms, financially distressed firms, private mid-market firms, and public firms in need of buyout capital. The most widely recognized use of private equity is to support the rapid growth of start-up high-tech firms such as Dell Computers and Microsoft. In the 1980s, huge amounts of private equity were used in large mergers and take-overs. Limited Partnerships represent the major intermediary in the private equity market.<sup>7</sup>

In the second stage of the life-cycle, the *growth stage*, the company may add some debt as it expands output significantly. The company is still risky, however, so debt might be kept at very low levels. Again, the company may have little taxable income, so tax shields from interest expense may have very little value.

The third stage is *maturity*. At this point, investment opportunities that promise spectacularly large net present values are relatively scarce. The value of the tax shields on debt

financing rises, and the expected cost of having to pass up extraordinary opportunities falls. At maturity, the company should be distributing cash to its shareholders in a reasonably predictable manner. Therefore an increasing proportion of a company's capital structure is in the form of debt, as creditors find the stability of cash-flows attractive. Excess cash is distributed to shareholders typically in the form of dividends and share repurchases.

The fourth stage is *decline*. If it is at all possible, now is the time for the company to incur substantial debt, distribute the proceeds to shareholders, and allow the creditors to bear the very real risk of default. Lenders, of course, recognize this risk and will not lend the company all it wants. Nevertheless, at this stage, debt financing is most ardently sought.

The basic cash-flow, defined as net income plus depreciation plus deferred income tax, is an indicator of financial flexibility. A rise in the cost of debt financing may lead to greater optimal debt levels since higher interest rates generate greater tax benefits, which in turn dictate more debt despite its higher costs.<sup>8</sup>

Usually, highly leveraged firms continuously monitor market conditions for opportunities to reduce debt through strategic financial transactions. This might include sale of non-core and marginally profitable business units or product lines. Leveraged recapitalizations may be optimal for companies that have low stock market valuation. Deleveraging through debt-for-debt or debt-for-equity exchanges can be used to restructure the financial obligations.

However, sudden swings in market capitalization sometimes reveal more about the dynamics of the market than they do about short-run changes in companies' earnings prospects. In the 1980s, for example, when interest rates were high, hybrid debt – combining a conventional debt issue with a derivative such as a forward, swap, or option – was used by riskier firms to reduce their interest costs to manageable levels.<sup>9</sup>

In some cases, companies are using hybrid debt to lower their risk profile and thus avoid the higher funding costs now associated with being a riskier corporate borrower. In other cases, hybrids are providing access to debt capital that would otherwise be denied on any terms.

Leasing is an important financing vehicle for firms in most countries. For example, in the US, equipment under lease accounts for nearly a third of the total annual new equipment investment in recent years.<sup>10</sup>

According to FASB 13 a lease is a *capital lease* if:

- it transfers ownership of the asset to the lessee by the end of the lease term; or
- it contains an option to purchase the leased property at a bargain price; or
- the lease term is equal to or greater than 75 percent of the asset's estimated economic life; or
- the present value of the lease payments equals or exceeds 90 percent of the fair value of the leased asset.

If the lease does not qualify as a capital lease, it is an operating lease. For accounting purposes, a capitalized lease is treated much like any other owned asset. It must be booked as an asset with a corresponding liability, depreciation is taken over time, and the interest portion of each payment is expensed. Payments in operating leases are expensed as incurred, and thus are harder

on the earnings. If a firm has limited debt capacity, a lease displaces debt in the firm's capital structure. An exception worth mentioning is the case of the all-equity firm. Some profitable high-growth firms are successful in generating positive economic returns and shareholder wealth, but do not have any meaningful debt in their capital structure.

#### EXAMPLE

Microsoft is a case in point. Despite its successful business model, it has little or no debt in its capital structure. This is because Microsoft's free cash-flow has consistently exceeded its Capex, suggesting that the firm rarely needed to tap the debt markets for expansion. In addition, Microsoft's capital intensity generally has been very low, indicating that it has a relatively small amount of collateralizable assets.

To the extent that debt is utilized in the capital structure, return on equity is boosted as long as after-tax interest cost does not exceed earnings power. Companies with different degrees of leverage experience different costs of debt as well. Costs of debt will rise as lenders assess the risks of high debt levels. Optimal debt levels can be derived from financial optimization analysis subject to realistic constraints, since no management is completely free to vary the capital structure at will.

*Optimal debt levels can be derived from financial optimization analysis.*

There are practical as well as legal and contractual constraints on any company to maintain some normalcy on the liability side of the balance sheet. Even though no absolute rules exist as to leverage optimization, lenders will impose upper limits on the amounts of debt capital to be utilized by any potential borrower.

For manufacturing companies, the amount of long-term debt will normally range between 0 and 50 percent of their capitalization, whereas public utilities will range between 30 and 60 percent. Trading companies with highly liquid assets might have even higher debt proportions. At the same time, restructuring and corporate reengineering are shifting both capital requirements and debt levels in many instances. For example, outsourcing as part of corporate strategy might serve to reduce the need for capital, including debt, because part of the asset base is effectively transferred to suppliers.<sup>11</sup>

## Impact on market value

The most important issue around the use of financial leverage, however, relates to its impact on the company's overall market value. Financial theory has firmly established that introduction of financial leverage into an unleveraged capital structure will raise the market value of the company because of the change in total return to debt and equity holders – but only up to a point.



The lift in market value is in fact a function of the corporate tax deductibility of the interest cost of debt. As debt levels increase, the value of this favorable tax shield impact increases. The trade-off is simply between the cash-flow implications from the obtainable tax savings and the cash-flow implications from financial stress and even failure. Therefore, the optimal level of leverage will differ greatly among companies, industries, and management styles. This policy decision ought to be as objective as possible, where financial optimization techniques can provide essential guidance to its determination.

Finding the optimal degree of leverage for a business requires a careful assessment of potential financial risks, which are a function of the variability of business performance, the outlook for the markets served, competitive conditions, strategic positioning, and so on. In short, successful application of financial leverage is much more than a numerical exercise.

Empirical studies have shown that fast-growing companies tend to create superior value through a capital structure with a conservative debt level, allowing them to maintain flexibility in accessing financial markets. This is generally accompanied by low dividend payout and emphasis on internal funds sources in financing growth.

Consistent with the pecking order hypothesis, equity is raised only when absolutely necessary to maintain profitable growth, whereas new debt is limited to relatively modest leverage targets. In contrast, slow-growing mature companies that generate sizable cash-flows can create superior value by disposing of the excess cash through share repurchases, reducing the equity base.

The effect of restructuring and the more successful performance achieved by many companies in the first half of the 1990s has led to a shift toward more conservative capital structures for some firms, with the notable exception of complex, partially hidden debt structures in certain companies, of which the failed Enron is a prime example.

Strong cash-flows obtained from disposals of under-performing businesses and leaner ongoing operations have often been applied to reducing the temporarily inflated debt proportions of many companies. This was in part a reaction to the heavy use of leverage during the 1980s. At the same time, imprudent acquisitions at premium prices can seriously impair a company's capital structure through increased leverage.<sup>12</sup>

The drive to create shareholder value in the past decade has included a rethinking of sustainable capital structure proportions in relation to business performance and outlook, not just from the standpoint of minimizing the cost of capital. Ultimately, of course, we must view the optimal capital structure in the broad context of the interrelated investment, operational, and financing aspects of the business.

A typical corporation funds its debt needs through a combination of instruments. Contingent convertibles have gained some popularity in recent years, as a method to lower funding costs of newly issued debt. For example, some companies have issued zero-interest cost debt by attaching a conversion option to the debt issue, but the option is contingent on the price level of the stock. Since contingent options do not need to be accounted for under GAAP, this does not dilute the earnings per share number.<sup>13</sup>

A committed revolving line of credit may provide liquidity directly or indirectly by supporting the issuance of commercial paper. Term debt may have been issued in public capital markets or through a private placement, or it may be provided by the bank or group of banks that provided the revolving credit. Interest rate swaps may have been arranged to hedge the interest rate risk of certain underlying debt. The possibilities are diverse and sometimes complex.

The foundation of a debt financing plan is a cash-flow forecast to determine expected funding needs. Additionally, an assessment of factors that might cause the funding needs to change is necessary. The importance of carefully weighing the amount of flexibility needed in the future depends on the degree of risk of having insufficient funds available, offset by the cost of providing more funds than are necessary.<sup>14</sup>

## Providing adequate liquidity

Failure to meet a future payroll due to lack of liquidity represents an obvious and severe problem. However, maintenance of excess liquidity to guard against this risk is not free. The most common means of providing liquidity is a committed line of credit facility with a bank or syndicated among a group of banks. Such an arrangement will specify the term and maximum amount of the commitment. It will contain a negotiated set of financial and other covenants, and it will specify pricing considerations on both a drawn and undrawn basis.

A company's debt rating and financial position determine the interest rates to be charged on outstanding loan balances. The line of credit must be secured by paying a nominal commitment fee. While pricing fluctuates with the level of liquidity and degree of competitiveness in the banking system, it is often a function of the extent of existing and potential overall relationships.

The assessment by a CFO of the appropriate amount of liquidity should include an analysis of the possible extent and likelihood of material deviations from a base cash-flow forecast. A key element of this overall assessment is a judgment regarding the firm's financial flexibility and capacity to fund liquidity needs by internal means as needs arise, or through traditional external sources.

Tighter working capital management often improves the internal cash position. However, on a larger scale, the sale of non-strategic assets, or deferral of planned capital investments provides another recourse. Obviously, consideration of such possible actions naturally includes careful thought regarding the probable effect on the execution of a corporation's overall strategy.

The choice of maturity for a given debt issue balances the likely duration of the need for funds with the relative cost of the various maturities in the context of the weighted average maturity of the existing debt. This context is a very important consideration.

The basic framework for a maturity analysis is a review of the pattern and extent of future cash-flows from operations, net of financing costs (interest expenses and dividends), but before accounting for the effect of debt maturities. On this basis, companies match amounts and timing of debt maturities to the respective projected dates of positive future cash-flows. This process is called "duration-matching." The objective is to match, as closely as possible, the weighted average maturities of the assets and liabilities.

However, in the real world, needs change, creating mismatches. Additionally, moderate intentional mismatches appropriately result from balancing future refinancing risk against current fund availability and cost considerations.

When faced with this series of trade-offs, some CFOs opt for the longest available maturity of debt when the need to borrow arises, on the belief that refinancing risk is minimized by this technique. Refinancing risk is the risk of providing adequate liquidity in the future to refund the excess of a maturing debt obligation over available funds from operations.

This cost is potentially severe. Longer maturities typically carry higher interest rates through a combination of higher-reference treasury yields in a positive-sloping yield-curve environment. Investors demand higher spreads from treasuries for longer-maturity corporate debt.

The interest rate structure is an important consideration with respect to the interest rate risk exposure of the firm. A borrowing is typically priced at a fixed or a floating interest rate that resets periodically based on prevailing market rates.

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***Fixed rates offer the luxury of certainty.***

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In a sense, the terms fixed and floating are not precise because a “floating” rate is actually “fixed” for a short time, say one month. Fixed rates offer the luxury of certainty, and cash-flows necessary to service the interest component of fixed-rate borrowings can be forecast with precision.

Floating rates, in contrast, can and do change, sometimes abruptly. Floating rates are often indexed to the London Interbank Offer Rate (LIBOR). Cash-flows necessary to service a liability priced against this floating benchmark is inherently imprecise to predict.

From a borrower’s perspective, the attraction of floating rates is that a series of floating rate borrowings sequentially rolled-over will more often than not cost less than fixed-rate borrowing. This is due to yield curve and credit spread issues, and because there is an additional cost to be paid for the certainty of the fixed-rate borrowing as the borrower shifts the price risk to the lender.

The more interest rate risk a firm is willing to assume, the more expected interest savings will accrue to the benefit of the firm. Striking the appropriate balance between fixed and floating rates on the debt portfolio requires an analysis that models the effect of reasonably possible changes in interest rates on hypothetical mixes of fixed and floating rate exposure. One method that is heavily applied in practice is the duration-convexity approach, which assumes parallel shifts in the interest rate structure to determine possible impact on the value of the debt securities and interest rate expenses.

There is evidence that increases in leverage are followed by improvements in operating efficiency.<sup>15</sup> Empirical research shows evidence of modest improvements in operating efficiency at firms involved in leveraged buyouts and leveraged recapitalizations.<sup>16</sup>

In Palepu and Deuis’s study of 29 firms that increased debt substantially, they report a median increase in the return on assets of 21.5 percent. Much of this gain seems to arise out of cutbacks in unproductive capital investments. Leveraged recapitalizations – where companies increase their debt ratios by borrowing money to buy back stock or pay dividends – are one form of financial management to get to an optimal capital structure.

In practice, firms often do not use their debt capacity to the fullest. One of the reasons is that they like to preserve some cushion for unexpected future funding or investment needs. Firms that borrow to capacity lose this flexibility and have no fall-back funding if they do get into trouble or suddenly find a very attractive investment opportunity. The value of the firm may be maximized by preserving some flexibility to take on future projects as they arise.

## Financial flexibility

Financial flexibility refers to the capacity of firms to meet any unforeseen contingencies that may arise or take advantage of unanticipated opportunities, using the funds they have on hand and any excess debt capacity they might have available. The value of flexibility can be analysed using the option pricing framework. A firm maintains large cash balances and excess debt capacity in order to have the option to take projects that might arise in the future.

The value of the option will depend on the excess return that the firm earns on its projects that provides the value for flexibility. If flexibility is viewed as an option, its value will increase when there is greater uncertainty about future projects.

Firms that have large and unpredictable demands on their cash-flows will value flexibility more and borrow less than firms with stable investment requirements. Thus, even the most successful firms in the high-technology arena such as Intel and Microsoft use very little debt in their capital structure. As firms and industries mature, excess returns on projects drop off and project requirements become more stable. These changes increase the capacity of firms to borrow money.

While theory suggests that firms should pick the mix of debt and equity that maximizes firm value, the most common approach is to set leverage close to that of the peer group to which the firm belongs. If firms in the peer group have similar financial characteristics in terms of tax rates and cash-flow variability, this approach may provide a guideline to arriving at an optimal. However, since individual firms have unique characteristics, this approach is likely to be sub-optimal.

External debt financing reduces a firm's flexibility for future financing because the firm reaches its debt capacity with increasing leverage. Bond covenants also curtail management's freedom to manage the business. Therefore, CFOs and boards prefer retained earnings as a source of capital. The pecking order theory applies very well to actual practice.

There is some empirical evidence to support a pecking order hierarchy. In a survey by Pinegar and Wilbright, CFOs of multinationals ranked their preference for source of funding as follows:<sup>17</sup>

Rank of priority	Funding source
1	Retained earnings
2	Straight debt
3	Convertible debt
4	External common equity
5	Straight preferred stock
6	Convertible preferred

External debt is strongly preferred over external equity as a way of raising funds. Given a choice, firms would much rather use straight debt than convertible debt in spite of lower interest costs of the latter. The primary reason for not issuing external equity seems to be the avoidance of dilution, while the main reason for using debt is the maximization of stock prices.

The costs of securing external funding is also a factor in the optimal leverage decision. Floatation of debt is an expensive business. Equity issuance is even more expensive. And the costs, as a proportion of the issue, become larger the smaller the size of the issue. This suggests that fewer and larger issues are more desirable than numerous smaller ones. In comparison, retained earnings do not carry these fees and costs.

Trade-offs between the costs and benefits of the various forms of debt and debt-like financing instruments form the basic strategic considerations in approaching the topic of optimal capital structure. Formulation of a debt financing plan that considers disparate and often conflicting aspects of funding needs is necessary to judge debt financing risk in an organized and thoughtful manner.

The choice of a target debt-to-capital ratio is only the first step in corporate financial leverage optimization. The structure of a firm's liability portfolio should reflect the nature of its assets and revenues, as well as its near and long-term business plans.

For many mature industrial corporations, debt is viewed as an ongoing component of the capital structure, providing desirable tax benefits without impairing the credit risk of the firm. As debt matures or is called in, it is refinanced at prevailing market rates.

There are, of course, exceptions to this approach. Project financing is an important example. Typically, the funding will be structured to match the operating life of the project and, as closely as possible, the revenues generated by the project.

Asset-liability mismatches can have unfavorable consequences. For example, if funds are raised before actually needed, the issuer suffers "negative arbitrage": interest earned on the deposited cash typically falls far short of the borrower's cost of funds. Other problems arise if the issuer needs to retire debt before the completion of the project.

Financial institutions, for example, practice a continual discipline of asset-liability management in order to limit the interest rate exposure of their financial assets. Since financial institutions typically have high gearing, often exceeding 80 percent, the need to avoid the danger of funding mismatches is exacerbated.

Industrial firms typically have a debt-to-capital ratio between 30 to 40 percent.<sup>18</sup> However, the internal structure of the debt portfolio can be quite varied. If the firm's operating income is particularly vulnerable to interest rate upswings, long-term fixed-rate debt will constitute the bulk of the debt. This may be tempered by a desire to reduce annual interest expense by using investments with shorter maturities, and repaying them with proceeds from fresh issues. For example, the company can roll its short-term commercial paper over and over again.

While reducing interest costs, this strategy exposes the issuer to "roll-over" risk – the uncertainty about the level of the firm's financing rate when outstanding debt matures. The trade-off between cost and risk is often the key criterion by which financing decisions are made.

One way to reduce the effective cost of long-term debt is to introduce refunding provisions into the bond's structure. Other sweeteners such as conversion options or put options can be utilized. Interest rate swaps are also used to restructure interest payments to more desirable terms. In order to increase flexibility, firms often attach a call option to the debt issue in exchange for a slightly higher coupon.

## Structured financial vehicles

Structured financing vehicles can be used in various ways to create novel, and sometimes unusual, financial structures. In the area of liability-linked structures, issuers who prefer fixed-rate financing, but can obtain a preferential rate by issuing floating-rate debt often enter into a swap as the fixed-rate payer to effect this conversion.

Issuers who want to obtain fixed-rate debt but want the flexibility to call the bond and reissue at a lower rate if interest rates fall often attach a call option to the original debt issue in exchange for a higher coupon, or issue a straight bond and buy a receiver's swaption in order to convert the bond into a synthetic floating rate liability.<sup>19</sup>

In addition to changing the callability or puttability of an issue, borrowers often use swaps, caps, and floors to alter the interest rate exposure based on the shape of the yield curve. Debt structures can be reengineered in many ways. For example, a fixed-rate structure can be converted into a floating-rate structure by engaging in a receive-fixed swap. Alternatively, a floating-rate debt issue can be converted to a fixed-rate structure by engaging in a pay-fixed swap.

Asset-linked structures include swap-linked notes that are essentially short-term notes with a redemption value linked to swap rates. Deleveraged floating rate notes have coupons that are a fraction of constant maturity treasury yields. Index amortization swaps are designed as a hedge against asset or mortgage-backed securities because the principal is amortized according to a preset formula linked to prevailing interest rates. Differential swaps have also been successfully used by many companies. These are a special variation of a basis swap where both rates are floating, but one is indexed to the LIBOR of a foreign currency, while all payments are made in a single currency.

Although the liability side of the balance sheet may thus be modified over time, most firms opt to have a capital structure that is within the norm of its industry, although their interest rate hedging policies vary considerably. Companies differ widely on the ratio of short-term financing to all debt carried at a time, and the degree to which interest rate risk is hedged through fixed-rate borrowings.

Many companies set interest expense or interest rate ceilings below what they would like their interest costs to remain. Consequently, their hedging policy is influenced by where the current cost of debt is in relation to the ceiling.

## Alternative financing vehicles

Alternative financing vehicles include:

- Line of Credit
- Revolving Credit Agreement (RCA)
- Commercial Paper (CP)
- Reverse Repurchase Agreements (RRA)
- Bankers' Acceptances (BA)
- Asset-based Borrowing (securitization)
- Leasing (operating or capital lease)
- Mezzanine Financing (MF)

A *Line of Credit* is an agreement in which the lender gives the borrower access to funds up to a maximum amount over a specific period of time. Lines of credit are generally used to provide short-term financing, to back-up commercial paper, or to provide a liquidity cushion. Lines of credit are usually revolving, meaning the borrower may borrow, repay, and reborrow funds during the commitment period.

A *Revolving Credit Agreement (RCA)*, also known as a revolver, is a facility that allows the borrower to borrow, repay, and reborrow up to a defined amount. RCAs are contractual commitments with loan agreements, including covenants. Usually there is a commitment fee on the unused portion, as well as a facility fee.

*Commercial Paper (CP)* is an unsecured promissory note issued by a company for a specific amount, generally issued at a discount, with maturities ranging from overnight to 270 days for public issues.

In a *Reverse Repurchase Agreement (RRA)*, a company holding securities in its short-term portfolio sells the securities to a dealer with an agreement to buy them back at a specific price at a specific time. In effect, the company is borrowing cash from the dealer, and using its securities as collateral for the loan.

A *Banker's Acceptance (BA)* is a negotiable short-term instrument used primarily to finance the import, export, or domestic shipment of goods or the storage of readily marketable staples.

*Asset-Based Borrowing (ABB)* represents a form of secured borrowing based on pledging accounts receivable, inventory, or equipment as collateral for a loan.

*Securitization* is a financing technique by which a company issues debt securities backed by a pool of its selected receivables such as mortgages, auto loans, credit-card receivables, equipment leases, or other kinds of low-risk receivables. Assets suitable for debt securitization usually have a predictable cash flow stream to retire the issue and a low level of historical loss experience. Securitization is a type of off-balance sheet (OBS) financing. Neither the debt nor the assets securing the financing appear on the company's balance sheet. By removing debt financing from the balance sheet, securitization improves some companies' financial ratios.



## Operating and Capital Leases

*Leases* provide an alternative to long-term loans for financing capital equipment. One motivation for leasing rather than borrowing and buying an asset is to avoid recognition of the debt on the lessee's financial statements. Lease capitalization eliminates this advantage. Leases may be structured to qualify as operating leases to achieve desired financial reporting effects and capital structure benefits. Operating leases allow lessees to avoid recognition of the asset, and report higher profitability ratios and indicators of operating efficiency. Reported leverage is also lower because the related liability for contractual payments are not recognized.

Short-term, or *operating leases* allow the lessee to use leased property for only a portion of its economic life. The lessee accounts for such leases as contracts reporting only the required rental payments as they are made. Because the lessor retains substantially all the risks of ownership of leased property, the leased the asset remains on its balance sheet and are depreciated over their estimated economic lives; rental payments are recognized as revenues over time according to the terms of the lease.

Alternatively, longer-term leases may effectively transfer all, or substantially all the risks and rewards of the leased property to the lessee. Such leases are the economic equivalent of sales with financing arrangements designed to effect the purchase (by the lessee) and sale (by the lessor) of the leased property. Such leases – referred to as finance or *capital leases* – are treated for accounting purposes as sales. The asset and associated debt are carried on the books of the lessee, and the lessor records a gain on 'sale' as the inception of the lease. The lessee depreciates the asset over its life, and treats the lease payments as payments of principal and interest. The financial reporting differences between accounting for a lease as an operating or capital lease are far-reaching, and affect the balance sheet, income statement, cash flow statement, and associated ratios.<sup>20</sup>

## Mezzanine Financing

The need for additional financing, whether for expansion, acquisition, or liquidity, is a crucial element for the future growth of a business. Particularly in the senior debt market, *Mezzanine Financing (MF)* is an increasingly important capital option for growing middle market companies. In the venture capital world, MF is a debt instrument that bridges a gap in time between earlier rounds of venture financing and a liquidity event – usually an acquisition, refinancing or an initial public offering (IPO). This financing is generally structured as subordinated debt with warrants with a term of not more than three years. This facility is expected to be deployed very quickly with little due diligence on the part of the lender. It is therefore priced fairly aggressively with the lender seeking a return in the 30–40 percent range. However, the company is offered strong incentives to pay the loan off prior to the end of the term. If the loan is paid off early, the amount of warrants is reduced. Conversely, if the loan is not paid off within the agreed upon term, the amount of warrants is increased.

We can also look at MF in terms of the capital structure rather than elapsed time. Here, MF is used to fill a void that can exist in a company's capital structure between equity and



senior secured debt. It is generally structured as subordinated debt with warrants or some other equity feature. MF has been used extensively by private middle market companies and has been particularly useful in financings for buyouts, recapitalizations, acquisitions and growth where there is a capital need beyond what the senior secured lender is willing to provide and more than the equity provider can afford or is willing to invest. MF is typically an unsecured facility with a term of five to eight years, depending upon the term of the senior facility, the needs of the company and the term appetite of the lender.

Transactions are usually structured with no amortization, with principal due at the term of the facility or with principal amortized over the last several years of the facility. A company will generally use MF because it does not have the business assets to borrow sufficient senior debt to complete the contemplated transaction and/or the owners/managers want to retain control or minimize equity dilution. MF providers generally take minority ownership positions and seek board observation rights rather than actual board representation, though they often reserve the right to gain board representation if things do not go as planned. The combination of the debt and equity features of MF enables both the lender and the borrower to take advantage of the benefits of debt and equity while minimizing the negatives.<sup>21</sup>

In the following example, we analyse the optimal financial leverage ratio for XYZ Corp., which currently has 24 percent debt in its capital structure. Based on the assumption that costs of both debt and equity are likely to rise as a company gets more leveraged, the assumptions shown in Figure 3.2 were made regarding the relative costs of debt and equity capital at alternative leverage ratios.

**EXAMPLE**

XYZ Corp. (\$ Million)

<i>Debt ratio(%)</i>	<i>WACC (%)</i>	<i>Blended cost of debt(%)</i>	<i>Cost of equity (%)</i>	<i>Debt rating</i>
0	12.00	6.5	12.0	AAA
10	11.49	6.5	12.3	AAA
20	10.77	6.5	12.4	A+
30	9.97	6.6	12.4	A–
40	10.28	7.0	14.1	BB
50	10.76	11.4	14.1	B
60	10.89	11.4	16.1	CCC
70	10.88	13.3	16.1	CCC
80	10.88	13.3	19.8	CCC
90	11.05	15.5	19.8	CC
100	11.57	17.8	19.8	CC

**FIGURE 3.2** ■ Analyzing the optimal financial leverage ratio

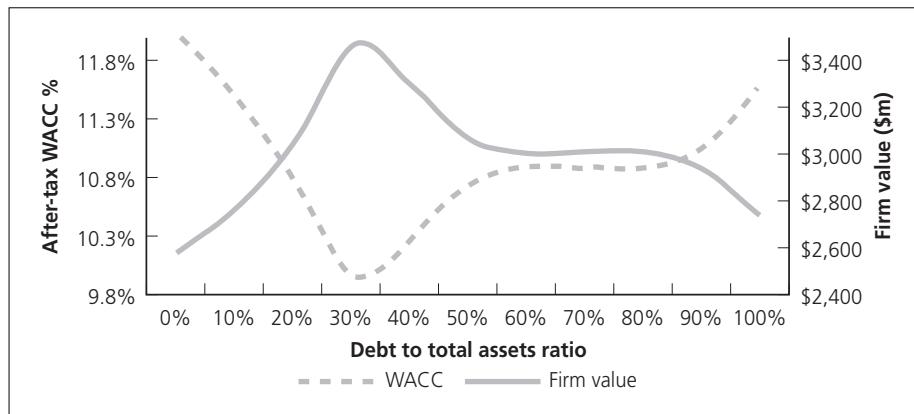
As the company's debt leverage increases, its higher financial risks will result in lower debt ratings, thus leading to higher costs of debt. But since the higher leverage risk also impacts the volatility of earnings of the company, its beta will rise, thus increasing its cost of equity as well.

XYZ Corp.'s current valuation is shown in Figure 3.3.

XYZ Corp.	Actual	Forecast				
Valuation	2003	2004	2005	2006	2007	2008
Return on equity	47.9%	29.4%	23.5%	17.2%	12.8%	9.9%
Retention rate	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%
Sustainable growth rate	43.1%	26.4%	21.2%	15.4%	11.5%	8.9%
Debt ratio	24.00%	24%	24%	24%	24%	24%
Cost of debt	6.5%					
Cost of equity	12.4%					
WACC	10.44%					
<b>Corporate value</b>	<b>\$3,212 m</b>					

**FIGURE 3.3** ■ Current valuation

At the current 24 percent leverage structure, the value of the company is \$3,212m. However, when we use a financial leverage optimization program, we find that, given the graduated cost of capital schedule, the optimal financial leverage ratio is 39 percent, since it maximizes the value of the firm.



**FIGURE 3.4** ■ The optimal leverage ratio

<b>RUN</b>	<b>#1: 8/12/2003 12:28:26 AM</b>
<b>Cell to Optimize</b>	'ProForma (Target Debt)'\\$G\$15
<b>Optimization Goal</b>	Maximum Mean
<b>RESULTS</b>	
<b>Valid Sims</b>	2305
<b>Total Sims</b>	2305
<b>Original Value</b>	3212.494036
<b>+ soft constraint penalties</b>	0
<b>= result</b>	3212.494036
<b>Best Value Found</b>	3944.040741
<b>+ soft constraint penalties</b>	0
<b>= result</b>	3944.040741
<b>Occurred on trial #</b>	1823
<b>Time to find this value</b>	1:45:14
<b>Stopped Because</b>	Optimal Value Found
<b>Optimization Started At</b>	10:21:19 PM
<b>Optimization Finished At</b>	12:28:12 AM
<b>Total Optimization Time</b>	2:06:51
<b>Adjustable Cell</b>	'ProForma (Target Debt)'\\$G\$15
<b>ORIGINAL</b>	0.24
<b>BEST</b>	0.390158409
<b>CONSTRAINTS</b>	
<b>ADJUSTABLE CELLS</b>	
<b>Description</b>	N/A
<b>Solving Method</b>	Genetic Algorithm: RECIPE
<b>Number of Time Blocks</b>	N/A
<b>Const/Prec Range</b>	N/A
<b>Mutation Rate</b>	0.1
<b>Crossover Rate</b>	0.5
<b>Input Cell/Range Constraint</b>	0<'ProForma (Target Debt)'\\$G\$15<1
<b>OPTIONS</b>	
<b>Population Size</b>	50
<b>Pause On Error</b>	FALSE
<b>Graph Progress</b>	FALSE
<b>Update Display</b>	Off
<b>Log Simulation Data</b>	TRUE
<b>Random Seed</b>	11253072 (Randomly Chosen)

**FIGURE 3.5 ■ RiskOptimizer summary for optimal financial leverage**

The type of optimization modeling shown in the example requires simulation optimization, as it has logical multi-nested if-then-else type functions in the model that make the cost of capital a discontinuous function, and not a monotonically increasing function of leverage.

We used *Palisades' RiskOptimizer* software to run the optimization program using Latin Hypercube simulation and genetic algorithm (GA) technology to solve the problem, and the results are shown in Figure 3.5.

The detailed business plan corresponding to the optimal financial leverage is shown in Figure 3.6.

XYZ Corp. (\$ Million)

Assumptions	2003				2003		
Net revenue growth	6%				Current liabilities	70	
Current year sales	\$1,000				Equity	400	
Interest rate on debt	7%				Beg retained earnings	100	
Dividend payout ratio	10%				Current assets	150	
Tax rate	35%				Property, plant, and equip.	900	
Cost of goods sold / net revenue	41%				Accumulated depreciation	300	
SG&A / net revenue	12%						
Depreciation rate	10%						
Liquid asset interest rate	9%				Sustainable growth rate	4%	
Current assets / net revenue	15%				Target Debt to asset ratio	39%	
Current liabilities / net revenue	7%						
Net fixed assets / net revenue	60%						
PP&E / net revenue	90%						

XYZ Corp. (\$ Million)

	Actual	Forecast				
Income Statement	2003	2004	2005	2006	2007	2008
Net revenue	1,000	1,060	1,124	1,191	1,262	1,338
- Cost of goods sold	410	435	461	488	518	549
= Gross profit	590	625	663	703	745	790
- Sales, general, and admin	120	127	135	143	151	161
= EBITDA	470	498	528	560	593	629
- Depreciation and amort.	90	104	120	138	158	180
= EBIT	380	394	408	422	436	449
- Interest expense	12	34	46	74	125	228
+ Interest Income	-	48	85	177	353	705
= Income before Taxes	368	408	448	526	663	926
- Taxes	129	143	157	184	232	324
= Net Income	239	265	291	342	431	602
Beg. Retained earnings	100	315	554	816	1,123	1,511
Dividends	24	27	29	34	43	60
Ending retained earnings	315	554	816	1,123	1,511	2,053
Balance Sheet	2003	2004	2005	2006	2007	2008
Cash and cash equivalents	-	529	949	1,969	3,923	7,837
Current assets	150	159	169	179	189	201
Property, plant, and equip.	900	1,040	1,198	1,376	1,577	1,802
Accumulated depreciation	300	404	524	661	819	999
Net fixed assets	600	636	674	715	757	803
Total assets	750	1,324	1,792	2,863	4,870	8,840
Current liabilities	70	74	79	83	88	94
Debt	180	516	699	1,116	1,899	3,448
Stock	400	418	461	847	1,759	3,788
Retained earnings	100	315	554	816	1,123	1,511
Equity	500	733	1,014	1,663	2,882	5,299
Total Liabilities and equity	750	1,324	1,792	2,863	4,870	8,840

FIGURE 3.6 ■ Detailed business plan

XYZ Corp. (\$ Million)	Actual	Forecast					
<b>Free Cash Flow</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	
Net Income	239	265	291	342	431	602	
+ Interest expense	12	34	46	74	125	228	
+ Income taxes	129	143	157	184	232	324	
- Interest income	0	48	85	177	353	705	
= EBIT	380	394	408	422	436	449	
- Cash taxes	133	138	143	148	152	157	
= NOPAT	247	256	265	274	283	292	
+ Depreciation and amort.	90	104	120	138	158	180	
= Gross cash flow	337	360	385	412	441	472	
- Increase in net working capital		5	5	5	6	6	
- Capex		140	158	178	201	226	
= Free cash flow		215	222	229	235	240	
<b>XYZ Corp. (\$ Million)</b>	<b>Actual</b>	<b>Forecast</b>					
<b>Valuation</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	
Return on equity	47.9%	36.1%	28.7%	20.6%	15.0%	11.4%	
Retention rate	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	
Sustainable growth rate	43.1%	32.5%	25.8%	18.5%	13.5%	10.2%	
Debt Ratio	24%	39%	39%	39%	39%	39%	
Cost of Debt	6.6%						
Cost of Equity	12.4%						
WACC	9.24%						
<b>Corporate Value</b>	<b>\$ 3,944</b>						

**FIGURE 3.6 ■ Detailed business plan (continued)**

The fact that costs of debt and equity actually increase as a firm's leverage increases reflects that firms with high financial leverage are riskier as they have a higher probability of facing financial difficulty in down-time.

When we perform an analysis of financial leverage optimality, we find that the company's optimal leverage ratio is 39 percent, because that is where the corporate value is maximized, and after-tax WACC minimized.

***Pro forma financial models do not incorporate any risk or uncertainty factors.***

Typically pro forma financial models do not incorporate any risk or uncertainty factors. In other words, these models see a static view of the world. All variables and their projections in the model are deterministic – they are assumed to be point estimates and not have any variability.

Financial projections made under this methodology are unrealistic since, in reality, the future cannot be forecasted with certainty, and some element of randomness is always present. There are three methods to refine our static view of pro forma financials:

- sensitivity analysis
- scenario analysis
- simulation analysis.

*Sensitivity analysis* is the crudest of the three methods. It takes the base case financial model and creates an upside and a downside to the forecasts based on optimistic or pessimistic assumptions of the future state-of-nature of key variables.

*Scenario analysis* is similar to sensitivity analysis, but is more sophisticated because it incorporates changes in multiple variables at the same time as it creates the optimistic and pessimistic scenarios.

The most sophisticated method for incorporating risk into the pro forma financial plan is to specifically address the variables that are uncertain and assign appropriate probability distributions to them, so that the entire model now becomes a stochastic programming model – *simulation analysis*. The cash-flows and valuations are now not point estimates, but actually represent empirical probability distributions, with mean, standard deviation, and higher moments.

Since the pro forma financial models and future projections of cash-flow, sales and interest rates, among other variables, are fairly uncertain, a static view of the future is clearly inappropriate. In simulation analysis, uncertainty and risk are incorporated into the financial model by assigning appropriate probability distributions to the uncertain variables.

In our model predicted in Figures 3.2–3.6, we have assumed that revenue growth, interest rate on debt, interest rate on cash balances, SG&A/revenue ratio, and cost of goods sold/revenue ratio follow a normal probability distribution with appropriate variances. This makes the model stochastic, and the financial leverage optimization problem more realistic.

## Operating leverage

Operating leverage refers to the rate at which net income escalates as sales volume rises over the break-even sales volume. In terms of costs, it can also be defined as the relative proportion of fixed costs in the total operating cost structure. Capital-intensive companies usually have more fixed costs compared to labor-intensive companies.

Since product demand is a function of the business cycle which follows periodic patterns of high and low growth, the resulting fluctuation in demand presents challenges in optimally managing the supply of products or services. In particular, down-turns in demand cause profit margins to come under greater pressure the more operating leverage a firm has, since the high fixed costs cannot be cut down immediately but rather must continue to be incurred even though revenue growth has fallen.

High operating leverage thus causes more earnings volatility in the business cycle, and limits management flexibility in terms of real options. Earnings volatility is in turn related to cash-flow volatility. The best single predictor of bankruptcy is a declining trend of cash-flow to total debt.<sup>22</sup>

Similar companies with similar net incomes can have substantially different enterprise values. Likewise, companies with similar interest coverage can have substantially different default risk.

Operating leverage = percentage change in operating income/percentage change in sales

As a practical matter, operating leverage is largely determined by the nature and line of business that has industry-specific average capital intensities. The capital investment plan in the business and financial planning process takes into consideration the need to maintain adequate levels of fixed capital investments to run the business. However, operating risks can become unduly high with excessively high fixed costs in the business.

Therefore, operating leverage optimization should be attained by considering alternative methods of production or service delivery that use more variable costs in the operating cost structure, or outsourcing certain functions that allow reduced operating leverage.

A company with relatively large fixed costs has a high break-even sales level. Even a modest economic downturn will reduce its capacity utilization below the rate required to keep the company profitable. Such a cost structure poses a substantial risk of earnings falling below the level needed to cover the company's interest expense. A predominantly variable cost structure, on the other hand, aids financial flexibility. The analytical value of understanding the company's cost structure dynamics is thus enormous for planning purposes.

## Dividend policy

Dividends form an important part of total shareholder return in the form of current income. The other part is composed of capital gains which remain unrealized until the shares are sold. Long-term investors such as institutional shareholders and pension funds that do not speculate in the market find dividend-paying stocks particularly attractive since they provide current income. However, dividends are less important to investors that seek capital gains as the main source of cash returns. The composition and nature of the shareholding structure thus impacts dividend policy.

Dividends are distributions of profits to owners of the business, and an effective market-signaling mechanism regarding future cash generation expectations of the business. Empirical research shows that dividend changes provide information about future company profitability, and are positively related to earnings changes in each of the two years after the dividend change.<sup>23</sup>

For corporate management, the optimal dividend policy must be a function of the ongoing cash requirements of the business, and the existing shareholding structure, among other factors. If institutional shareholding is an insignificant fraction of the shareholder structure, share buybacks may well present a more attractive avenue of residual income distribution since its anti-dilutive effects reduce outstanding shares thus increasing prices. Share buybacks also increase earnings per share, and reduce future cash dividend payouts as a result of net reduction in outstanding shares.

If cash dividends are paid, investors look at the comparative dividend yields across companies in the same industry, and therefore the level of dividends paid ought to consider the relative attractiveness of the shares to the investor community, given average share prices.

In addition, the sustainable growth rate (SGR) of the company – the rate of organic revenue growth which can be supported by the existing capital structure without draining the financial resources – is higher the lower the dividend payout.

$$\text{SGR\%} = \text{Return on equity} \times (1 - \text{Dividend payout ratio})$$

If the company wished to grow at a rate higher than the SGR, additional funds will have to be raised from new debt or new equity, thus changing one or more financial policy constraints. If the company grows at a lower rate than the SGR, some of the funding potential could be used to pay increased dividends, buy back outstanding shares, or retire debt instead of providing an expanded asset base.

Assuming stable corporate financial policy conditions, as a growing company experiences increasing sales revenues, it will require proportional increases in working capital, as well as proportional investments in fixed assets and other assets supporting operations. Funding of these requirements comes from debt, equity, or internal sources.

Dividend policy, insofar as it directly affects retained earnings and therefore the level of internal funding capacity, is an important determinant of capital structure policy. Given stable policies and performance, the rate of increase in shareholders' equity will represent the rate of expansion of the balance sheet necessary to support the growth.

The financial planning model can be used to determine the optimal level of dividend payout which would enable the company to meet its revenue and earnings growth projections, in keeping with the traditional requirement that fluctuations in dividends are not well received by the market.

Empirical evidence corroborates that, in the US, fluctuation in corporate earnings are much higher than corporate dividends, attesting to the fact that dividend smoothing is a real market phenomenon, practiced by major corporations.<sup>24</sup> Firms are typically reluctant to change dividends, making for sticky dividend policies. They also remain concerned about their capability to maintain higher dividends in future periods. Finally, they need to consider the negative market view of dividend decreases and the consequent drop in the stock price.

Notwithstanding the levels to which corporations go to preserve them, dividends must be viewed as a potential source of financial flexibility in a period of depressed earnings. Despite the benefits that financial flexibility confers, maintaining a funds cushion such as a large cash balance or retained earnings is not universally regarded as a wise corporate policy.

According to this argument, management should dividend all excess cash-flows to shareholders, where excess cash-flows are defined as cash-flows in excess of that required to fund all of a firm's projects that have positive net present value when discounted at the relevant cost of capital. Clearly, financial flexibility can translate directly into operating flexibility when tight credit conditions make it difficult to finance working capital needs.

Several factors influence the dividend policy of a firm. In many countries, dividends are not tax-deductible at the corporate level, and are fully taxable for recipient investors. This may explain the increase in share or stock repurchases in recent years. The flexibility of the



stock repurchase plan allows management to fine-tune its leverage over time. A stock repurchase would be a more effective means of taking advantage of, and eventually correcting, the underpricing of the firm's stock in the market. Since selling shares rather than collecting dividends has a more favorable tax consequence, institutional shareholders will pressure firms to consider the tax consequences of their payout policy to those shareholders.

Recent empirical research suggests that stock repurchases are paid out of temporary increases in free cash-flow, while dividends payments or increases are paid from free cash-flows that are more permanent and reliable. Stock repurchases are pro-cyclical, while dividends increase steadily over time. In addition, market price reaction has been found to be greater for a dividend increase than the announcement of a stock repurchase program, which is rational given that the former implies a more permanent increase in cash-flows.<sup>25</sup> However, some shareholders prefer the share-repurchase alternative since it defers part of the tax liability.<sup>26</sup>

Dividend payments and equity repurchases divide stockholders and bondholders. A firm that has built up a large cash reserve but has very few good projects available needs to make a decision about what to do with the cash balances. Stockholders in this firm may benefit if the cash is paid out as a dividend or used to repurchase stock. Bondholders, on the other hand, will prefer that the firm retain the cash, since it can be used to make payments on debt, thereby reducing default risk.

## Effect on bond prices

If increases in dividends are bad news for bondholders, bond prices should react negatively to the announcement of such increases. Empirical evidence supports this hypothesis. Bond prices decrease following the announcement of dividend increases, while they are relatively unaffected by dividend decreases. At the same time, stock prices increase following the announcement of dividend increases.<sup>27</sup>

Bondholders can protect themselves against such loss by restricting dividends in the bond covenants to a certain percentage of earnings or by limiting dividend increases to a specified amount. One of the by-products of the conflict between stockholders and bondholders is the introduction of strict bond covenants that reduce the flexibility of firms to make investment, financing, or dividend decisions.

A firm's dividend policy tends to follow the life-cycle of the firm. High-growth firms with great investment opportunities do not usually pay dividends, whereas stable firms with larger cash-flows and fewer high-return investment projects tend to pay out more of their earnings as dividends.

Not surprisingly, just as high-growth firms tend to pay out less dividends, high-growth countries pay out less dividends in the aggregate than more advanced mature economies. For instance, Japan had much higher expected growth in 1982–84 than the other G7 countries and paid out a much smaller percentage of its earnings as dividends. The dividend payout ratios of companies in emerging markets are much lower than those in the G7 countries.<sup>28</sup>

In the US, corporate dividends are double-taxed, but Germany taxes corporate retained earnings at a higher rate than corporate dividends. In general, publicly listed firms pay lower dividends than closely held firms.

There are two widely used measures of dividend policy. Dividend yield provides a measure of that component of total shareholder return that comes from dividends, with the balance coming from price appreciation.

$$\text{Dividend yield} = \text{Annual dividends per share} / \text{Share price}$$

$$\text{Expected return on stock} = \text{Dividend yield} + \text{Price appreciation}$$

Some investors use dividend yield as a measure of risk and as an investment screen, that is, they invest in stocks with high dividend yields. Studies indicate that stocks with high dividend yields earn excess returns, after adjusting for market performance and risk. One rationale as to why dividends are preferred to capital gains is that dividends are certain, whereas capital gains are more uncertain. Risk-averse investors therefore prefer dividends.

An argument against dividends compared to share repurchases has to do with tax treatment: dividends create a tax disadvantage for investors because they are usually taxed much more heavily than capital gains. Consequently, firms will be better off either retaining the money they would have paid out as dividends or repurchasing stock.

Since the stock price tends to drop ex-dividend, investors who receive higher dividends will find themselves losing an equivalent amount in price appreciation, in present value terms.

Some firms pay dividends in years in which their operations generate excess cash. They take their long-term investment and funding needs into consideration, even as they attempt to return excess cash to shareholders. If the excess cash is a temporary phenomenon, resulting from an unusually good year or a non-recurring event, and the firm expects cash shortfalls in future years, firms prefer to retain the cash to cover these shortfalls. Another course followed is to pay “one-time” excess dividends.

Optimal dividend policy considers the composition and nature of shareholders. The dividend clientele effect refers to the tendency of investors to buy stock in firms that have dividend policies that meet their preferences for high, low, or no dividends. The existence of a clientele effect has some important implications. It suggests that firms attract investors partly pursuant to their dividend policies. In addition, firms are likely to have some difficulty changing dividend policies.

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*The existence of a clientele effect has some important implications.*

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## Changes in dividend policy

Financial markets examine every action a firm takes for implications for future cash-flows and firm value. When firms announce changes in dividend policy, they convey information to markets. By increasing dividends, firms create a cost to themselves, since they commit to paying

these dividends in the long-term. The fact that they are willing to make this commitment indicates to investors that they have the capacity to generate higher cash-flows on a sustainable basis.

On the other hand, decreasing dividends operates as a negative signal largely because firms are reluctant to cut dividends. Thus firms that take this action signal to the market that cash-flows are expected to suffer sustained declines. Consequently, such actions lead to a drop in stock prices.

The question of how much to pay in dividends is intimately connected to the financing decisions made by the firm, that is, how much debt the firm should carry. Firms that want to change debt leverage can do so by changing their dividend policy. Increasing dividends increases leverage, and decreasing dividends reduces leverage.

Firms that increase dividends may harm bondholders by increasing their default risk. In response to this threat to their interests, bondholders often write in specific covenants on dividend policy into bond indentures. These covenants effectively restrict the payment of dividends, and often play a role in determining a firm's dividend policy.

Given the pros and cons of paying dividends, and the lack of consensus on the effect of dividends on value, recent research provides evidence that CFOs of multinationals believe that their dividend policies and payout ratios affect firm value and operate as signals of future prospects.

## Alternatives to dividends

Dividends represent just one way of returning value to shareholders. There are other approaches that may provide more attractive options to firms, depending on their stockholder characteristics and their objectives. These include equity repurchase, which is anti-dilutive, and forward contracts to buy equity in future periods.

The most widely used alternative to paying dividends is to use cash to repurchase outstanding stock. There are three widely used approaches to buy back equity:

- repurchase tender offers
- open market purchase
- privately negotiated repurchases.

In a *repurchase tender offer*, a firm specifies a price at which it will buy back shares it intends to repurchase, and the period of time for which it will keep the offer open, and invites stockholders to submit their shares for the repurchase. This approach is used primarily for large equity repurchases.

In the case of *open market purchases*, firms buy shares in the market at the prevailing market price. In terms of flexibility, an open market repurchase affords the firm much more freedom in deciding when to buy back shares and how many shares to repurchase.

In *privately negotiated repurchases*, firms buy back shares from a large stockholder in the company at a negotiated price.

In the last decade, an increasing number of US firms have used equity repurchases as an alternative to paying dividends. The rationale for this includes the advantages this method offers:

- Equity repurchases are one-time returns of cash to shareholders in the form of capital gains, and do not carry the commitment to continue payment in future periods.
- The decision to repurchase stock affords firms more flexibility to reverse themselves and/or spread the repurchases over a longer period than a special one-time dividend.
- Equity repurchases may offer tax advantages to stockholders.
- Equity repurchases are anti-dilutive and increase earnings per share.
- Equity repurchases may be used as a tool to manage the market price of the stock by buying up stock when its prices are declining.

Empirical studies show that stock and bond prices react positively to share buybacks. Furthermore, the increase seems to be permanent rather than transitory.<sup>29</sup>

In many countries, corporate earnings distributed as dividends face both the corporate income tax and the individual income tax. This “double taxation” leads to a combined marginal tax rate of up to 60 percent in many cases. By contrast, interest is deductible to the corporation and thus only faces taxation at the individual level. A review of tax policies in 30 industrial countries finds that nearly all major nations provide partial or full relief of dividend double taxation.

Dividend tax policy for nations in the Organization for Economic Cooperation and Development, based on data from the OECD, Ernst & Young, and various country-specific sources, found that a variety of approaches are used to provide dividend tax relief. A dozen OECD countries give individuals a tax credit that either fully or partially offsets the double-taxation of dividends. Countries offering partial tax credits include Canada, France, and the UK. Countries providing credits that fully offset double-taxation include Australia, Finland, Italy, Mexico, New Zealand and Norway. In Norway, the combined corporate and individual top tax rate on dividends is just 28 percent, less than half the US top rate of 60 percent. The most common form of dividend tax relief is providing a tax rate on dividends that is lower than the top ordinary rate on wages. About half of OECD countries have a lower, often flat, tax rate on dividends, including Austria, Belgium, the Czech Republic, Denmark, Iceland, the Netherlands and Poland.

Some countries, including Finland, Norway, and Sweden, have “dual income tax systems” that impose high rates on wage income, but lower flat rates on capital income, including dividends and capital gains. Two countries, Germany and Luxembourg, offer a 50 percent dividend exclusion to individuals. That means that if a shareholder receives \$1,000 in dividends, \$500 would be tax-free. Greece fully exempts domestic dividends from individual taxation (a 100 percent exclusion). Dividends can be given parallel treatment to interest by allowing corporations to deduct dividends at the corporate level. The Czech Republic and Iceland allow corporations to partially deduct dividends. Only Ireland and Switzerland do

not offer relief from dividend double taxation among the 30 OECD countries. High-dividend tax rates damage the economy by creating numerous distortions. First, high-dividend taxes add to the income tax code's general bias against savings and investment. Second, high-dividend taxes cause corporations to rely too much on debt rather than equity financing because interest is deductible against the corporate income tax but dividends are not. Highly indebted firms are more vulnerable to bankruptcy in economic downturns. Third, high-dividend taxes reduce the incentive to pay out dividends in favor of retained earnings. That may cause corporate executives to invest in wasteful or unprofitable projects. Also, it is harder for investors to accurately value firms when they do not receive a regular hard cash dividend stream. Fourth, high and uneven tax rates on dividends and other types of capital income greatly increase financial engineering efforts to avoid taxes, which ends up wasting resources and confusing investors.<sup>30</sup>

In the US, the recent "Jobs and Growth Tax Relief Reconciliation Act of 2003", signed into law in May 2003, reduces a variety of individual income tax rates, including for equity investors, the rates on dividends and capital gains. Income tax rates on corporate dividends are lowered generally to 15 percent (however, for individuals in the lowest tax brackets, the dividends tax rate will be as low as 5 percent) from previous rates as high as 38.6 percent, the highest ordinary income tax rate. The tax on long-term capital gains (for stocks held at least one year) is lowered to 15 percent from 20 percent for sales incurred after May 5, 2003. The rates are in effect through 2008, and then will return to pre-enactment rates unless extended. Investors during this period will be able to retain 85 percent of dividends and capital gains. The reduced tax rates are generally applicable to US individual investors in US corporations and to a range of non-US equities and American Depositary Receipts (ADRs) issued by entities that satisfy the definition of "qualified foreign corporations." The reduced rates are not available for investors who hold share for a limited period. Specifically, the stock must be held for more than 60 days during the 120-day period beginning 60 days before the date on which the stock becomes ex-dividend with respect to the dividend in question. For these purposes, the more than 60-day holding period generally will be tolled for periods where the taxpayer has substantially diminished risk of loss with respect to the stock through various hedging techniques.<sup>31</sup>

## Pricing strategy

"There is always a price that maximizes profit."

– Robert Dolan, Harvard Business School

Companies use product-line pricing as a strategic instrument for revenue and profit maximization. There are alternative pricing strategies employed by companies in order to achieve this goal.

The determination of the optimal price for a product is a complex exercise that needs to factor the following variables into the decision process:

- product/service market positioning/target segment
- customer willingness to pay
- degree of product differentiation/availability of substitutes
- price elasticity of demand and supply
- revenue and profitability impact
- industry competitive structure
- degree of rivalry
- bargaining power of suppliers
- product life-cycle
- government regulations on pricing
- internal cost structure/contribution margins
- capacity utilization
- barriers to capacity adjustment
- buyer and supplier concentration
- product perishability
- demand and supply factors
- efficiency of price shopping
- brand loyalty
- industry growth rate
- consumers affinity to product
- scale economies
- bundling opportunities
- alternative distribution channels.

In the late 1970s, the most prominent strategic thinking of the day focussed on the importance of market revenue shares. In the words of an extremely well known *Harvard Business Review* article “Market Share: A Key to Profitability,” the route to long-term profitability was seen to be through building revenue market share – foregoing short-term profit if necessary, and reaping profits from the business as it matured.<sup>32</sup> “Cash cows” for the firm were those businesses that had high market share in low-growth industries.

The environment in the twenty-first century has seen a shift in this thinking. In one industry after another, the aggressive pursuit of revenue market share has led to over-capacity, price-cutting, and profits for nobody. Firms that are enjoying higher margins are following profitable markets, customers, and products.

The focus is shifting from revenue market share to a broader conception of industry profitability. Price impacts not only market share but also the size of the market and the value of a market share point. McKinsey has articulated this point, describing the dimensions of a fundamental transformation that is taking place in competitive dynamics. First among the dimensions of change is a redefinition of objectives from market share to market surplus.

What matters is not share of market, but share of scarce market profits...“market surplus” will replace market share as the measure of success. Companies – and their marketers will take a much wider view of their industry... They will think not just about their own profits, but also about maximizing both the total profits in their industry – the market surplus – and their companies’ share of these profits.<sup>33</sup>

Few companies proactively manage their business to create the conditions that foster more profitable pricing. The difference between price setting and strategic pricing is the difference between reacting to market conditions and proactively managing them.<sup>34</sup>

*Strategic pricing* is the coordination of interrelated marketing, competitive, and financial decisions to set prices profitably. It requires anticipating price levels before beginning product development. The only way to ensure profitable pricing is to reject early those products for which adequate value cannot be captured to justify the cost.

Strategic pricing requires that management take responsibility for establishing a coherent set of pricing policies and procedures, consistent with the strategic goals of the company. Abdicating pricing responsibility to the sales force or to the distribution channel is abdicating responsibility for the strategic direction of the business. Perhaps most important, strategic pricing requires a new relationship between marketing and finance. Strategic pricing is actually the interface between marketing and finance.<sup>35</sup>

However, research shows that few companies apply a coherent and strategic approach to developing optimal pricing for their products, and instead apply simple cost-plus-margin pricing plans.<sup>36</sup> Cost-plus pricing is, historically, the most common pricing procedure because it carries an aura of financial prudence. Financial prudence, according to this view, is achieved by pricing every product or service to yield a fair return over all costs, fully and fairly allocated. In theory, this is a simple guide to profitability; in practice, it is a blueprint for mediocre financial performance.<sup>37</sup>

The problem with cost-driven pricing is fundamental: in most industries, it is impossible to determine a product’s unit cost before determining its price, because unit costs change with volume. This cost change occurs because a significant portion of costs are “fixed” and are allocated to a unit level to determine full unit cost. Since these allocations depend on volume, which changes with changes in price, unit cost is a moving target. To solve the problem of determining fully allocated unit cost, cost-based pricers are forced to make the assumption that they can set prices without affecting volume. This failure to account for the dynamic price–volume–cost interactions leads to sub-optimal pricing.

*Value-based pricing* is becoming more popular than cost-based pricing, since it starts with the customer, and the value proposition to the customer is derived from an understanding of customer willingness to pay.

Cost-based pricing:

Product → Cost → Price → Value → Customers

Value-based pricing:

Customers → Value → Price → Cost → Product

Most companies now recognize the fallacy of cost-based pricing and its adverse effects on profits.<sup>38</sup> They realize the need for pricing to reflect market conditions. As a result, many have taken pricing authority away from financial managers and given it to sales or product managers. In theory, this trend is consistent with value-based pricing since marketing and sales are that part of the organization best positioned to understand value to the customer.

In practice, the misuse of pricing authority to achieve short-term sales objectives often undermines perceived value and depresses profits even further. The optimal solution is therefore to have both marketing and finance functions work as a team to determine pricing strategies for the long-term sustainable value creation for the company.

The purpose of value-based pricing is to price more profitably by capturing more value, not necessarily making more sales. Pricing at whatever customers are willing to pay may not be the optimal strategy, since sophisticated customers will often under-price their willingness to pay. This is not to say that customer willingness to pay should be discounted, only that it need not be taken as the final word. Pricing should instead reflect its true worth, which is a function of both costing and customer willingness to pay. Also note that both the cost side and the customer willingness to pay change over time with new technologies and changing customer preferences.

Finally, consider the policy of letting pricing be dictated by competitive conditions. Managers will often reduce the profitability of each sale simply to achieve the market share goal. Strategically, prices should be lowered only when they are no longer justified by the value offered in comparison to the value offered by the competition. Although price-cutting is probably the quickest, most-effective way to achieve sales objectives, it is usually a poor decision financially, unless forced by competitive conditions. This is because prices, like taxes, are sticky upwards. It is easy to add value to the customer value proposition by lowering prices, but a company needs to explain itself in ten different ways to the customer if it increases prices when competitors have not. Market share can be lost.

## The goal of pricing

The goal of pricing should be to find the combination of margin and market share that maximizes profitability over the long term. Often, the most profitable price is one that substantially restricts market share relative to the competition. Godiva Chocolates, BMW cars, Georgio Armani clothing, Cartier Jewelry, Bang & Olufsen audio systems, Chanel perfumery, and other luxury product suppliers would no doubt

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*The goal of pricing ... to find the combination of margin and market share that maximizes profitability over the long term.*

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all gain substantial market share if they priced closer to the competition. It is doubtful, however, that the added share would be worth forgoing their profitable and successful positioning as high-priced brands.

Given actual estimates of the likely customer and competitor reactions to a price change, there are different analytical techniques that can be used to derive optimal short- and long-term price points that maximize profits. However, cost allocations are difficult to make at the product-level. Semi-variable costs are typically a mix of multiple components of fixed and variable costs, making product level price optimization in a multi-product firm difficult.

For corporations, pricing strategies can form a basis for competitive advantage. Corporations need to achieve operating margins that provide enough cushion to cover all of the fixed costs as well as the variable costs of the product or services. However, pricing strategy for revenues or market share maximization will be different from that for profit maximization. Goals therefore need to be clarified at the outset.

There are two main concepts in cost-based pricing:<sup>39</sup>

- *Absorption cost pricing* adds a fixed margin to the average total cost per unit of output.
- *Variable cost pricing* only considers variable costs per unit so that the resulting margins contribute to covering fixed costs.

Beyond a certain volume of sales, that is the break-even point, the incremental units contribute to profits. However, these alternative cost-based pricing strategies are inward focused, and present a price to the market that may be out of tune with consumer willingness to pay, and how that willingness changes at different price levels. This is where the price elasticity of demand becomes a very useful tool, which is simply the price coefficient in a log regression of sales volume on price.<sup>40</sup>

However, pricing is much more an art than a science, and successful pricing decisions cannot be based on costs alone, and must consider customer willingness to pay, competitive response, and production capacity utilization. In practice, some degree of product differentiation is a necessary condition for any pricing leverage. Differentiation is achieved by unique attributes of products or services, or by branding. Brand image and marketing play a pivotal role in supporting demand.

It becomes increasing difficult to maintain product differentiation in a commoditizing market. As the product matures, changing prices out of line with inflation trends or industry levels can risk customer dissatisfaction and a large drop in demand for products that have highly elastic demand and many substitutes.

In these cases, corporations often trick consumers by changing the product name – giving it a marketing or packaging spin – to increase or decrease prices for what is essentially the same product. When competitive conditions or falling demand cause margin pressure, margins are often maintained by lowering the quality of the product unbeknownst to the customer.

When a new product is introduced in the market, for example, *price skimming strategy* is rarely feasible when the differentiation is not explicit. In these cases, a lower price

penetration strategy becomes the default course of action. However, one specific version of demand-oriented penetration strategy is worth mentioning – *progressive segmentation*, that is, using a penetration strategy for the operational product, and skimming strategy for the associated consumables. Gillette uses this strategy with its razors, which themselves cost very little, but the consumable blades are expensive. Many automobile companies use similar pricing strategies for their parts business in a captive monopoly market.

## Pricing strategies

Pricing strategies are also very different for fixed price off-the-shelf consumable products as opposed to negotiated price products that tend to be larger ticket durables, service contracts, or real estate purchases. Financial institutions, for example, employ first-degree price discrimination at the point of sale based on the borrower's credit history and risk profile. The price for its product is the interest rate that can be fixed or variable. Other pricing techniques include bundling, discounting, financing, and utilization of alternative channels.

Integrated simple pricing, flat-rate pricing, incremental-use pricing, and pre-paid pricing are examples of pricing tactics for engineered cash inflow. The web, for example allows producers to cut distribution intermediaries to reach consumers directly. However, the more complex the product, the less the e-channel is likely to be used as an effective distribution channel.

Traditionally, wholesalers and retailers add a mark-up to the price they buy in the product to cover overhead and sales costs and yield a profit. The manufacturer is therefore often unable to dictate the ultimate selling price of products as distributors may manipulate margins. Relationships with channel partners therefore become a key competitive differentiator.

In order to maximize profits, corporations should not attempt to squeeze as much producer surplus as they can when the customer is a repeat purchaser. Market size and growth dynamics during the life-cycle of the product determines the maximum value that producers can generate from each product. When additional sales volume is a viable option, a rational pricing policy will share the surplus so that the customers consistently find superior value in the purchase decision.

Besides, competitive conditions limit management flexibility in any mature product segment. Consumer tastes and preferences, and the availability of complements and substitutes, need to be factored into strategic pricing. Customer willingness to pay can be influenced by adding sweeteners such as financing arrangements, warranties, or superior customer service as a competitive differentiator.

Within the corporation's manufacturing process, transfer pricing should be consistent with the implicit equilibrium market prices of the products consumed internally, so that cross-subsidization is minimal.

Pricing strategists endeavor to develop trade policies so that receivables are a low share of revenues, and days' sales outstanding is a small number. Inventory management and accounting policies such as FIFO versus LIFO will affect pricing economics as well.

Strategic pricing is complex as it touches upon many areas of strategy and market economics. A sound analytical framework coupled with superior market intelligence and customer behavioral insights allow leading firms to develop and successfully implement powerful pricing strategies to support superior value creation.

In practice, it is important to assess the revenue and profitability impact of price changes. To illustrate the profit impact of a specific price and possible changes in price, consider the simple case of product X shown in Figure 3.7.

In this case, at a sales volume of 1m units, average contribution margin from product X is 40 percent. Thus each unit sold contributes \$4 to the recovery of fixed costs and to profit. After subtracting \$3m of fixed costs, gross profits are \$1m or a return on sales of 10 percent.

Assume price is decreased by 20 percent: sales would have to double in order to provide the same profit level, assuming no increase in fixed costs. Now assume a price increase of 20 percent: unit contribution margin increases to 60 percent, thereby requiring only 667,000 units to be sold to generate the same profit. For example, if 750,000 units were sold at this price, profit would increase by a staggering 50 percent to \$1.5m.

As we can see in our example, price increases and decreases can have highly leveraged effects. A seemingly small price reduction can have a large negative impact on unit contribution, requiring a tremendous increase in sales volume to generate the same profit. Similarly, a small price increase can have a strong positive effect on unit contribution, creating a large acceptable decrease in sales volume while still retaining the profit level.

Manufacturing firms, being more capital intensive than service firms, typically have lower variable costs as a proportion of the price compared to service firms that are more labor intensive. The underlying economics and drivers of strategic pricing are therefore significantly different based on the sector and product line.

	<i>Original price (€)</i>	<i>20% price decrease (€)</i>	<i>20% price increase (€)</i>	
Annual net sales volume	1,000,000	1,200,000	667,000	750,000
Unit price	10.00	8.00	12.00	12.00
Annual revenue	10,000,000	9,600,000	8,004,000	9,000,000
Variable cost per unit	6.00	6.00	6.00	6.00
Total variable cost	6,000,000	7,200,000	4,002,000	4,500,000
Unit contribution to fixed cost	4.00	2.00	6.00	6.00
Total fixed cost	3,000,000	3,000,000	3,000,000	3,000,000
Total gross profit	1,000,000	-600,000	1,002,000	1,500,000

**Figure 3.7 ■ Profitability impact of alternative price-points**

The cost structure has a strong impact on the price-profit relationship. The cost structures of service industries such as financial institutions, hotels, airlines, telecommunications, and IT service providers are characterized by relatively high fixed costs, and thus high operating

leverage. Similar cost structures characterize industries such as software, and pharmaceuticals, where research and development accounts for the bulk of costs, and unit variable costs tend to be very low.

Break-even analysis is another simple way to look at the interaction of price, costs, and profit. Break-even analysis determines for a given price the sales volume at which profit from that product line becomes zero, where total contribution equal fixed costs. It shows how sensitively the break-even volume reacts to price changes. However, its utility is limited since it does not address the issue of profit-maximizing price.

“There is always a price that maximizes profit,” says Harvard Professor Robert J Dolan. Derivation of the optimal price for a product-line requires the application of mathematical programming techniques, as we show with an example. A price-response curve is estimated based on a number of approaches including econometric estimation of price elasticity. Price elasticity is an extremely useful measure of the impact of price changes on sales volume and profitability.

Price elasticity = % change in sales volume/% change in price

For example, if the current price of \$100 per unit is increased by 10 percent, so that it becomes \$110 per unit, and that causes sales volumes to fall by 20 percent, then the price elasticity is  $[(-20\%) / 10\%] = -2.0$ . The price elasticity has a negative sign since demand typically falls in response to price increases.

The values of price elasticity vary strongly across products, competitive situations, and individual customers. The price elasticity is also different at different points on the price response curve. In practice, if price elasticity is estimated to be less than 1, a price increase can be recommended, since this means that the percentage of decrease in sales volume will be smaller than the percentage of increase in price.

One of the implicit assumptions we have made is that firms have profit maximization as their objective. Indeed, empirical studies have shown this to be the most common goal. But there are also theories that suggest other goals such as revenue maximization. Japanese companies, for example, are said to often strive for revenue market share rather than direct profit goals.<sup>41</sup>

Many firms have explicit volume or market-share goals. In the auto industry, for example, marketing plans usually prescribe a certain number of cars to be sold. In the computer industry, plant capacity is set according to volume goals, and capacity utilization thresholds exist. In service industries, occupancy rates for hotels and airlines are a critical indicator of success. Given these industry and company norms, profit is hardly ever the only goal being pursued in pricing decisions. A mixture of profit and volume goals is more typical for business practice.

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*A mixture of profit and volume goals is more typical for business practice.*

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## Profit impact of price change

The structure of variable and fixed costs has a very strong influence on the profit impact of a price change. The higher the variable cost relative to price, the stronger the profit impact of a price change. In order to determine the price which yields the highest profit, both the price response and the costs must be known.

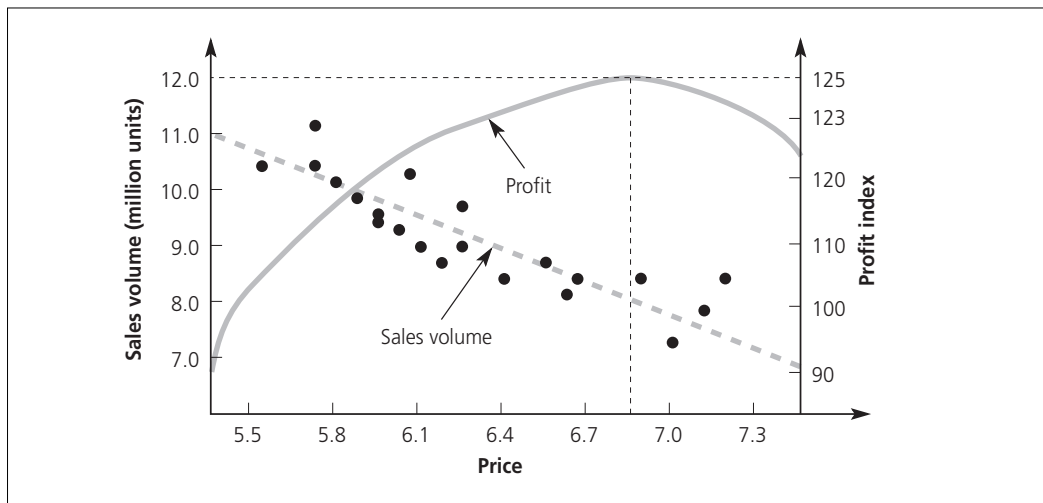
While popular in practice, cost-plus pricing does not optimize profitability, since it does not satisfactorily consider the demand effects of price. Costs can be used to determine long- and short-term price floors, where the long-term price floor is defined by total unit costs, while short-term price floor is equal to variable costs only.

Sophisticated pricing techniques estimate the price response function in a systems context, that is, taking competitor pricing action into consideration. Typically, managers know their internal cost structures pretty well, but are weak on customer and competitor response to changes in price.

The systems context of price response estimation uses historical market data, and places revenue, price, and profit on three different scales to derive optimal price-points for products or services (see Figure 3.8).

According to this analysis, the price–response estimation shows the optimal sales volume is 12.0m units, at a price of 6.8 (currency units), which provides the highest profit index level of 125.

There are four major approaches whose application and careful execution have proven useful in practice:<sup>42</sup>



**FIGURE 3.8** ■ The systems context for price response estimation

- econometric estimation of price elasticity (discussed above);
- customer surveys of willingness to pay;
- expert judgment of industry professionals;
- price experiments and beta testing.

No one method is inherently superior to the others, as each has its advantages and disadvantages.

In the literature, we find numerous estimates of price elasticities. In a survey of 367 price elasticity estimates, the mean absolute value found was 1.76.<sup>43</sup> This figure says that a 1 percent price reduction increases sales by 1.76 percent. According to the authors, 2.0 to 2.5 are realistic average values for price elasticities.

Empirical work by Lambin has shown a high degree of pricing inter-dependence among firms. Specifically, for the sample, the author found an average price reaction elasticity of 0.71, meaning that on average a 10 percent price decrease was met by a 7.1 percent decrease in competitors' prices.<sup>44</sup>

Given strong evidence that a sound pricing strategy can create real value, some CFOs are being enticed into this neglected area. When CFOs get involved in pricing, the impact can be significant. According to a recent report by McKinsey, an average 5 percent improvement in return on sales from improved pricing creates \$1.5bn of additional value over five years for an average S&P 500 company.<sup>45</sup> Also, according to the research, which included more than 500 case studies over two years, committed leadership on pricing strategy improves a company's operating margin by between 2 percent and 7 percent.

## Tax planning

Taxes are among the most important components of any corporate profit and loss statement. Taxes impact corporate valuation, financial planning, and performance assessment because operating decisions are generally based on risk-adjusted net present value of expected after-tax cash-flows.

Income taxes, sales taxes, import-export duties, and property taxes often add up to one of the largest expense items of an organization. In addition, tax payments typically have a high legal priority claim on an organization's cash-flow. Finally, rapid business expansion overseas broadens the scope of tax planning considerations.

For public companies, earnings must be reported to the investor community and the Securities and Exchange Commission on an after-tax basis. Companies that manage to minimize tax expenses increase net cash-flows for the company, and thus create wealth for the shareholders. Tax planning therefore is a key part of the corporate financial planning process.

While corporate financial planning is ultimately concerned with ensuring that the financial objectives of the company are met with optimally managed risk exposures resulting in shareholder value creation, the ultimate goal of tax planning is to reduce taxes, while not excessively intruding on the organization's overall operations. However, not every idea that saves taxes is a good one. Tax strategies are usually based on taking advantage of time value of money (paying taxes later) or differences in tax rates (tax-rate arbitrage). In tax arbitrage, accounting entries are used to shift profits to jurisdictions that impose the lowest net taxes. Tax savings strategies usually fall into four types: creation, conversion, shifting, and splitting.<sup>46</sup>

*Creation* involves plans that take advantage of tax subsidies, such as moving operations to a jurisdiction that imposes lower taxes.

*Conversion* entails changing operations so that more tax-favored categories of income or assets are produced.

*Shifting* involves techniques that move amounts being taxed to more favorable tax-accounting periods, for example, accelerated depreciation which allows more of an asset's cost to be a tax-deductible expense in early years, thus deferring the payment of taxes on that asset until later.

*Splitting* techniques entail spreading the tax base among two or more tax payers to take advantage of differing tax rates.

The SAVANT tax planning framework recognizes this by striving toward optimizing taxes rather than minimizing them. The strategy, anticipation, value-adding, negotiating, and transforming (SAVANT) framework is a transactions approach to tax management.<sup>47</sup>

Tax management should work to enhance the firm's *strategy*. Tax minimizing transactions should not deter the company from its strategic plan. The presence of net operating loss (NOL) carry-forward has an impact on strategic tax planning.

Tax planning should *anticipate* potential changes in the tax code, and attempt to incorporate tangible changes into tax planning. Tax planning can add value (*value adding*) by deferring or decreasing tax payments using alternative accounting techniques. Effective tax planning involves *negotiating* tax benefits both with tax authorities as well as counter-

<b>Strategy</b>	Enhance the firm's business strategy
<b>Anticipation</b>	Anticipate changes to the tax code
<b>Value-Adding</b>	Defer/decrease tax payments by using alternative accounting techniques
<b>Negotiating</b>	Negotiate tax benefits with tax authorities and other counterparties
<b>Transforming</b>	Transform income into gains, expenses into losses, etc. to minimize effective tax rate

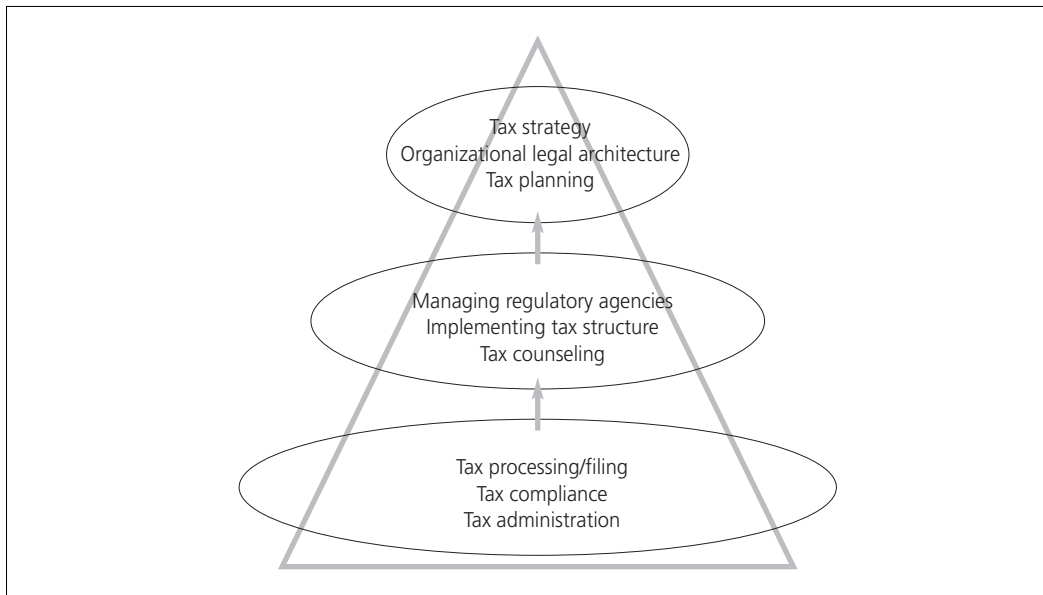
**FIGURE 3.9 ■ The SAVANT tax planning model**

parties. Tax management also includes *transforming* certain types of income into gains, certain types of expenses into losses, and certain types of taxable income into non-taxable income. The components of tax planning are shown in Figure 3.10.

In general, tax management seeks the following transformations: taxable income to tax-exempt income (or gain), ordinary income to capital gain income, non-deductible loss (expense) to tax deductible loss (expense), and capital loss to ordinary loss.

Each country and jurisdiction has its own unique corporate tax code, and therefore a thorough understanding of the tax laws and regulations help develop an optimal tax management strategy and plan. However, some common features apply in most countries, such as special tax benefits for certain kinds of investments, tax credits for operating in certain geographies, use of tax loss carry forwards of acquired companies, taxable versus non-taxable merger transactions, etc. According to tax laws in most countries, stock-for-stock mergers and acquisitions transactions are tax-free exchanges, unlike cash-for-stock transactions.

For example, in the US, the effective corporate tax rate is almost never the statutory rate, because the Securities and Exchange Commission (SEC) and the Internal Revenue Service (IRS) allow companies to maintain two separate accounting books, one for SEC reporting, and the other for tax reporting. Companies therefore report higher expenses and lower earnings to the IRS, and pay lower actual taxes than indicated in published financial statements. In Europe or Asia, only one set of financial statements is allowed.



**FIGURE 3.10 ■ Components of tax planning**



Optimal tax planning of course does not mean that business operations should be allowed to be significantly affected only to be eligible for tax breaks. It does, however, attempt to minimize the tax burden for the corporation, and therefore is integral to the financial planning process.

One key performance indicator for the corporate tax department is the effective corporate tax rate. The effective tax rate is usually lower than the statutory rate. A company's effective tax rate can reflect investment and operating decisions, and prior operating performance, as well as strategic tax planning. Achievement of an effective tax rate below the statutory rate could be the by-product of poor business results as well as a capital investment or expansion program.

Merger and acquisition transactions are often motivated by tax considerations. A loss-making company with tax loss carry-forwards is an attractive candidate to be acquired by a company that desires a lower effective tax rate.

Because certain components of the tax equation can be controlled, reducing the effective tax rate remains a primary goal for most corporate tax departments. A relatively small reduction in the effective tax rate often translates into significant savings for corporations. In recognition of the bottom-line impact of significant tax savings, some companies tie incentive compensation for tax managers and other financial officers to an overall reduction in their cash outlay for taxes.

Effective tax rate is, however, an accounting concept. For many companies, the difference between the tax provision and the actual cash outlay for taxes can be significant. It is therefore important to determine the amount of actual cash savings achieved through the implementation of tax planning strategies.

Wherever possible, planning strategies should attempt to reduce rather than merely postpone taxes. This will reduce both the effective tax rate as well as any current cash outlay

***Planning strategies  
should attempt to  
reduce rather than  
merely postpone taxes.***

for taxes. Examples of permanent reduction strategies are the purchase of tax-free bonds and the utilization of net operating losses by filing consolidated corporate income tax returns.

Permanent reductions in both the effective tax rate and the cash-flow for taxes can increase earnings per share, return on equity, and after-tax return on assets. These factors, in turn, raise the company's perceived value in the marketplace

in relation to other investment opportunities.

Reducing the annual cash-flow for taxes also can improve reported earnings. Tax deferral strategies that increase expenses or losses that are deductible for tax purposes before they are recognized in financial income should also be considered. Investment in depreciable assets or depletable resources and intangibles when accelerated depreciation methods are employed is an example of such a deferral strategy.

For US companies, the 'timing difference' between book and tax reporting generated by the use of accelerated depreciation will ultimately turn around for individual assets. However, expanding companies that continue to purchase fixed assets can benefit from the cumulative impact of such investments. The CFO should work with the corporate tax department to ensure that tax strategies blend with overall business strategies in general and investment strategies in particular.

Attempts to increase pre-tax earnings that are enhanced by intelligent tax planning will produce superior after-tax returns. In today's increasingly global economy, a discussion of corporate tax rates must recognize the impact of foreign investments and taxes. The corporate tax department must be concerned with international tax planning strategies.

While industry competitors can act as preliminary benchmarks for measuring performance, it is important to remember that differences in corporate structure, international location, product mix, and investment goals can cause wide variations between companies.

The pressure to reduce costs and better control funds makes liquidity management an important management function. However, corporate treasurers need to weigh up carefully the overall economic benefits of liquidity management strategies against the resulting tax implications.<sup>48</sup>

While it is important to take advantage of the new tax laws, there are three year-end tax strategies which almost always make sense:

- tax reduction
- tax deferral
- income shifting.

*Tax reduction* occurs when a company takes action that results in payment of less tax than would otherwise have been due. *Tax deferral* is achieved when income is earned now, but tax payments are made in the future. *Income shifting* generally involves transferring income receipts to geographies or other categories that are taxed at a lower rate.

## The global perspective

International tax planning involves the reduction of the global effective tax rate of a multinational group by minimizing taxable income in high-tax jurisdictions and maximizing taxable income in low-tax jurisdictions.

According to PricewaterhouseCoopers, a global tax strategy should consider the following components:<sup>49</sup>

- impact of tax planning solutions on world-wide operations,
- focus on achieving either a deferral from home tax or a permanent tax saving,

- flexibility of the business model used by the company,
- holding company structure,
- group funding structure,
- intangible assets,
- royalty structures,
- insurance/re-insurance structures,
- coordination centres,
- tax holidays and incentives,
- double tax relief, treaty interpretation and planning,
- thin capitalization,
- repatriation planning,
- e-business planning.

Tax planning is integrally related to treasury management. The European Economic and Monetary Union (EMU) heralded a new era of more efficient pan-European liquidity management for corporate treasurers. The phasing out of legacy currencies in the 15 EU member states intensified the pace of reform as treasurers looked to leverage the benefits provided by a single pan-European currency.

Yet whilst the technologies underpinning cash management have increased in sophistication, accounting structures remain relatively complex. As long as domestic clearing infrastructures continue to predominate, a single euro account is a noble yet fruitless pursuit for most corporate treasurers. Hence the need for enhanced liquidity management solutions, which have evolved from stand-alone products to form an integral part of more sophisticated cash management offerings such as centralized payment factories and shared service centres.

A significant majority of multinationals have implemented liquidity management structures, either notional pooling or cash concentration, as a means of reducing interest paid on balances and exerting greater control over inter-company finances.

Recent economic pressures have also brought a renewed sense of urgency to the aspect of liquidity management. Pooling or concentration solutions are important treasury management strategies that impact corporate liquidity. Corporations need to have greater insight into how funds are being used across global accounting structures and how to mitigate the risks associated with doing business in an increasingly borderless world.

There are only a handful of banks and tax consultants that have the global reach and expertise to navigate the complex barrage of taxation regulations. With a strong track record as a major settlement and clearing provider in the euro zone, Deutsche Bank offers corporates liquidity management solutions that are flexible enough to absorb the impact of

different regulations without compromising the overall objective. Corporate treasurers also benefit from an integrated solution tied into other cash management services such as account reporting and initiation of bulk and treasury transactions.

Leading tax consultants Deloitte & Touche, PricewaterhouseCoopers, Cap Gemini Ernst & Young, and Bearing Point are among the big accounting firms able to combine global reach with strong in-country capabilities. Their specialist teams present an in-depth overview of tax treaties in the various countries and leverage cross-border relationships that encompass the bigger picture.

To help corporate treasurers identify tax implications pertaining to the most common forms of liquidity management techniques, Deutsche Bank and Cap Gemini Ernst & Young jointly produced a report reviewing the key taxation implications of the three most common forms of liquidity management solutions:

- cash concentration
- notional pooling
- reference account structures.

Zero balancing or cash concentration is the physical act of transferring funds from a source to a target account. Interest is calculated and paid on the aggregated net balance held on the target account. It allows treasurers to optimize control of funds and interest positions and to offset fully consolidated balance sheets. One of its drawbacks, however, is that it works largely on a single currency basis.

The transfer of funds between accounts is based on terms defined in a cash pooling contract which can take either of two forms:

- zero balancing, where debit and credit balances are put to zero at the end of each day, or
- conditional balancing where an end-of-day balance is specified.

Within the cash concentration structure, funds are swept or covered between accounts held by different legal entities, which constitutes an inter-company lending and borrowing situation, which has specific tax implications.

Not all corporations, however, are equipped to handle the complexities of inter-company loan management encompassing different legal entities. An alternative to cash concentration is notional pooling. As the term suggests, balances are consolidated on a virtual basis without the transfer of funds between a source and target account. Companies are thus provided with a tool for managing their liquidity needs on a multi-currency basis without the complexities of managing inter-company loans.

Multinational companies with accounts in different currencies that wish to use long balances in some accounts to offset short positions in others but do not wish to generate inter-company loans would implement a notional pooling structure. By offsetting negative

and positive balances in a range of currencies the company pays less interest charges on overdrafts while increasing its interest income on credit balances.

Banks, nevertheless, are reluctant to offer full interest compensation due to capital adequacy requirements imposed on debit balances. Therefore, on a cross-border basis banks tend to offer interest optimization notional pooling structures. Reference account notional pooling structures work on a single entity basis and provide full compensation, but this leads to inter-company loans. Therefore, from a tax perspective this is comparable to cash concentration.

## Tax implications

The tax implications should be reviewed for each jurisdiction. This is particularly true for inter-company loans generated between different legal entities. So for example, a company looking to transfer liquidity to a target account held by its US subsidiary would need to consider the tax implications in its home country as well as the US.

Taxation issues typically impact companies implementing cash concentration structures. Sweeping and covering funds between accounts held by different legal entities gives rise to inter-company loans, which have a number of tax implications for the participant and target account holder. The bank's relationship with customers is changed to an intercompany loan relationship, which qualifies it for withholding taxes to be levied on related interest payments.

Double-taxation treaties between two countries can also reduce the withholding tax paid on inter-company loans. In the case of an Italian company that uses a long target account in Germany to cover its short positions, the interest paid on inter-company loans would be subject to withholding tax in Italy. However, as a tax treaty exists between Germany and Italy, the rate of withholding tax is reduced from 12.5 percent to 10 percent. Before claiming the reduction, the target account holder needs to prove they are resident in Germany and entitled to the interest.

Interest payments on inter-company loans are tax deductible whereas dividends, which are profits earned and distributed to company shareholders, are non-tax deductible. However, under thin capitalization regulations, interest payments may qualify as dividend payments and be subject to corporation tax in many countries.

Transfer pricing issues arise when income in the form of interest is transferred between companies in different countries or jurisdictions. The tax authorities could view this as an attempt to shift income or expenses from one country to take advantage of variable tax rates in another. The tax implications are moderated if the interest paid on inter-company loans complies with what authorities term an arm's-length transaction.

In some countries, controlled foreign company (CFC) regulations were introduced to prevent companies transferring certain activities to foreign subsidiaries in low-tax jurisdictions. In most countries, income is normally taxed once it is distributed to shareholders. However, in some instances, borrowing or lending by a target account holder may qualify as

passive income, which could be taxed in the hands of the shareholder even before a distribution is effected. For example, a French company that holds 10 percent in the form of shares, financial or voting rights in a target account company operating in a lower tax regime, may be liable for corporate tax on interest earned on the target account.

Both notional pooling and cash concentration structures have their tax implications for corporations contemplating a choice between the two. Notional pooling does not result in an inter-company loan situation, so the tax implications may be less complex. However, the structure of the notional pool and the contractual liabilities of participants could raise tax issues similar to those that apply to cash concentration structures.

For example, notional pooling participants that guarantee a loan provided by a third party, such as a bank, to one of its subsidiaries, could be viewed as a substitute for a direct intercompany loan, thus subject to withholding taxes. Structures that entail moving liquidity across borders and between different legal entities typically have more profound tax implications. However, from a commercial perspective with respect to full interest offset, balance sheet offset and control over funds, cash concentration may be the more attractive structure. Therefore, many corporates favor cash concentration.

As the CFO of any multinational business enterprise knows, the complexity of tax laws and corporate decision making grows in proportion to the number of government entities, cultural traditions, and business practices involved. Tax planning can become a patchwork of internal and advisor opinions, past practices, and inconsistent interpretations. This can be particularly problematical when shareholders and management have differing views over the conflict between paying the minimum tax legally possible, and the long-term benefits of paying a fair and equitable share of the tax burden.<sup>50</sup>

E-business offers tremendous opportunities to multinational companies to reengineer the manner in which they interact with customers, suppliers, group members, employees, and other stakeholders. By using tax planning in an integrated way with the e-business change process, companies using the web to do business can achieve significant tax savings and simplification. An important consideration is transfer pricing. By adjusting the price which subsidiaries pay or receive for goods and services, groups of companies can alter where and how much tax they pay. The transformation to e-business can be the catalyst for meaningful transfer pricing planning and enable companies to adjust their tax profiles, and generate tax efficiencies.

To counter the misuse of transfer pricing and ensure that each country receives its fair share of tax, the Organisation for Economic Cooperation and Development (OECD) introduced guidelines on transfer pricing. Globalization and rapid technological innovation are driving companies to embrace fundamental changes to their supply chain structures.

New structures are being put into place to access and compete in an ever-growing number of geographic markets. Companies are building intellectual property for which little value may have been recognized. Those companies will need to establish where and how to locate assets, economic functions, and risks to obtain efficient tax structures.

Under constant pressure to improve net earnings and cash-flow in the evolving global economy, companies are reducing costs and minimizing risk by restructuring supply chains as well as international and domestic operating structures as they globalize. Companies typically create appropriate tax and legal structures to optimize their new configuration. The corporate strategy aligns the company's tax profile with the restructured value chain.

The following items are important in this tax planning process:

- optimize overall structural tax rates;
- create a new and transformed income and cash-flow stream;
- realign structures in a more tax advantageous way;
- establish potential synergies within the supply chain and operating structure;
- provide appropriate documentation for the restructured business process.

To achieve long-term sustainable tax solutions, companies thus need to take a look at their global tax position. Tax outlays reduce net income and cash-flows, and therefore affect shareholder value. It also impacts the effective cost of capital.

The cost of capital has a significant impact on shareholder value. Optimal tax planning can reduce the company's cost of capital by enhancing the use of equity, debt, and surplus funds through the finance and treasury functions.

***Companies need to take a look at their global tax position.***

Even a minor adjustment in the cost of capital can have major implications for the bottom line and greatly enhance shareholder value. For example, for a \$10bn company, even a 0.5 percent cut in a 10 percent cost of capital can add \$750m to market capitalization.<sup>51</sup>

Treasury management becomes more important as world-wide financial, accounting, regulatory and tax issues become more complex. Leading-edge companies are using sophisticated tax planning methodologies to manage capital and enhance cash-flow through structured finance, securitizations, and other customized finance and treasury solutions.

Financial products and structured finance help companies structure a variety of transactions, including:

- financing capital assets on a low-cost basis, through cross-border financing;
- reducing foreign tax liabilities through high-quality equity investments;
- designing and implementing inter-company financing to optimize foreign tax credit, reduce worldwide taxes, and enable more cost-effective repatriation of funds;
- designing structured finance portfolios, including the management, growth, and divestiture of assets;

- designing investment programs that create opportunity in complex capital investment markets;
- developing and marketing products that maximize tax attributes of profitable corporations.

Securitization focuses on monetizing a variety of assets to reduce a company's cost of capital.

### CASE STUDY 3.1 IBM<sup>52</sup>

A reconciliation of IBM's continuing operations effective tax rate to the statutory US federal tax rate is as shown in Figure 3.11:

<i>Year-end (% points)</i>	<i>2002</i>	<i>2001</i>	<i>2000</i>
Statutory tax rate	35	35	35
Foreign tax differential	-7	-6	-6
State and local	1	1	1
Valuation allowance	0	0	-1
Other	0	-1	2
Effective tax rate	29	29	31

**FIGURE 3.11 ■ IBM CORP.: statutory and effective tax rates**

For tax return purposes, IBM has available tax credit carry-forwards of approximately \$2,234m as of year-end 2002, of which \$1,316m have an indefinite carry-forward period and the remainder begin to expire in 2005. The company also has state and local, and foreign tax loss carry-forwards, the tax effect of which is \$543m. Most of these carry-forwards are available for five years or have an indefinite carry-forward period.

### CASE STUDY 3.2 Daimler Chrysler<sup>53</sup>

In 2002, the DaimlerChrysler Group recorded income tax expense of €11.2bn, compared with an income tax benefit of €10.8bn in the previous year. The effective tax rate was 19.4 percent in 2002, compared with the previous year's rate of 52.4 percent. The low effective tax rate in 2002 was principally due to the tax-free sale of the investments in T-Systems ITS and Conti Temic microelectronic.

The high tax rate in 2001 was due to the pre-tax loss reported in 2001 combined with the tax-free sales of the remaining Debitel shares, the Rail Systems business unit, and 60 percent of the group's interest in TEMIC. Because of the pre-tax loss reported in 2001, the tax-free gains realized in 2001 had the effect of increasing the effective tax rate.



**CASE STUDY 3.3 Toyota<sup>54</sup>**

Provision for income taxes decreased by ¥101.1bn during fiscal 2002 compared with the prior year primarily as a result of decrease in income before income taxes and decreased provision for taxes on undistributed earnings of affiliated companies accounted for by the equity method. The effective tax rate for fiscal 2002 decreased to 43.5 percent from 47.3 percent for the prior year due primarily to decreased provision for taxes on undistributed earnings of affiliated companies.

**CASE STUDY 3.4 Nestlé<sup>55</sup>**

Nestlé's tax planning includes current taxes on profit and other taxes such as taxes on capital. Also included are actual or potential withholding taxes on current and expected transfers of income from group companies and tax adjustments relating to prior years. Income tax is recognized in the income statement, except to the extent that it relates to items directly taken to equity, in which case it is recognized in equity.

Deferred taxation is the tax attributable to the temporary differences that appear when taxation authorities recognize and measure assets and liabilities with rules that differ from those of the consolidated accounts. Deferred taxes are calculated under the liability method at the rates of tax expected to prevail when the temporary differences reverse.

Any changes of the tax rates are recognized in the income statement unless related to items directly recognized in equity. Deferred tax liabilities are recognized on all taxable temporary differences excluding non-deductible goodwill. Deferred tax assets are recognized on all deductible temporary differences provided that it is probable that future taxable income will be available.

**CASE STUDY 3.5 Procter & Gamble<sup>56</sup>**

Procter & Gamble follows SFAS No. 109, under US GAAP for accounting for income taxes. Income taxes are recognized for the amount of taxes payable for the current year, and for deferred tax liabilities and assets for future tax consequences of events that have been recognized differently in the financial statements than for tax purposes. Deferred tax assets and liabilities are established using the enacted statutory tax rates and adjusted for tax rate changes.

Procter & Gamble's effective income tax rate was 31.1 percent, 31.8 percent and 36.7 percent in 2003, 2002 and 2001, respectively, compared to the US statutory rate of

35.0 percent. The country mix impacts of foreign operations reduced the company's effective tax rate to a larger degree in 2003 and 2002 than in 2001: 3.8 percent in 2003 and 3.1 percent in 2002.

Procter & Gamble's higher tax rate in 2001 reflected the impact of restructuring costs and amortization of goodwill and indefinite-lived intangibles prior to the adoption of SFAS No.

142. Taxes impacted shareholders' equity with credits of \$361m and \$477m for the years ended June 30, 2003 and 2002, respectively. These primarily relate to the tax effects of net investment hedges and tax benefits from the exercise of stock options.

Procter & Gamble has some undistributed earnings of foreign subsidiaries as of June 30, 2003, for which deferred taxes have not been provided. Such earnings are considered indefinitely invested in the foreign subsidiaries. Realization of certain deferred tax assets is dependent upon generating sufficient taxable income in the appropriate jurisdiction prior to expiration of the carry-forward periods. Although realization is not assured, Procter & Gamble believes it is more likely than not that the deferred tax assets, net of applicable valuation allowances, will be realized.

### CASE STUDY 3.6 GlaxoSmithKline<sup>57</sup>

The GlaxoSmithKline Group operates in countries where the tax rate differs to the UK rate. The standard rate of tax for the group has been estimated by aggregating the local standard tax rates and weighting these in proportion to accounting profits. Profits arising from manufacturing operations in Singapore, Puerto Rico and Ireland are taxed at reduced rates. The effect of this reduction in the taxation charge increased earnings per share by 3.6p in 2002, 2.7p in 2001 and by 3.2p in 2000.

The integrated nature of the Group's worldwide operations, involving significant investment in research and strategic manufacture at a limited number of locations, with consequential cross-border supply routes into numerous end-markets, gives rise to complexity and delay in negotiations with revenue authorities as to the profits on which individual group companies are liable to tax.

Disagreements with, and between, revenue authorities as to intra-group transactions, in particular the price at which goods should be transferred between group companies in different tax jurisdictions, can produce conflicting claims from revenue authorities as to the profits that fall to be taxed in individual territories. Resolution of such issues is a continuing fact of life for GlaxoSmithKline.

In the US for a number of years, GlaxoSmithKline has had significant open issues relating to transfer pricing. These issues affect all years from 1989 to the present and concern a number of products, although the most significant relates to the success of Zantac, in

respect of which the claims of the US Internal Revenue Service (IRS) substantially exceed the group's estimation of its taxation liabilities.

The IRS claims, which are not completely quantified, continue to be the subject of discussions between the US and UK tax authorities under the competent authority provisions of the double-tax convention between the two countries. Within these discussions there is a wide variation between the views of the US and UK tax authorities and, exceptionally, they may be unable to reach agreement to settle the dispute.

In the event of the UK and US tax authorities not reaching agreement, the matter may have to be resolved by litigation. GlaxoSmithKline uses the best advice in determining its transfer pricing methodology and in seeking to manage transfer pricing issues to a satisfactory conclusion and, on the basis of external professional advice, continues to believe that it has made adequate provision for the liabilities likely to arise from open assessments.

Income, excise and all other taxes and duties totalled \$64.3bn in 2002, a decrease of \$2.2bn or 3 percent from 2001. Income tax expense, both current and deferred, was \$6.5 bn compared to \$9.0bn in 2001, reflecting lower pre-tax income in 2002. The effective tax rate of 39.8 percent in 2002 compared to 39.3 percent in 2001. During 2002, the company continued to benefit from favorable resolution of tax-related issues. Excise and all other taxes and duties were \$57.8bn.

Income, excise and all other taxes and duties totalled \$66.5bn in 2001, a decrease of \$1.9bn or 3 percent from 2000. Income tax expense, both current and deferred, was \$9.0bn compared to \$11.1bn in 2000, reflecting lower pre-tax income in 2001. The effective tax rate of 39.3 percent in 2001 compared to 42.6 percent in 2000, benefiting from a higher level of favorably resolved tax-related issues. Excise and all other taxes and duties were \$57.6bn.

## Optimal capital budgeting with real options

Making optimal 'go' or 'no-go' decisions regarding capital investments can be a source of significant competitive advantages for companies. Standard project appraisal techniques are now being complemented with more sophisticated analysis methods that allow managers to assess more accurately the real value of returns from capital projects.

Real options analysis provides a sophisticated tool for evaluating capital investment decisions by incorporating the value of management flexibility during the lifetime of the project.

Capital investments that are required for ongoing maintenance and expansion requirements of business operations are based on a long-term outlook of the cash generation capability of the project vis-à-vis its capital investment requirements. Traditionally, the investment is considered to be viable if the net cash-flows represent a positive net present value (NPV) or an internal rate of return (IRR) which is above the required hurdle rate.

However, traditional capital budgeting is rather unsophisticated since it is a static view of the world, and assumes that management has no flexibility to revise its originally planned project outlays even in the long term.

In reality, however, plans are rarely ever carried out as originally conceived. Changing business assumptions on external or internal conditions, or over- or under-achievement of project goals often necessitate revisions of original plans.

Management often does have a fair amount of flexibility in expanding or contracting subsequent project outlays as project performance comes to fruition. In order to incorporate this management flexibility into the capital budgeting process, real options valuation analysis is used. “Real options are useful for identifying, understanding, valuing, prioritizing, selecting, timing, optimizing, and managing strategic business and capital allocation decisions.”<sup>58</sup>

A *Harvard Business Review* article states:<sup>59</sup>

“Unfortunately, the financial tool most widely relied on to estimate the value of a strategy is the discounted cash-flow which assumes that we will follow a predetermined plan regardless of how events unfold.

A better approach to valuation would incorporate both the uncertainty inherent in business and the active decision making required for a strategy to succeed. It would help executives to think strategically on their feet by capturing the value of doing just that – of managing actively rather than passively and real options can deliver that extra insight.”

The real options approach incorporates a learning model such that management makes better and more informed strategic decisions when some levels of uncertainty are resolved through the passage of time. The traditional discounted cash-flow analysis assumes a static investment decision, and assumes that strategic investment decisions are made initially with no recourse to choose other pathways or options in the future.

“Business conditions are fraught with uncertainty and risks. These uncertainties hold with them valuable information. When uncertainty becomes resolved through the passage of time, managers can make the appropriate mid-course corrections through a change in business decisions and strategies. Real options incorporates this learning model, akin to having a strategic roadmap, while traditional analyses that neglect this managerial flexibility will grossly undervalue certain projects and strategies.”<sup>60</sup>

There are different kinds of options at management’s disposal, that can be decided upon over time, based on the type of project being evaluated, and its ongoing success rate:

- option to abandon,
- option to expand,
- option to contract,

- option to choose,
- compound option (and sequential compound option),
- option to switch.

An *abandon option* provides management with the ability to discontinue the project.

An *expansion option* provides management with the right and ability to expand into different markets, products, and strategies, or to expand the capacity of its current operations under the right market conditions.

An *option to contract* means management has the ability to decrease the scale of production according to the demand conditions in the market.

A *chooser option* implies that management has the flexibility to choose among several strategies, including the option to expand, contract, abandon, switch, and so forth.

A *compound option* means that the execution and value of a strategic option depends on another strategic option.

A *sequential compound option* means that the execution and value of future strategic options depends on previous options in the sequence of execution.

A *switching option* provides the right and ability, but not the obligation, to switch among different sets of business operating conditions, including different technologies, markets, or products.

A firm can also create strategic value through setting up contractual agreements with *barrier options*. For example, for the promise of seed financing, a venture capital firm gets the right of first refusal, but not the obligation, to invest in a second or third round should the start-up achieve certain management set goals or barriers. The cost of this barrier option is seed financing, which is akin to the premium on a stock option. Should the option be in-the-money, the option will be executed through second and third round financing.

By obtaining this strategic option, the venture firm has locked itself into a guaranteed favorable position should the start-up be highly successful, similar to the characteristics of a financial call-option which has an unlimited upside potential. At the same time, the venture firm has hedged itself against missing the opportunity with limited down-side proportional to the expenditure of a minimal amount of seed financing.

Fortune 500 firms are embracing this new valuation concept. Companies such as Boeing, Hewlett Packard, AT&T, and General Motors have successfully applied real options as a tool for capital investment valuation.<sup>61</sup>

Traditional discounted cash-flow approaches to capital investments underestimate the value of a project by ignoring the value of managerial flexibility. One of the value-added components of using real options is that it takes into account management's ability to create, execute, and abandon strategic and flexible options.

### EXAMPLES

General Motors applies real options to create switching options in producing its new series of automobiles. Hewlett Packard uses real options to evaluate project investments with delay options on building assembly plants in foreign countries. Boeing uses real options in capital investment decisions on aircraft development projects, by using the option to choose, so that parallel development of multiple aircraft designs can occur simultaneously.

Oil and gas companies like Schlumberger spend millions of dollars to refurbish refineries and add new technology to create an option to switch their mix of outputs among heating oil, diesel, and other petrochemicals as a final product. These companies use real options as a means of making capital investment decisions.

In the telecommunication industry, companies like Sprint and AT&T installed more fiber-optic cable and other telecommunications infrastructure than other companies in order to create a growth option in the future by providing a secure and extensive network, and to create a high barrier to entry, providing a first-to-market advantage.

There are several potential problem areas in using traditional discounted cash-flow calculations on strategic optionalities. These problems include:

- undervaluing assets that currently produce little or no cash-flow;
- non-constant nature of weighted average cost of capital over time;
- estimation of an asset's economic life;
- forecast errors in estimating future cash-flows;
- insufficient tests for plausibility of final results.

Real options, when applied using an options theoretic framework, can mitigate some of these problem areas. Traditional approaches are more relevant for shorter time-frames that have more certainty. In a longer time-frame, where strategic opportunities arise, a more appropriate approach incorporates new advanced analysis, including real options, Monte Carlo simulations, and portfolio optimization.

**EXAMPLE**

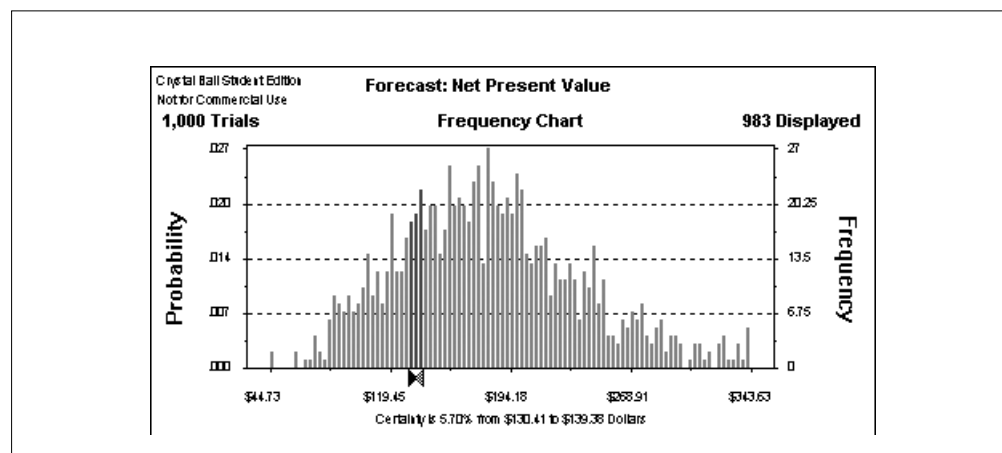
In this following example, we look at the value of a potential \$225m capital project investment. The net present value is \$134.06m. Based on simulation analysis the probability of the project delivering between \$130m and \$140m is only 5.70 percent! See Figures 13.12 and 13.13.

Discount rate (Cash Flow)	12.00%	Present value (Cash Flow)	<b>\$323.64</b>
Discount rate (Impl. Cost)	5.00%	Present value (Impl. Cost)	<b>\$189.58</b>
Tax Rate	30.00%	Net Present Value	<b>\$134.06</b>
Cost of revenue as % of revenue	28.00%		
Operating expenses as % of revenue	20.00%		

	Forecast				
	2004	2005	2006	2007	2008
Revenue	\$98.00	\$163.00	\$231.00	\$297.00	\$364.00
Cost of Revenue	\$27.44	\$45.64	\$64.68	\$83.16	\$101.92
Gross Profit	\$70.56	\$117.36	\$166.32	\$213.84	\$262.08
Operating Expenses	\$19.60	\$32.60	\$46.20	\$59.40	\$72.80
Depreciation Expense	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00
Interest Expense	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00
Income Before Taxes	\$42.96	\$76.76	\$112.12	\$146.44	\$181.28
Taxes	\$12.89	\$23.03	\$33.64	\$43.93	\$54.38
Income After Taxes	\$30.07	\$53.73	\$78.48	\$102.51	\$126.90
Non-Cash Expenses	\$12.00	\$14.00	\$17.00	\$21.00	\$24.00
Cash Flow	\$42.07	\$67.73	\$95.48	\$123.51	\$150.90
Implementation Cost	\$25.00	\$25.00	\$50.00	\$50.00	\$75.00

**FIGURE 3.12** ■ Traditional NPV of \$134.06 million excluding real option valuation

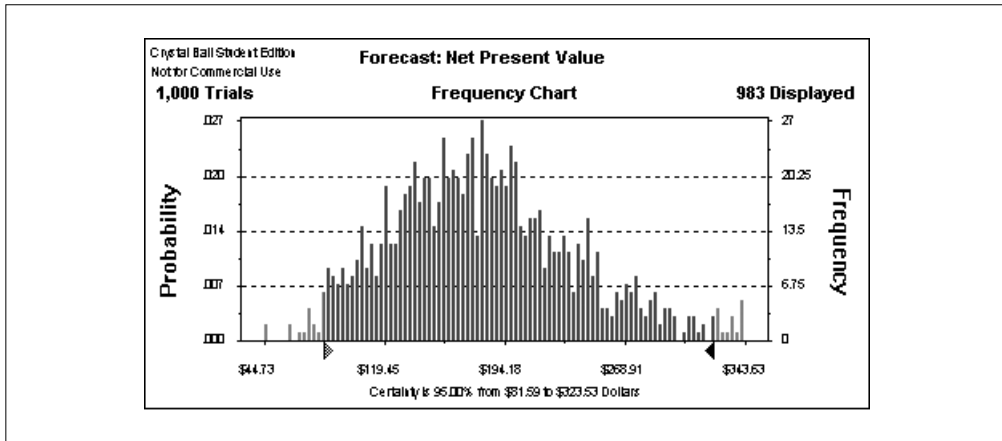


**FIGURE 3.13** ■ Monte Carlo Simulation Output. 5.7 percent profitability of NPV between \$130 million and \$140 million

On the other hand, simulation analysis also tells us that with a 95 percent probability, the project will yield an NPV between \$81m and \$323m.

Now, let's look at the Expanded Net Present Value (ENPV) of this project taking into consideration the strategic option management has of expanding the scale of this project by 50 percent of its current size, if profitability and market demand really take off.

We will consider an expansion option, which provides management with the right but not the obligation to expand the project. This real option has intrinsic value which is completely ignored in conventional NPV analysis performed above (see Figure 3.12).



**FIGURE 3.14** ■ Monte Carlo Simulation Output. 95.0 percent probability of NPV between \$81 million and \$323 million

When the expansion option is taken into account, the ENPV (expanded NPV) of the project becomes \$149.98m (see Figure 3.15). The ENPV is \$15.96m higher than the conventional NPV without real options. Therefore, the value of the expansion option is approximately \$16m.

Taking this strategic real option into consideration, we can now see how traditional capital budgeting techniques would have undervalued this business case. Clearly, the project is more attractive with the expansion option.

Alternatively, if management sees that the project is not on track, and profitability is not up to expectations, it may choose to reduce the scale of the production or service delivery capacity, thus reducing overhead and minimizing margin contraction.

We assess the real options value of contracting production capacity by 25 percent anytime over the next five years (see Figure 3.16).

In this case, we have assumed that management has the right but not the obligation to contract the scale of the project downward by 30 percent, which would yield not only a cash savings of \$50m, but would in fact increase the ENPV to \$145.40m, which is \$11.34m higher than the original NPV of \$134.06m.



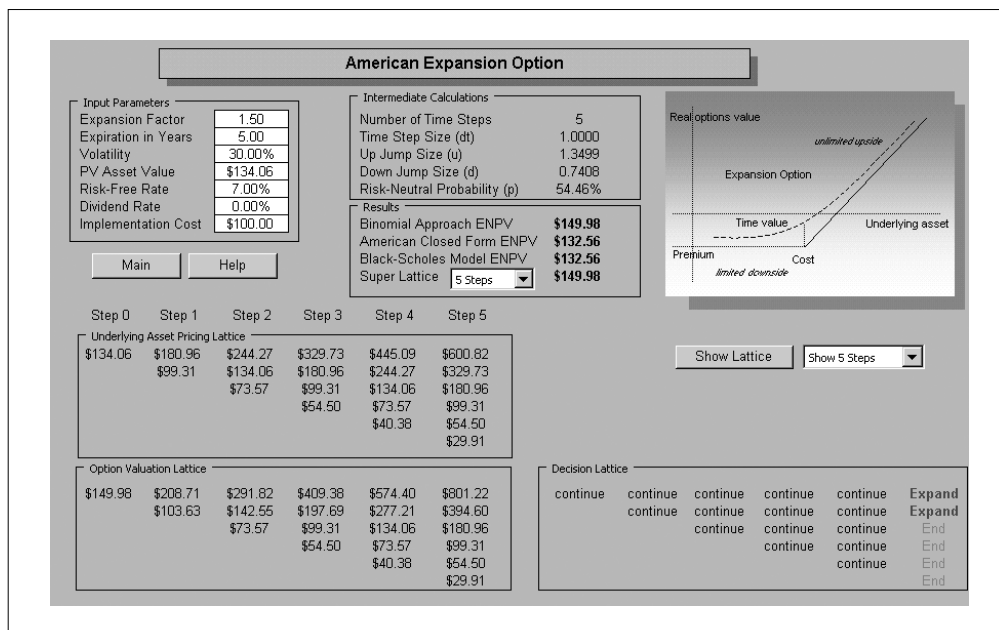


FIGURE 3.15 ■ Expanded NPV (ENPV) of \$149.98 million including expansion options

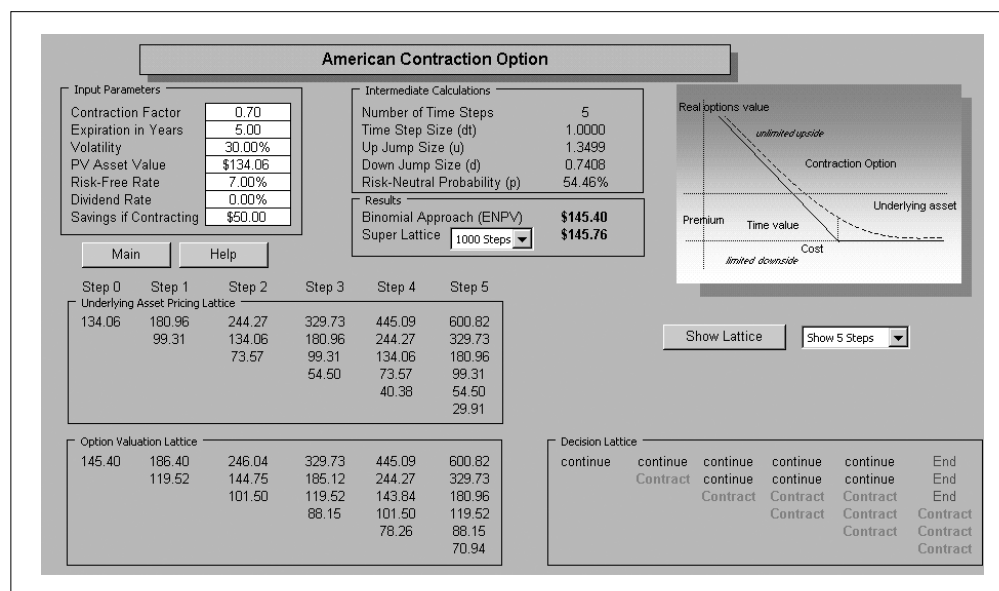
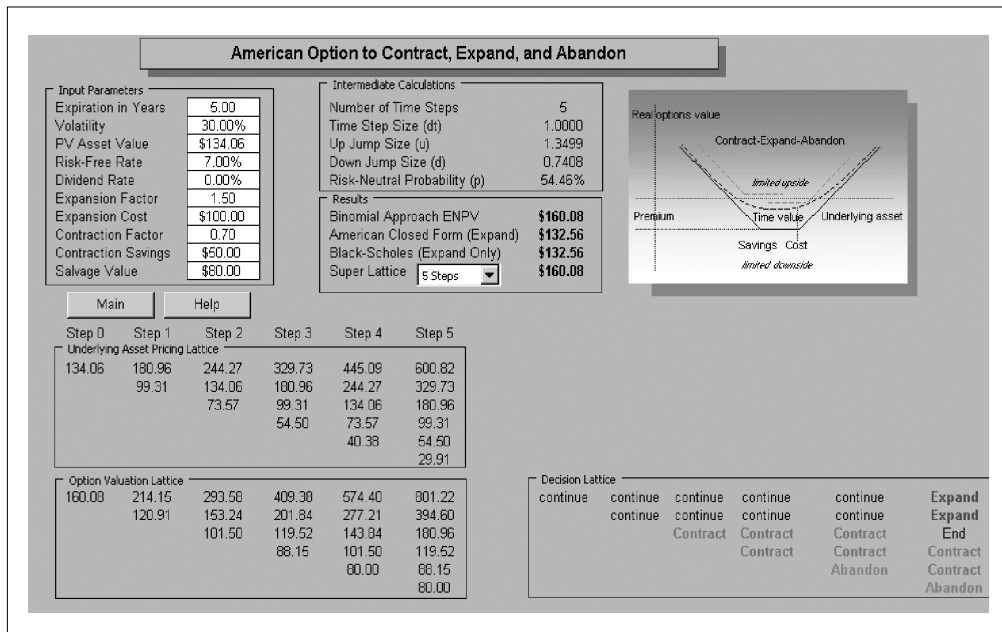


FIGURE 3.16 ■ ENPV of \$145.40 million including contraction options



**FIGURE 3.17 ■ ENPV of \$160.08 million including option to expand, contract, or abandon project**

Therefore, the value of the strategic real option to contract is worth approximately \$11m.

Now, let's incorporate both the expansion and contraction options into the valuation process. In the real world, management may have the option to either expand or contract the scale of a project as it sees fit. Management may even choose to abandon the project altogether. Therefore, this can be a realistic scenario.

In this case, management has the right to expand the project scale by 50 percent any time over the five years following inception, at a cost of \$100m. Management also has the right to contract the scale of the project by 30 percent any time over the five years following inception, at a cash savings of \$50m. In addition, we have assumed that management has the right to abandon the project for a residual value of \$80m.

We see that the ENPV of the project is now \$160.08m, (see Figure 3.17) which is \$26.02m higher than the static NPV estimate. Clearly, these real options ought to be considered in the capital budgeting valuation process.

## Mergers and acquisitions

The essence of an acquisition is to create a strategic advantage by paying for an existing business and integrating that entity with the firm's strategy. The incentive to acquire exists when acquisition is more cost-effective than organic internal development.

Long-term survival of any corporation depends on its continued ability to develop strength relative to its competitors. Success in achieving this strength depends on the ability to shift resources from well-established, mature business activities to emerging business activities with growth potential.

Within this ongoing process of self-renewal, the company must decide whether, given its basic strategy, it is better off shifting these resources through acquisitions or through redistribution among existing entities. Mergers and acquisitions (M&A) activity is an important avenue through which companies can rebalance their product and market portfolios.

A diversified firm may have a hierarchy of business strategies that develop a set of inter-related businesses which provide reasonable balance and stability within the firm.

Planning for an acquisition involves a search for business entities that will balance and strengthen the firm's overall portfolio or provide for improved processes or efficiencies. Acquisitions may also be dictated by the need to enter new growth markets. However, releasing optimal value from a merger or acquisition has traditionally been difficult. Research shows that a staggering 80 percent of deals fail to deliver the intended shareholder value.<sup>62</sup>

Many acquirers justify their acquisitions and acquisition prices on expected synergies. Examples include a new product line that fits the acquirer's present distribution channels, a raw materials supplier that assures a manufacturer's uninterrupted needs at reasonable prices, or a seasonal business that buys a counter-seasonal business to smooth out the revenue stream.

### EXAMPLE

Pfizer Inc., offered a hefty 44 percent premium over the market price for Pharmacia Corp, paying \$60bn in stock for Pharmacia, which in June 30, 2002 had a book value of only \$12.2bn.<sup>63</sup>

Success in M&A requires the careful identification and valuation of acquisition candidates based on both strategic and financial criteria. For corporate acquirers, the analysis looks at a deal's potential for improving the performance of both the acquired business and the parent. Improvements often depend on merger synergies. Yet, these synergies frequently

fall short of expectations, particularly when the economy turns for the worst. Consequently, a forecast of the macro-economic condition is critical to M&A strategy.

Some acquisitions are secured at high premiums because of unrealistic assessments of future returns from the synergies expected to be generated from the performance of the combined entity.

Most M&A valuations are performed by discounted expected future income streams which are based on assumptions of future performance of the company, future economic expectations, and future earnings increases through synergies. In practice, most acquisitions are made at a premium to the intrinsic value calculated through discounted cash-flow valuation.

If the assumptions are too optimistic, overly generous premiums may never be recouped. The extent of premium to be paid is a key element in the decision to acquire a business. The purchase price is usually higher than the current value of the business, primarily because stockholders of the target company need an incentive to transfer control to another owner. Sophisticated buyers regard the final premium as the outcome of negotiation or bidding, not as a predetermined figure.<sup>64</sup>

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*Sophisticated buyers regard the final premium as the outcome of negotiation or bidding.*

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Corporate buyers are usually motivated by strategic objectives – expanding an existing business, improving financial performance, reducing costs in the existing business, enhancing top-line revenues or valuation multiples, improving liquidity, or extending into a new line of business. Such a move can potentially strengthen the firm's internal operations by broadening its product or service spectrum while simultaneously reducing competition.

An acquisition is made on the premise that some estimated gains from the transaction will exceed the premium paid for the acquired company. The post-acquisition problems reside in the exploitation of these estimated gains. Typically, this is a considerable challenge, because interaction between the acquirer and target company's management is very delicate. Winning commitment from the target company's management depends on the modalities of the transaction, i.e. whether it is an unfriendly takeover or merger. The degree of cultural mismatch plays a role in terms of how easy or difficult it will be to integrate one into the other.

The integration of productive assets is also an important dimension of the post-acquisition challenge. A frequent reason for acquisition is the use of shared resources between firms. However, the cost of unbundling the target firm's physical facilities, production plants, and distribution channels, for example, often may exceed pre-acquisition estimates. Alternatively, a subsidiary company may not fit with the future business strategy of the corporate parent, leading the parent to initiate the divestiture of the subsidiary.

The fundamental financial justification for a corporation to make an acquisition is to increase the per share value of the acquirer over the long term. In order for this to happen,

the projected incremental cash-flows from the acquisition must be valued higher than the acquisition price. The fundamental reason for a company to agree to be acquired, if the transaction is for cash, is that the selling shareholders have an immediate opportunity to be paid for some of the acquisition's expected benefits.

In a transaction in which the seller receives the acquirer's stock, the seller, as one of the acquirer's shareholders, will also share in the benefits of the merger over time. In determining whether an acquisition will, on balance, create value for the acquirer, several rules are becoming commonly accepted among the experts:<sup>65</sup>

- Pure conglomerate acquisitions do not necessarily create new shareholder value.
- Counter-cyclical acquisitions do not necessarily create value.
- The market does not reward purely acquisition-induced growth.
- Related diversification can be an important means of creating value in acquisitions.
- Acquisitions can be an important means of reaching a critical mass, where size is an important industry factor.
- Acquisitions are tax-efficient means of investing excess corporate funds.

Rising above the statistics and extracting maximum value from a corporate transaction is crucial for both entities. The dangers of mergers and acquisitions have long been known. The reality is that deals are often disruptive and may result in short-term value leakage. Many businesses underperform on budget expectations in the pre-deal process as vital energies are directed towards the transaction.

An aggressive M&A market emerged towards the end of 2000.<sup>66</sup> M&A deals are now a prominent feature in the corporate landscape. For the CFO, a strong M&A presence in the marketplace presents considerable challenges. At no other time is a CFO and their management team under such public scrutiny. The way they respond to this situation is an important driver of shareholder value.

Based on the *CFO 100 Survey*, evidence would suggest pricing premiums in the market have come down considerably in the last decade. One of the drivers of M&A activity for companies is the desire to gain a significant competitive advantage in its product or service category.

Worldwide consolidation pressures in sectors like banking and finance, telecommunications, resources and those with global brands, continue their trend to global consolidation. Low interest rates make funding available at relatively cheap rates for well-capitalized companies looking into M&A as a means of growth.

## Shareholder concerns

Shareholders will have one of two concerns, dependent on whether they are shareholders in the acquiring company or target company. Firstly, given the potential for assets to be relatively cheap, shareholders of the target company will be concerned with capturing the maximum possible value from assets. High takeover premiums often indicate disposing shareholders generally do benefit from M&A transactions, providing they are on appropriate terms.

For shareholders of the acquiring company, it is usually hard to extract value from an M&A deal. Empirical evidence suggests 60 percent of mergers and acquisitions are unsuccessful from the shareholders' point of view. Most commonly, this occurs because in a competitive auction, the highest bidder typically pays a premium greater than the expected benefits of the deal to win. This is otherwise known as the "winner's curse."

Therefore, shareholders of acquiring companies will be concerned that management does not pay too much for the target company. Average US and Australian M&A premiums, 41 and 13 percent respectively during the year 2000, indicate it may be easier for US acquirers to create value than for their domestic counterparts to do so. However, the body of academic and commercial research on M&A issues suggests it is more likely that disposing shareholders rather than acquiring shareholders will benefit from the deal.

PricewaterhouseCoopers' research reveals most businesses continue to suffer shortfalls against budget in the post-deal period – necessitating a dramatic increase in revenue to achieve original expectations. Value from a corporate transaction is most often lost because organizations fail to act quickly to capture the synergies available.

If the organization was involved in a competitive bid process, it will have reflected a significant part of that synergistic value in its bid price. If it has not realized all that synergistic value, it has lost value for its shareholders. Companies need to "seize the day" and immediately set about extracting value. Unfortunately, this is the exception rather than the norm.

Acquiring is only half of realizing the value. The other half lies in establishing an implementation process which delivers that value. So, where are organizations falling down? Many fail to devote adequate time to planning and implementation.

A well-thought out planning process ensures you have a solid foundation from which to work. It acts as a map to guide you through the maze of issues you will encounter as you progress through the life-cycle of a deal.

Too many transactions are undertaken without the necessary plans in place – plans crucial to ensuring an optimal result. Knowing your own strengths and weaknesses allows you to identify the most attractive targets for your company. Once you have a target in your sight, you need to keep an eye on your original plan. Evaluate the target carefully. Does it fit in with both your strategic and financial objectives?

People get caught up in future projections and the idea that this makes great strategic sense – and overlook the financial impacts. Any deal constructed under such circumstances

is leaching value from the outset. Once you are sure the transaction is in line with your overall strategy, you need to pull together the right team to take you from the evaluation to integration process. If you want to reap the full benefits of the deal, now is the time to assemble an expert team of both your own people and external advisors.

A multi-disciplinary team should include people with project management skills and previous experience working on corporate transactions. You also need people who know your business – and the business you are looking to acquire. Finally, you need to build a team of tax, finance, legal, human resources and accounting people – either from within your organization or from an external provider.

Bringing in expert advice plays a major role in ensuring the effectiveness of a deal. A diligent approach to planning is required. Due diligence presents one of the greatest opportunities to maximize the benefits of the deal. This phase of the transaction has a larger role to play than simply sizing up the financial and market position of the company. For the smart players, due diligence is where the integration planning begins.

Due diligence of a target should include likely post-deal synergies and human resource and information technology issues. The due diligence phase also represents a real opportunity to examine the human capital of the organization.

An effective human resources strategy is a vital component to the success of a business restructuring strategy. Although it may seem clichéd, people are usually the company's most important asset. Unfortunately, this is often overlooked in a large financial transaction, as the “traditional” due diligence process focuses largely on the balance sheet and perceived key financial risks.

One of the key risks involved is dealing with employee share and option plans. The due diligence process can also afford opportunity to conduct a cultural audit of the business – allowing you to ascertain how compatible the cultures are and identify areas for immediate attention on day one.

It is crucial you identify the key people in the organization as early as possible. They are the ones who have assisted in creating the company's value – and having them on board places you in the best position to derive maximum value.

Achieving value greater than the sum of the parts: the due diligence process is the time to understand exactly what the value drivers in the business are – and how that value is going to be extracted from day one. You cannot underestimate the importance of the links between upfront planning, due diligence and the post-deal activities undertaken.

The best way to get proper linkage is to ensure that line management and those involved in the everyday business are involved throughout the transaction – and most crucially in due diligence. Many companies lose value on transactions because the deal makers failed to understand the business they were acquiring. People have a grip on the revenue stream, but not the logistics.

You need to ensure you know how the business operates – how things actually get done. What IT is involved in the business? How is it maintained? What licenses are held? These are simple questions but they go to the heart of identifying and capturing the value.

Value is often lost from a transaction because “deal fatigue” sets in once the signatures are on the dotted line. People pour their hearts and souls into this for months – and once the acquisition phase is over, the passion dies. To combat this, especially on complex deals which have taken an age to resolve, form both an acquisition and integration team. The integration team should share some of its members with the acquisition group, but generally the key movers and shakers in the integration team should be people with an intimate knowledge of the businesses. They will bring a degree of energy that would be lacking if you tried to use the entire acquisition team again.

Once you have been through the due diligence process – and have agreed on a deal designed to optimize your tax benefits and deliver greatest value, day one rolls around with frightening speed. This is especially so given the fact that the window between closing the deal and taking ownership will involve as much blood, sweat and tears as the deal itself.

Signing the deal should trigger an intensive planning mindset. Focus should quickly turn to empowering management to build the framework that will allow the business to meet its objectives and value expectations. The integration team should be dedicated to performance improvement; revenue and cost synergies should be estimated and achievements monitored to enable rapid and proactive re-calibration of effort. There should be great focus on projects delivering the greatest value in the shortest time – with the least risk.

Finally, you want the team focussed on capturing all pre-deal identified synergies in the post-deal environment. This means you have got to go back to all the value you recognized in the due diligence phase and extract it – quickly. Speed is critical in ensuring organizations reap the most value from an M&A transaction.

It is vital that benefits flow quickly. Acquirers need to minimize disruption, manage conflict and interdependencies to allow rapid transition to proceed. When it comes to addressing barriers to success, cultural issues are the most significant inhibitors to successful transition.

Communication and change management needs to be handled carefully. Communicating the changes at hand to both internal stakeholders and the market will help manage any perceived drop in value.

Post-transaction, it is important to measure the effectiveness of the transaction. Keeping track of where the business is at and taking steps to plug value leakage is part of the ongoing game plan. The business must be able to produce timely, accurate and useful information, especially in relation to working capital and cash-flows.

Reporting systems should be capable of providing regular updates of current versus historical performance – including coverage of key performance indicators and the efficiency



of working capital usage. Most important however, is forecast performance, particularly in respect of cash-flows and debt headroom. When done correctly, the benefits of investing heavily in your new acquisition will continue to be apparent for years to come.

Compliance with regulatory issues form an important component. Ensure you have changed your various elections or notifications as to the group that you are operating for tax purposes. This cannot be retrospectively changed, so it is crucial you get it right – or risk penalties from the tax office. Does the new business structure you have inherited match your future plans? If not, you need to think about what transactions are necessary and the timing of these.

Additionally, your structural and financing profile may not be able to meld easily to the profile you have acquired. Examine exactly what is the most effective structure on an ongoing basis – and make moves to implement it. Remedial action – what did you identify during the due diligence process as demanding attention?

A new acquisition typically involves a significant change in the current financing arrangements. Take a look at the financing strategy that is appropriate to fund the acquisition and refinance existing arrangements. The additional value you can drive may go some way to recouping the acquisition costs.

## Steps to protect and enhance value

CFOs can use the following steps to protect and enhance the value available to shareholders in M&A transactions. The steps have been put together from the perspective of targets.

Targets should have an action plan to protect against potential unwelcome takeover offers. Independent valuations need to be kept up-to-date. In a recent deal PricewaterhouseCoopers participated in, significant revisions of the initial offer were required to put the deal on appropriate terms. Without any early involvement it is difficult to negotiate this extra value. Targets need to recognize that their ongoing trading price reflects certain discounts such as liquidity, size, and even conglomerate discounts. The offer must be assessed for reasonableness in light of those facts. Also an awareness of the likely takeover premiums, particularly those relevant to the industry, is necessary.

The shareholding structure needs to be evaluated as well. Having cornerstone shareholders who understand the true value of the business can protect targets from unwelcome and low value offers. Even in a formal takeover situation, the introduction of competitive tension can drive premiums upward. Studies show the introduction of competitive tension into auction-like situations can significantly increase premiums available to disposing shareholders.

There are a number of guidelines that help an acquirer arrive at a bid price. A careful consideration of the changing M&A market trends, historical trading and pricing multiples, industry rules of thumb, and competing third-party bidders are among the factors that can shape a buyer's pricing decisions. Motivations and objectives of both buyers and sellers vary from case to case and also affect pricing.

Intelligent assessment of the full range of these forces enables a buyer to price a deal effectively. Good acquisitions can enhance shareholder value by expanding geographical coverage, broadening distribution networks, advancing technological skills, and creating operating efficiencies. Bad ones can destroy the value of healthy companies. Companies today are making acquisitions that enhance their key market positions and are undergoing divestitures that extract non-core businesses.<sup>67</sup>

Diversification, by definition, implies a broadening of operations and scope. But unlike the diversification of the 1960s, which was financially driven, the M&A activity of the 1980s and 1990s have been market-driven. Statistics compiled from the Mergers and Acquisitions Data Base indicated that the average premium paid, above market value, for acquiring publicly held companies during the late 1970s and 1980s ranged from a high of 70 percent in 1979 to a low of about 40 percent in 1987. The 1990s premiums have averaged in the 35–50 percent range. This would imply that strategic valuations have been significantly higher than traditional financial analysis would suggest.<sup>68</sup>

A buyer cannot begin to identify synergies between combining organizations until it can compare their per unit costs and revenues by business line or activity. A fair assessment of relative performance requires understanding the key drivers of cost and their differences. However, a synergy estimate used in pricing an acquisition is merely that, an estimate; it is the realisation of the estimate that translates into value for an acquirer.

*A synergy estimate used in pricing an acquisition is merely that, an estimate.*

On a purely pragmatic basis, the premiums paid for publicly owned corporations are influenced by many strategic and qualitative factors other than purely financial ones. M&A is a vehicle for competitive positioning and operational efficiency when it is driven as part of an overall strategic game plan and is grounded on a thorough understanding of the economic value and risks of acquisition candidates and alternative growth options.

### CASE STUDY 3.7 IBM<sup>69</sup>

In 2002, IBM completed 12 acquisitions at an aggregate cost of \$3,958m. The largest acquisition was PricewaterhouseCoopers Consulting (PwCC). On October 1, 2002, the company purchased PricewaterhouseCoopers' (PwC) global business consulting and technology services unit, PwCC, for \$3,474m. The acquisition of PwCC provides IBM with new expertise in business strategy, industry-based consulting, process integration and application management. The purchase price above includes an estimated amount of net tangible assets to be transferred of approximately \$422m. The recorded amount of net tangible assets transferred to IBM from PwC on October 1, 2002, was approximately \$454m

higher than the estimate. IBM paid \$2,852m of the purchase price in cash, \$294m primarily in the form of restricted shares of IBM common stock and \$328m in notes convertible into restricted shares of IBM common stock.

In connection with the acquisition, IBM incurred approximately \$196m of pre-tax, one-time compensation costs for certain PwCC partners and employees. This amount relates to restricted stock awards and the compensation element of the convertible notes issued as part of the purchase consideration and was recorded in the fourth quarter of 2002. The portion of this amount recorded as part of sales, general and administrative expenses (SG&A) in the Consolidated Statement of Earnings as compensation expense for the convertible notes equals the difference between the fair value and the face value of the notes.

As a result of its acquisition of PwCC, IBM recorded a liability of approximately \$601m in the fourth quarter of 2002 to rebalance its workforce and to vacate excess leased space. All employees affected by this action were notified as of December 31, 2002. The portion of the liability relating to IBM people and space was approximately \$318m, and substantially all was recorded as part of SG&A in the Consolidated Statement of Earnings. The portion of the liability relating to acquired PwCC workforce and leased space was approximately \$283m and was included as part of the liabilities assumed for purchase accounting.

	<i>Amortisation years</i>	<i>PWC</i>	<i>Other</i>
Current assets		1,197	264
Fixed non-current assets		199	102
Intangible assets			
Goodwill		2,461	364
Completed technology	3		66
Strategic alliances	5	103	
Non-contractual customer relationships	4 to 7	131	
Customer contracts and backlog	3 to 5	82	6
Other intangible assets	3 to 5	95	10
Total assets acquired		4,268	812
Current liabilities		560	208
Non-current liabilities		234	124
Total liabilities assumed		794	332
Net assets acquired		3,474	480
In-process research development			4
<b>Total purchase price</b>		<b>3,474</b>	<b>484</b>

**FIGURE 3.18 ■ IBM's Acquisition of PricewaterhouseCoopers and other assets (\$ million)**

**CASE STUDY 3.8 Exxon-Mobil<sup>70</sup>**

On November 30, 1999, a wholly-owned subsidiary of Exxon Corporation merged with Mobil Corporation so that Mobil became a wholly-owned subsidiary of Exxon. At the same time, Exxon changed its name to Exxon Mobil Corporation.

As a condition of the approval of the merger, the US Federal Trade Commission and the European Commission required that certain property — primarily downstream, pipeline and natural gas distribution assets — be divested.

The carrying value of these assets was approximately \$3bn and before-tax proceeds were approximately \$5 bn. Net after-tax gains of \$40m and \$1,730m were reported in 2001 and 2000, respectively, as extraordinary items consistent with pooling of interests accounting requirements. The divested properties historically earned approximately \$200m per year. The merger was accounted for as a pooling of interests.

In association with the merger between Exxon and Mobil, \$410m pre-tax (\$275m after-tax), \$748m pre-tax (\$525m after-tax) and \$1,406m pre-tax (\$920m after-tax) of costs were recorded as merger-related expenses in 2002, 2001 and 2000, respectively.

Charges included separation expenses related to workforce reductions (approximately 8,200 employees at year-end 2002), plus implementation and merger closing costs. The separation reserve balance at year-end 2002 of approximately \$101m is expected to be expended in 2003. Merger-related expenses for the period 1999 to 2002 cumulatively total approximately \$3.2bn pre-tax.

Pre-tax operating synergies associated with the merger, including cost savings, efficiency gains, and revenue enhancements, have cumulatively reached over \$7bn by 2002. Reflecting the completion of merger-related activities, merger expenses will not be reported in 2003.

**CASE STUDY 3.9 GlaxoSmithKline<sup>71</sup>**

The combination of Glaxo Wellcome plc and SmithKline Beecham plc was treated as a merger at December 27, 2000 under UK GAAP.

Under merger accounting, the shares issued by GlaxoSmithKline plc to acquire Glaxo Wellcome and SmithKline Beecham were accounted for at par and no share premium arose; the shares acquired by GlaxoSmithKline in Glaxo Wellcome and SmithKline Beecham were similarly accounted for at the nominal value of the shares issued.

In the consolidated financial statements of GlaxoSmithKline, the results and net assets of Glaxo Wellcome and SmithKline Beecham were combined, at their book amounts, subject to alignment adjustments.

In view of the proximity of the merger date to the financial year end date, and the relative insignificance of any business activity between December 27, 2000 and December 31, 2000, the accounting date of the merger was for practical purposes taken as December 31, 2000. The whole of the profit for the financial year 2000 of each of Glaxo Wellcome plc and SmithKline Beecham plc was deemed to relate to the period prior to the merger date.

Merger items, restructuring costs and divested businesses, manufacturing and other restructuring costs were incurred by GlaxoSmithKline during 2002 and 2001 in implementation of previously announced plans for restructuring of manufacturing and other activities. These costs were also incurred by Glaxo Wellcome and SmithKlineBeecham in 2000.

Merger integration costs relate to the integration of Glaxo Wellcome and SmithKline Beecham into a unified GlaxoSmithKline business. These costs include consultancy fees in respect of integration planning, severance costs, asset write-offs, costs related to the early vesting or lapse of performance conditions on share options and share incentive awards and costs of the program to encourage staff to convert Glaxo Wellcome and SmithKline Beecham share options into GlaxoSmithKline share options.

Integration costs were incurred in 2002 and 2001 relating to the integration of the Block Drug businesses. These costs include professional fees, severance costs and asset write-offs. Product divestment income arising in 2002 related to the finalization of the disposals of Famvir, Kytril and other products required in 2000 in order to obtain regulatory approval for the merger.

## Asset-liability management: optimizing the balance sheet

Corporate business management is, in a sense, management of assets and liabilities of many sorts. A part of corporate planning is to understand whether the financial obligations or liabilities are in sync with investments or assets.

If short-term debt is incurred to finance long-term fixed assets, then increasing short-term interest rates will put undue pressure on liquidity, and is undesirable. Similarly, if long-term debt obligations are used to finance short-term assets like inventory, the company may be spending too much on debt, given a positively sloped term structure of interest rates.

Depository financial institutions such as banks, must ensure that the effective maturity of the assets portfolio is the same as that of the liabilities, so that a duration imbalance does not occur. For example, if long-term fixed-rate loans are made with short-term variable rate deposits, an unexpected increase in interest rates reduces the bank's enterprise value, since the market value of its asset portfolio will experience larger capital losses than that of its liabilities. If duration imbalance were reduced, the losses would have been curtailed.

Following the maturity-matching principle, non-financial firms should finance the fixed assets with long-term debt that matures as the useful life of the assets expires, and finance the short-term working capital assets with short-term debt. Therefore, balance sheet assets and liabilities need to be matched by tenure. In other words, the weighted average duration of assets and liabilities should be comparable. Intangible assets should be financed with equity. This way, the company immunizes its asset-liability structure from adverse volatility in market variables. The firm's financial flexibility is enhanced, overall financing costs are minimized, and the firm's default risk is reduced.

Asset-liability management is important, especially in investment and portfolio management, and is particularly applicable for financial institutions and banks that need to match asset and liability durations. Leading pension plans, for example, employ asset and liability management systems for optimizing their strategic decisions.<sup>72</sup>

Balance sheet restructuring is thus an exercise in gaining closer duration alignment between the assets and liabilities of the firm. Since the assets and its characteristics are less amenable to change, typically it is the liabilities that are adjusted to match asset durations. Off-balance-sheet assets and contingent liabilities are often included in a thorough analysis of overall asset-liability mismatches.

When new operating assets which have appropriate tenures are added to the company's asset base by incurring debt, then the asset-liability matching minimizes funding and interest rate risks. Debt is often recalled by corporates in response to lower interest rates, while new equity issuances consider issuance costs and the need for permanent capital injection requirements to fund long-term operations.

Balance sheet restructuring should consider tax implications of both domestic and off-shore financing sources, as well as special purpose vehicles (SPEs) or what are now dubbed variable interest entities (VIEs).

### CASE STUDY 3.10 Merrill Lynch

Merrill Lynch routinely issues debt in a variety of maturities and currencies to achieve low-cost financing and an appropriate liability maturity profile. The cost and availability of unsecured funding may also be impacted by general market conditions or by matters specific to the financial services industry or Merrill Lynch.

In 2002, corporate credit spreads widened considerably with the potential to significantly impact the cost and availability of funding for financial institutions, including Merrill Lynch. Throughout the year, Merrill Lynch adhered to its established liquidity practices and had sufficient financial flexibility to avoid significant changes in the cost and availability of funding.

Merrill Lynch uses derivative transactions to more closely match the duration of borrowings to the duration of the assets being funded to enable interest rate risk to be

managed within limits set by the Corporate Risk Management Group. Interest rate swaps also serve to adjust Merrill Lynch's interest expense and effective borrowing rate principally to floating rate.

Merrill Lynch also enters into currency swaps to hedge non-local-currency denominated assets that are not financed through debt issuance in the same currency. Investments in subsidiaries in non-US dollar currencies are also hedged to a level that minimizes translation adjustments in the Cumulative Translation Account

## NOTES

- 1 George, Abraham (1996).
- 2 Harris and Raviv (1991).
- 3 Pinegar and Wilbricht (1989).
- 4 Booth *et al.* (2001).
- 5 Hatfield *et al.* (1994).
- 6 Kalotay, A, Logue D E, and Hiller, H L (1990).
- 7 Prowse (1998).
- 8 Leland, Hayne (1994).
- 9 Smithson and Chew (1992).
- 10 Shape and Nguyen (1995).
- 11 Helfert (2003).
- 12 Ibid.
- 13 Henry, D (2003).
- 14 Scovanner, D (1997).
- 15 Damodaran, A (1999).
- 16 Palepu, K (1986), and Denis, D J *et al.* (1993).
- 17 Pinegar and Wilbricht (1989).
- 18 Kalotay *et al.* (1990).
- 19 Galitz, L (1994).
- 20 White (2003).
- 21 Bernard 2002
- 22 Beaver in Fabozzi (2002).
- 23 Nissim and Ziv (2001).
- 24 Ogden et al. (2003).
- 25 Ibid.
- 26 Talmor and Titman (1990).
- 27 Damodaran, A (1999).

- 
- 28 Ibid.
  - 29 Vermaelen (1981); Dann and DeAngelo (1983).
  - 30 Edwards C. (2003).
  - 31 J P Morgan (2003).
  - 32 Buzzell R, Gale B, and Sultan S (1975).
  - 33 McKinsey and Company. *Marketers' Metamorphosis*. Updated internal document.
  - 34 Kohli and Sahay (2000).
  - 35 Nagle and Holden (2002).
  - 36 Dolan and Simon (1996).
  - 37 Nagle and Holden (2002).
  - 38 Ibid.
  - 39 Greenwood (2000).
  - 40 In terms of the econometric estimation techniques to be applied to derive the price elasticity coefficient, Generalized Method of Moments (GMM) is preferable to Ordinary Least Squares (OLS) since it is a more robust estimator for such analysis.
  - 41 Simon, H (1992).
  - 42 Nolan and Simon (1996).
  - 43 Tellis (1992).
  - 44 Lambin, J (1976).
  - 45 Kiewell and Roegner (2002).
  - 46 Karayan (2002).
  - 47 Ibid.
  - 48 Thortveit, E and Schaefer, U (2002).
  - 49 PricewaterhouseCoopers (2002).
  - 50 James and Woodall (1997).
  - 51 PricewaterhouseCoopers (2003d).
  - 52 IBM Annual Report (2002).
  - 53 DaimlerChrysler Annual Report (2002).
  - 54 Toyota Annual Report (2002).
  - 55 Nestlé Annual Report (2002).
  - 56 Procter & Gamble Annual Report (2003).
  - 57 GlaxoSmithKline Annual Report (2002).
  - 58 Tregorgis, L (1998) and Mun, J (1993).
  - 59 *Harvard Business Review* (Sept–Oct, 1998).
  - 60 Mun, J (2002).
  - 61 Ibid.
  - 62 Rock, M *et al.* (1994).
  - 63 Osterland, A (2002).
  - 64 Lorange, P, Kotlarchuk, E, and Singh, H (1994).



- 65 Case, R (1990).
- 66 Stewart, R (2001).
- 67 Rock, R H (1994).
- 68 Edwards, W J (1994).
- 69 IBM Annual Report (2002).
- 70 Exxon-Mobil Annual Report (2002).
- 71 GlaxoSmithKline Annual Report (2002).
- 72 Mulvey and Simsek (2002).