CHAPTER 4

Are acquisitions successful?

Objectives

At the end of this chapter, the reader should be able to understand:

- how success of mergers is assessed using a variety of perspectives;
- how shareholder value creation in mergers can be measured and assessed;
- the variety of empirical methodologies that have been developed for this purpose;
- the limitations of these methodologies;
- the results and conclusions from the empirical studies relating to the success of different types of mergers in different countries; and
- the possible sources of value destruction and how they relate to different merger perspectives.

Introduction

In Chapter 2 we examined the merger waves that have occurred in several countries since 1890. The intensity of merger activity over short periods, and the high acquisition premia often paid during the merger waves, have invited pejorative descriptions such as ‘merger mania’ or ‘merger frenzy’. These reflect the widely held perception that mergers are often driven by irrational impulses and not by carefully constructed and honestly endorsed arguments for value creation. To what extent is this perception based on carefully assembled evidence? Who are the winners and losers in mergers and acquisitions?

In the last chapter we developed alternative perspectives on the causes of and motivations for mergers. The economic and strategy perspectives suggest that mergers may be driven by economic and strategic logic that seeks to establish competitive advantage, leading to value creation for shareholders. The finance perspective proposes shareholder wealth maximization as the pre-eminent objective of merger decisions, although contextual factors such as principal–agent problems, weak corporate governance structure and an imperfect market for corporate control may cause deviation from this objective.

The organizational perspective calls into question the assumption that acquisition decision process is a coldly logical process driven by considerations of economic rationality and shareholder value imperative. It also raises the possibility that the outcome of any merger may not
deliver the *ex ante* merger objectives because of the difficulties in achieving the organizational change that is a precondition for their achievement. The managerial perspective, again drawing upon the agency model of the firm, points to managerial objectives that may conflict with shareholder objectives. Managerial incentives, designed to alleviate the agency conflicts, may also have perverse effects by encouraging managers to take more risk. The collapse of the stock markets and of the M & A waves in 2000–2001 have been attributed to such skewed incentives. These various perspectives suggest that merger outcomes may not always be beneficial to shareholders and other stakeholders.

Nevertheless, mergers and acquisitions are of considerable interest to all the stakeholders in the merging firms. These include shareholders, managers, employees, consumers and the wider community. Thus assessment of the ‘success’ of mergers depends on the particular stakeholder perspective adopted, and on the success criteria that flow from that perspective. Definition of the criteria for success as well as the measurement tools and benchmarks must therefore be carefully set out for a proper evaluation of merger outcomes.

There is a widely held view that a vast majority of mergers and acquisitions ‘fail’. This view, if true, is a matter of grave concern to all stakeholders, since trillions of dollars are spent by firms on M & A, pointing to a horrendously wasteful investment of society’s resources. Further, understanding the extent of failure of M & A and identifying the factors that contribute to such failure are important in meeting the risks and challenges of the M & A process and crafting successful M & A in future. The evidence assembled in this chapter thus defines the scope of our discussion in the rest of the book.

In this chapter we define several criteria for measuring merger success from different stakeholders’ perspectives. We review the available empirical evidence of the outcomes of mergers and acquisitions in different countries and in different types of merger. The methodologies used to assess merger performance are described. The limitations of these methodologies and their impact on the assessment of merger success are indicated. Possible sources of failure of mergers, and the challenges of fixing them, are identified for further elaboration in later chapters. The main focus of the assessment in this chapter is whether mergers create shareholder value.

**Defining success of mergers and acquisitions**

A merger involves the coming together of two companies – the acquirer and the acquired. In each company there is a range of stakeholders, including the shareholders, managers, employees, consumers and the community at large. The antitrust authorities, e.g. the Federal Trade Commission (FTC) in the US, the Competition Commission in the UK, the European Commission in the EU or the Federal Cartel Office in Germany, are the custodians of the interests of the consumers and the community at large, and regulate mergers and acquisitions. These competition authorities generally follow the rule that mergers that lead to substantial lessening of competition (SLC) should be prohibited. We examine the role of antitrust authorities in Chapter 17.

In this chapter we are concerned with assessing the success of mergers from the perspectives of shareholders, managers, employees and the firms themselves. As noted above, the interests of these groups do not always coincide. One group can win at the expense of the others. For example, a takeover can lead to high shareholder returns, but loss of managerial jobs. This conflict often drives managerial resistance to takeover bids (see Chapter 21 on defences against hostile takeovers). Similarly, acquisitions motivated by efficiency considerations such as scale economies and rationalization of the merging firms’ operations will result
in redundancy, wage cuts, or loss of pension rights for the workforce. Managers may benefit from making or accepting takeovers, but the shareholders and other stakeholders may lose from those deals.

Our primary focus in this chapter is the shareholder value impact of mergers. We examine the empirical evidence for the success of mergers in terms of shareholder value created by them. This evidence comes from a number of countries. Since mergers and acquisitions are based on a range of value creation models (see Chapter 3 on merger perspectives), evidence relating to the success of different types of merger is presented. Both short-term and long-term wealth effects are germane to the assessment of success of mergers. The impact of mergers on productivity and innovation that have long-term welfare implications for shareholders as well as other stakeholders is also investigated. We then examine the impact of mergers on managers and other employees of the merging firms. In particular, we focus on whether mergers lead to managerial and employee job losses, or have other deleterious consequences for them. We also identify firm and deal characteristics that may cause acquisitions to succeed or fail.

**Acquisitions and shareholder value**

According to the finance theory perspective, managers’ decisions are aimed at enhancing shareholder wealth. How do acquisitions stand up to this test? If we can show that shareholders are better off – that the value of their shares has increased as a result of the acquisition – then this test is satisfied. The term ‘better off’ is taken to mean that the shareholders’ wealth gains are enough to compensate them for the risk they bear in being invested in the acquirer company following the acquisition. Technically, this means that the return they earn from investing in the acquirer’s stock is at least equal to the cost of capital. If an acquisition fails this ‘shareholder is better off’ test, the shareholders would have been better off investing their capital in another investment opportunity, say, a better-performing company. The investors’ required rate of return is thus equal to their opportunity cost.

**Measuring the impact of acquisitions on shareholder returns**

**The benchmark problem: conceptual issues**

While the above test is conceptually simple, in practice it poses a number of problems. The most fundamental problem is the appropriate benchmark for assessing the post-acquisition performance of the acquirer. The post-acquisition firm is different from the acquiring and acquired firms that existed prior to the acquisition. What would have been the shareholder value performance of the two firms had they not merged? Since they normally do not exist as separate entities after a merger, to answer this ‘counter-factual’ question requires some assumptions about how the two firms might have performed. For example, the two firms might have persisted in their pre-merger competitive strategies generating the same returns for the shareholders as before.

Suppose firms X and Y were of equal size and generating returns of 10% each in the pre-merger period. Extrapolating this performance on the assumption that they would have continued to pursue the same strategies and generated the same returns as before yields an expected performance of 10% (the weighted average of the pre-merger returns, weighted by the value of each firm). The merged firm Z (= X + Y) will satisfy our shareholder value creation test if it generates at least 10% return for the combined firms’ shareholders. This benchmark poses at least two problems of a conceptual nature:
X and Y might not have continued to perform as well as before.

Z may perform better than X and Y combined, even if individually they would have only maintained their pre-merger performance.

The first objection to extrapolating the past arises from the argument that firms undertake mergers precisely to alter the extant strategy to gain competitive advantage. Failure to alter the strategy might have led to an erosion of their current competitive advantage and a decline in shareholder value performance. The second objection arises from the argument that the purpose of the merger is to create new sources of competitive advantage and thereby enhance shareholder value performance. In the first case extrapolation overstates the expected performance, and in the second it understates the expected performance of the merged firm. Thus one needs to incorporate the expected shareholder value improvements that the merger promises in the benchmark used to evaluate those promises.

Persistence of high profitability or stock market value

Another problem that makes choice of benchmark critical is the persistence of profitability or high stock market valuation of the acquirer from the pre-merger period to the post-merger period. Where such performance persists, any post-merger performance measure needs to be stripped of this persistent component to capture the true impact of the merger on performance. Several studies in both industrial organization and stock price behaviour indicate persistence. Some studies of post-merger performance have sought to control for this persistent component of the post-merger performance (see the review of these studies later in this chapter).

Forecast performance as a benchmark

Once the merger is consummated, the merging firm’s trail may be lost, and it becomes difficult to see how well these firms might have performed: that is, the counterfactual is difficult to construct. One way to overcome this problem is to use the forecast performances of the merging firms on a stand-alone basis and then synthesize a measure of forecast performance for the two firms together. This synthetic portfolio’s forecast performance provides a useful benchmark. This benchmark allows for changes in, say, market conditions or competitive reaction, and thus does not just extrapolate past performance. This benchmark, however, depends on the quality and reliability of analysts’ forecasts of future performance, and may not be available for sufficiently long future periods. It is rarely employed in empirical research.

External benchmark

Extrapolation uses the merging firms as their own benchmark, and throws up the problems identified above. What about an external benchmark, i.e. a firm that is ‘identical’ to the acquiring firm except that it has not made an acquisition? Researchers assess the performance of merging firms against the benchmark of these non-merging firms, called ‘control’ firms. How does one pick a control firm or a set of control firms for each acquiring firm? Any pair of firms may share similarities as well as differences in their strategic posture, resources and capabilities, growth prospects, financial characteristics such as debt to equity ratio or cash resources, and corporate governance structures.

In picking the appropriate control firm we need to apply screening criteria based on one or more of the above characteristics of firms, e.g. growth opportunities or size. Both the screening criteria and the control firm chosen must be fit for the purpose, i.e. measuring post-merger performance. The test is whether the merging firms and the control firms would have produced the same shareholder value performance in the absence of the mergers. The assumption is that firms sharing the same characteristics would have produced the same performance.
Control firms are often chosen on the basis of shared characteristics that are a key or even perhaps the only determinant of shareholder returns. For example, consider the capital asset pricing model (CAPM), a model developed to value securities and based on the correlations or co-movement of returns among those securities. It yields the result that the return generated by an asset depends on the risk-free interest rate, the return on the capital market, and the market-related risk known as the systematic risk or beta. Of these, the first two are common to all firms whose stocks are traded in the same stock market. Therefore two firms with the same systematic risk are expected to yield the same return.

A firm that has the same systematic risk as the merging firms then provides a good control for estimating the post-merger performance. However, this procedure assumes that the systematic risk of the merged firm will continue to be the same as that of the control firm. This raises the question of whether the merger has altered the systematic risk profile of the merging firms. Strategic reconfiguration of firms often alters their risk profile. For example, a horizontal or vertical merger may change the cost structure, market share and volatility of earnings, thereby changing the risk profile. In this event the control may no longer be a valid benchmark if it does not undergo similar transformation.

More recent studies have cast doubt on systematic risk, i.e. beta being the only relevant parameter in determining the returns to individual firms. In a series of empirical papers Fama and French have shown that, in addition to beta, two other factors may be relevant: the size of a firm and its market value to book value of equity (referred to simply as market-to-book). Barber and Lyon have shown that matching by size, market-to-book and pre-event performance may provide adequate control. The importance of these factors as determinants of stock returns rests on extensively documented empirical evidence that realized returns from company stocks depend on the company size as well as on its market-to-book ratio.

Unlike the CAPM’s beta, these additional variables, such as size and market-to-book, have been identified through empirical research rather than from first principles. Indeed, in the finance literature, the empirical relevance of variables such as size and market-to-book ratio is treated as an aberration or ‘anomaly’. Such anomalies are attributed to market imperfections, investor biases or plain irrationality. They are often derided as ad hoc rationalizations or products of data mining, and as lacking in theoretical foundation. They may also capture risk factors that are as yet not clearly understood. Nevertheless in practice, in assessing post-merger performance, we need to control for these factors.

**Other firms in the acquirer’s and acquiree’s industries as benchmark**

Since firms in the same industry share many production and market characteristics and growth opportunities, an appropriate benchmark is the performance of other firms in the same industry. To start with, all firms in the same industry selling similar products face the same technological and demand conditions, and are subject to similar competitive pressures from rivals, suppliers and customers. If firms within that industry merge to gain greater competitive advantage, the non-merging firms provide a benchmark to assess the success of that strategy. The average or median performance of these non-merging industry rivals thus serves as a benchmark. As our discussion of industry clustering of mergers in Chapter 2 shows, firms facing the competitive pressures often follow ‘me-too’ competitive strategies. Thus another benchmark may be firms in the same industry following broadly similar competitive strategies.

**Summary of the benchmark problem: conceptual issues**

The above discussion, albeit brief, provides an indication of the perplexing diversity of benchmarks to determine the success of acquisitions. It is not always robust theoretical models, built from first principles, that guide the choice of benchmarks. Many benchmarks are chosen
because their relevance to the value or return-generating process has been empirically demonstrated by several prior studies. Many, of course, are also intuitively meaningful even though the intuition lacks rigorous conceptual underpinning.

**Measuring shareholder wealth impact: when is it felt and for how long?**

The timescale for assessing the wealth increase is an important consideration. The need for the long-term analysis of shareholder returns also depends on one’s view of the efficiency of the capital markets. If they are informationally efficient, they foresee all the future benefits and costs of a merger, and factor them into share prices at the time of the merger. Then the time interval (‘event window’) that exhausts all the valuation effects of the merger (‘event’) is short. Analysis of valuation changes outside this event window is therefore redundant, and such changes are due to other events unconnected to the acquisition, and random (called ‘noise’ in the literature).

This short event window places great reliance on a prescient, or even an omniscient, capital market that can fairly quickly, if not instantaneously, impound the full ramifications of the acquisition as well as the probability of realizing the acquisition benefits in the stock prices. However, several studies of stock market reaction to events such as release of accounting information, initial public offerings, rights issues, etc., have shown that stock markets continue to react after their impact day, i.e. their announcement day. This evidence of ‘stickiness’ in stock market pricing suggests that the market takes time to digest information about these events, or awaits more information to assess not only the extent of the benefits but also the probability of their realization. Thus recent empirical studies have extended the event window to three, five or even seven years.

Lengthening the event window to several years may make good sense when capital markets have to wait and see how the acquisition drama unfolds and revise their judgement in the light of new information about the progress of acquisition integration and competitor reaction. However, long event windows create other problems. First, the longer the event window, the greater are the chances that other events such as strategic, operational or financial policy changes of the acquirer firms will impact on their valuation. Thus the water is muddied, and unambiguous evaluation of merger benefits becomes difficult. Second, long windows raise questions about the efficacy of statistical test procedures, and reduce the reliability of test results.

For the above reasons, finance researchers have employed a variety of test procedures that differ in benchmark, length of event window, return estimation, benchmark for ‘normal’ return, statistical test, etc. Some of the tests are parametric, that is, they assume normality of statistical distribution of the stock returns. Since this assumption is generally not true (because of skewed stock returns), other studies use non-parametric tests. These differences, indicated below, make comparison of the results of these studies difficult. Where, however, a similar pattern of post-acquisition performance emerges in spite of these differences, the conclusions are robust and reliable.

**Review of stock market assessment of acquisition performance**

Post-acquisition performance in stock return terms has been empirically assessed in several countries. The 1960s saw an intellectual explosion in the form of new asset-pricing models in capital markets based on the portfolio diversification theory developed by Harry Markowitz. The elegant and concise CAPM was derived by a number of researchers, including William Sharpe, John Lintner and Jack Treynor, and then refined by others such as Fisher Black. For
their contribution to these conceptual breakthroughs Markowitz and Sharpe received a Nobel Prize in Economics.

Assuming that capital markets are competitive and efficient in quickly assimilating information, and allow transactions freely, the CAPM sets out the relationship between risk and expected return on a company's stock:

\[ E(R_i) = R_{fr} + \beta_i [E(R_m) - R_{fr}] \]  

(4.1)

where \( E(R_i) \) = expected return in period \( t \) on stock \( i \)
\( R_{it} \) = actual return in period \( t \) on stock \( i \)
\( R_{fr} \) = risk-free return in period \( t \)
\( \beta_i \) = beta of stock \( i \)
\( E(R_m) \) = expected return on the market in period \( t \)

Beta is known as the systematic risk because of its sensitivity to the market and, in turn, the economy as a whole.

If the CAPM is correct, investors are exposed only to systematic and not firm-specific risk, since it is diversified away. Individual securities have different levels of specific risk, and by investing in a portfolio of diverse securities investors can eliminate the specific risk altogether. Since investors can, through diversification, eliminate firm-specific risk, they will not earn any return for bearing that risk. Thus only systematic risk is priced in the capital market. Hence only beta appears in the CAPM model (4.1) above. Any other variability in stock \( i \)'s returns is assumed to be removed when investors hold a well-diversified portfolio (in theory, the market portfolio). Investors’ expected risk premium for bearing the exposure to beta is equal to beta times the risk premium for investing in the market as a whole.

\[ \text{Risk premium on } i = \beta_i [E(R_m) - R_{fr}] \]  

(4.2)

This, when added to the risk-free return, gives the return that investors expect from investing in the stock \( i \).

The risk-free rate is the return an investor can receive from investment that is default free, e.g. a government treasury bill or bond.

**What does CAPM mean for assessing merger impact?**

The normal return we can expect from a stock in the absence of any unusual event such as a merger is given by equation 4.1. If the actual return at the time of a merger exceeds this normal return, that excess or abnormal return \( AR_{it} \) in time \( t \) for the stock of merging company \( i \) is a measure of the merger impact on the value of the stock to investors:

\[ AR_{it} = R_{it} - E(R_i) \]  

(4.3)

Since the critical determinant of the individual stock’s normal return is the beta, given an estimate of beta we can estimate the normal return using the relevant information on the market return and the risk-free rate.

The beta estimate is generally based on the historical relationship between individual stocks’ returns and the market returns and made using sophisticated econometric methods, i.e. time-series regression:

\[ R_{it} = \alpha_i + \beta_i R_{mt} \]  

(4.4)

where \( \alpha_i, \beta_i \) are estimated parameters of the regression. Equation (4.4) is known as the market model. Since alpha and beta are estimated directly by using the historical relationship, researchers started to use the market model to estimate the normal return on stock \( i \) as well as
the abnormal return. In a sense, the market model and the CAPM are related, and alpha can be related to the risk-free return and beta. Many early studies of stock market efficiency and the impact of numerous corporate events, such as acquisitions, dividend policy changes, accounting policy changes, new share issues and seasoned share issues, were conducted using the CAPM, the market model, or slight variations of these.

The market-adjusted model is one such variation. It assumes that alpha in the market model is 0 and beta equals 1. By construction, the beta of the market is 1. These assumptions imply that the individual stock $i$ earns the same normal return as the market, i.e. the stock $i$ is the same as the average stock in the market.

Oh, if only CAPM were true!

When the CAPM was put through its paces in numerous empirical tests, sadly it was found wanting. Beta, hitherto the exclusive key to the returns and hence the value of a stock, was found not to be so exclusive. For want of new theories to rival the CAPM, researchers have developed empirical models of asset returns and prices. These have resulted from attempts to explain the actually observed patterns of stock returns. First to breach beta’s exclusivity was size measured by stock market capitalization of the stock. It was found that, over long periods, small capitalization firms (‘small caps’) generated higher returns than large caps. In other periods the relative outperformance was reversed.

Next to breach beta’s ramparts were two widely used stock market indicators of relative value – the price earnings ratio (PER) and the book to market value ratio (‘book-to-market’). PER is the ratio of the stock price to the earnings per share of the stock (see Chapter 14 on these valuation metrics). It represents the value placed on $1$ of the firm’s earning, and is widely used by analysts and investors to compare firms with different earnings patterns, e.g. in different industries and sectors. Book-to-market is the ratio of the accounting-rules-based value of the assets of a firm that belong to the equity shareholders (net asset value) and the market value of the company’s equity capital. Market-to-book, discussed earlier, is the reciprocal of book-to-market. It represents the value placed on $1$ of the net assets of a firm by the stock market.

Beta makes room for size and book-to-market

Fama and French in a series of articles have developed a model of asset returns that includes the sensitivities of these returns to the following three factors:

- beta;
- size; and
- book-to-market value of equity.

This three-factor model can therefore be used to estimate the normal returns and the abnormal returns to events such as acquisitions. This application of the Fama–French three factor (FFTF) model assumes that three factors are adequate to explain the observed returns. But Carhart found that there was another missing factor! This is the momentum in stock returns: that is, firms experiencing high returns in the past continue to earn high returns. But the last word has perhaps not been said on this matter, since finance researchers have been engaged, long and hard, in a search for what are quaintly described as ‘anomalies’, i.e. aberrations from the CAPM. Other researchers have tried to explain asset prices by including, in addition to beta, size and book-to-market, other proxies for more obscure factors such as dividend yield, past performance or bankruptcy risk. Thus the enthusiastic search for the Holy Grail of the
asset pricing model continues, and this search, as in the legend, may be interminable. Appendix 4.1 provides a summary of the various models that researchers have employed in the past.

What does all this mean for measuring merger impact?

In simple terms, the measured impact is model sensitive, and no uniquely infallible model exists so far. The fallibility of the models also increases with the event window. That is, conclusions based on a model are more reliable in the short term than over the long term. A number of factors affect this trade-off between event window and model accuracy. Among these are the following:

- How the abnormal returns are measured, e.g. arithmetic or geometric returns. (Arithmetic return is a discrete-period return, whereas geometric return is continuously compounded.)
- How returns from one period to the next, say, over several years, are added up: is the return summed up (‘cumulated’), or calculated over the entire holding period (‘buy and hold’)?
- How the statistical distribution properties of stock returns change with event window: for example, do they become more skewed?

In the following sections, where we present the evidence from numerous studies of merger impact, the reader is advised to bear in mind the complexity of the measurement process. As common sense would dictate, less reliance should be placed on small samples and more on results that seem fairly robust to alternative model specifications.

Results of empirical studies of merger impact on stock returns

We first review those studies that have examined US mergers and acquisitions, and then present those from the UK and other countries. We focus first on short-run performance and then on long-run performance. As discussed above, the short-run approach assumes stock market efficiency. Thus the stock market reaction to acquisitions when they are announced or completed provides a reliable measure of the expected value of the acquisition. The long-run performance assessment assumes that markets take time to evaluate the value implications of acquisitions, and await fresh information about the progress of the merger and the probability that merger benefits will be realized.

US studies: short-run performance

Table 4.1 presents the summary results of some of the major studies of short-term performance following the acquisition of control in target firms. The table reports the abnormal returns earned by shareholders. Abnormal returns are the actual returns in excess of the normal, i.e. benchmark, returns these shareholders might have received except for the takeover event. Normal returns are estimated as the returns earned during the same event period by portfolios of control firms. Tender offers in the US are offers from bidders to the target company shareholders to tender their shares. These are made directly to the shareholders with or without the target company management’s agreement. Mergers are agreements made with the target firm management, and tend to be friendly deals (see Chapter 18 on takeover regulation concerning tender offers and mergers). Some studies report the combined abnormal returns to the pair of a bidder and its target. On average these are positive. For example, Bhagat, Dong, Hirshleifer and Noah report 11-day mean CARs of 0.2%, 30% and
Results of empirical studies of merger impact on stock returns

### Table 4.1 Announcement period abnormal returns to shareholders in US acquisitions

<table>
<thead>
<tr>
<th>Study, sample period; sample size</th>
<th>Event window (around announcement)</th>
<th>Benchmark return model</th>
<th>Target abnormal return (%)</th>
<th>Bidder abnormal return (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A: Tender offers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jensen and Ruback (1983) (summary of seven previous studies), 1958–81; 17 to 161</td>
<td>20 to 60 days</td>
<td>Market-adjusted</td>
<td>29</td>
<td>4</td>
</tr>
<tr>
<td>Jarrell, Brickley and Netter (1988); 1960–85; 405</td>
<td>31 days</td>
<td>Market-adjusted</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Magenheim and Mueller (1988); 1976–81; 26</td>
<td>1 month</td>
<td>Market</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Bradley, Desai and Kim (1988); 1963–84; 236</td>
<td>11 days</td>
<td>Market</td>
<td>32</td>
<td>1</td>
</tr>
<tr>
<td>Jarrell and Poulsen (1989); 1963–86; 526</td>
<td>31 days</td>
<td>Market-adjusted</td>
<td>29</td>
<td>1</td>
</tr>
<tr>
<td>Loderer and Martin (1990); 1966–84; 274</td>
<td>6 days</td>
<td>Market</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Schwert (1996); 1975–91; 564</td>
<td>42 days before 126 days after</td>
<td>Market</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>Datta, Iskandar-Datta and Raman (2001); 1993–98; 142</td>
<td>2 days</td>
<td>Market</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bhagat, Dong, Hirshleifer and Noah (2005); 1962–01; 1018 (includes offers for &gt; 15% of target equity)</td>
<td>11 days</td>
<td>Market</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td><strong>Panel B: Mergers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jensen and Ruback (1983) (summary of seven previous studies); 1962–79; 60 to 256</td>
<td>1 month</td>
<td>Market</td>
<td>16</td>
<td>1</td>
</tr>
<tr>
<td>Magenheim and Mueller (1988); 1976–81; 51</td>
<td>1 month</td>
<td>Market</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Loderer and Martin (1990); 1966–84; 1135</td>
<td>6 days</td>
<td>Market</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Schwert (1996); 1975–91; 959</td>
<td>42 days before 126 days after</td>
<td>Market</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>Datta, Iskandar-Datta and Raman (2001); 1993–98; 1577</td>
<td>2 days</td>
<td>Market</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Panel C: Both tender offers and mergers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kaplan and Weisbach (1992); 1971–82; 271</td>
<td>11 days</td>
<td>Market</td>
<td>27</td>
<td>−2*</td>
</tr>
<tr>
<td>Andrade, Mitchell and Stafford (2001); 1973–98; 3688</td>
<td>3 days</td>
<td>Market</td>
<td>16</td>
<td>−1</td>
</tr>
<tr>
<td>Graham, Lemmon and Wolf (2002); 1980–95; 356</td>
<td>3 days</td>
<td>Market</td>
<td>23</td>
<td>−1*</td>
</tr>
<tr>
<td>Moeller, Schlingemann and Stulz (2004), 1980–01; 12,023</td>
<td>3 days</td>
<td>Market (median) (mean)</td>
<td>−1</td>
<td>1*</td>
</tr>
<tr>
<td>Cai and Vijh (2007); 1993–2001; 250</td>
<td>3 days</td>
<td>Market-adjusted</td>
<td>18</td>
<td>−3*</td>
</tr>
<tr>
<td>Masulis, Wang and Xie (2007); 1990–03; 3333</td>
<td>5 days</td>
<td>Market</td>
<td>0.2*</td>
<td>0</td>
</tr>
<tr>
<td>Sudarsanam and Huang (2007); 1993–2004; 2527, 16% tender offers</td>
<td>3 days</td>
<td>Market</td>
<td>−4*</td>
<td>−4*</td>
</tr>
<tr>
<td>Bouwman, Fuller and Nain (2009); 1979–2002; 380</td>
<td>3 days</td>
<td>Market-adjusted</td>
<td>−0.5*</td>
<td>−0.5*</td>
</tr>
</tbody>
</table>

---

*Publication details of the cited studies are given in Appendix 4.2.

*Event window generally spans the day or month of announcement of the tender offer or merger proposal. Days are stock market trading, not calendar, days.

*Returns rounded to nearest integer/decimal point. All target returns are statistically significant at 1% whereas bidder returns are insignificant unless indicated otherwise.

*Means significant at the 5% or lower level.
5.3% to tender offer bidders, targets and combined respectively. Cai and Vijh report 3-day CARs of −3%, 18% and 0.4% for their sample. This is interpreted as the merger being overall value-additive, but means that all of the added value is grabbed by the targets, leaving little for bidder shareholders.

Some of the studies report what percentage of the sample acquirers earn positive abnormal returns. A statistically insignificant abnormal return also suggests that at least 50% of the sample acquirers earn negative or zero returns. Loderer and Martin found that only 49% of their sample of acquirers in tender offers and only 54% in mergers earn positive returns. This percentage implies that the chances of successful value creation for acquirer shareholders are at best even. This also suggests that a large minority of acquirers may be successful in creating value.

Some of the studies report the relative size of the acquirer and the target. In general, this is of the order of three or four times or even larger. When the abnormal returns are value weighted and added, we get the combined abnormal return to both acquirer and target shareholders. From these studies this overall return is significantly positive. This means that, overall, acquisitions add value.

### Value destruction on a massive scale

In their study of the shareholder wealth gains to acquirers over the period 1980–2001, which covers both the fourth and fifth merger waves in the US, Moeller, Schlingemann and Stulz report some astonishing value losses experienced by shareholders of large acquirers at the peak of the latter wave. These are shown in Table 4.2. Acquirer shareholders lost $240bn in the four years, and combined losses to acquirer and target shareholders were at least $134bn, both after adjusting for market movements and risk.

The authors trace the massive losses to large acquirer deals. During 1998–2001, out of 4136 acquisitions, 87 led to acquirer shareholders losing $1bn or more, with an aggregate loss of $397bn, whereas the remaining deals made $157bn. Thus a small proportion of large deal losses turned that period into one of incredible losses. Overall, the 1980s merger wave was mildly value destructive (loss of $4bn to acquirers) whereas the 1990s wave was hugely value destructive (loss of $216bn) and the peak period of that wave even more so (loss of $240bn).

### US studies: long-run performance

Table 4.3 presents the results of various studies that have estimated the abnormal returns to acquirer shareholders over a range of windows from 24 months to 70 months. Again we show

### Table 4.2 Value gains when the merger wave hits the peak

<table>
<thead>
<tr>
<th>Period</th>
<th>Transaction value ($bn)</th>
<th>Acquirers' gain ($bn)</th>
<th>CAR %</th>
<th>Combined gain ($bn)</th>
<th>Combined CAR (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998–2001</td>
<td>1992</td>
<td>−240</td>
<td>0.7</td>
<td>−134</td>
<td>0.3</td>
</tr>
<tr>
<td>1991–2001</td>
<td>2931</td>
<td>−216</td>
<td>1.2</td>
<td>−90</td>
<td>1.0</td>
</tr>
<tr>
<td>1980–1990</td>
<td>483</td>
<td>−4</td>
<td>0.6</td>
<td>12</td>
<td>2.4</td>
</tr>
<tr>
<td>1980–2001</td>
<td>3413</td>
<td>−221</td>
<td>1.1</td>
<td>−79</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Aggregate $ gains rounded to the nearest billion; sample CAR is based on the market model over three days. Combined figures only for listed acquirers and listed targets.

## Table 4.3 Post-acquisition abnormal returns to shareholders in the US

<table>
<thead>
<tr>
<th>Study; sample period; sample size</th>
<th>Event window (months)</th>
<th>Benchmark return model</th>
<th>Bidder abnormal Return (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A: Tender offers</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dodd and Ruback (1977); 1958–76; 124</td>
<td>60</td>
<td>Market</td>
<td>−6</td>
</tr>
<tr>
<td>Franks, Harris and Mayer (1988); 1955–84; 127 (cash offers treated as tender offers)</td>
<td>24</td>
<td>Market, market-adjusted and CAPM</td>
<td>−4 to 9</td>
</tr>
<tr>
<td>Maggenheim and Mueller (1988); 1976–81; 26</td>
<td>39</td>
<td>Market</td>
<td>9</td>
</tr>
<tr>
<td>Agrawal, Jaffe and Mandelker (1992); 1955–87; 227</td>
<td>60</td>
<td>Size- and beta-adjusted</td>
<td>2</td>
</tr>
<tr>
<td>Loderer and Martin (1992); 1965–86; 155</td>
<td>60</td>
<td>Size- and beta-adjusted</td>
<td>21</td>
</tr>
<tr>
<td>Loughran and Vrij (1997); 1970–89; 135</td>
<td>60</td>
<td>Size- and book-to-market-adjusted</td>
<td>43*</td>
</tr>
<tr>
<td>Rau and Vermaelen (1998); 1980–91; 316</td>
<td>36</td>
<td>Size- and book-to-market-adjusted</td>
<td>9*</td>
</tr>
<tr>
<td><strong>Panel B: Mergers</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mandelker (1974); 1941–62; 241</td>
<td>40</td>
<td>Market</td>
<td>−1</td>
</tr>
<tr>
<td>Langteig (1978); 1929–69; 149</td>
<td>70</td>
<td>Four methods</td>
<td>−22* to −26*</td>
</tr>
<tr>
<td>Franks, Harris and Mayer (1988); 1955–84; 392 (stock exchange offers treated as mergers)*</td>
<td>24</td>
<td>Market, market-adjusted and CAPM</td>
<td>−2 to −18*</td>
</tr>
<tr>
<td>Maggenheim and Mueller (1988); 1976–81; 51</td>
<td>39</td>
<td>Market</td>
<td>−28</td>
</tr>
<tr>
<td>Franks, Harris and Titman (1991); 1975–84; 399 (includes tenders)</td>
<td>36</td>
<td>Eight factors including beta, size</td>
<td>−11</td>
</tr>
<tr>
<td>Agrawal, Jaffe and Mandelker (1992); 1955–87; 937</td>
<td>60</td>
<td>Size- and beta-adjusted</td>
<td>−10*</td>
</tr>
<tr>
<td>Loderer and Martin (1992); 1965–86; 304</td>
<td>60</td>
<td>Size- and beta-adjusted</td>
<td>−1</td>
</tr>
<tr>
<td>Loughran and Vrij (1997); 1970–89; 788</td>
<td>60</td>
<td>Size- and book-to-market-adjusted</td>
<td>−16*</td>
</tr>
<tr>
<td>Rau and Vermaelen (1998); 1980–91; 2823</td>
<td>36</td>
<td>Size- and book-to-market-adjusted</td>
<td>−4*</td>
</tr>
<tr>
<td><strong>Panel C: Both tender offers and mergers</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitchell and Stafford (2000); 1961–93; 2068</td>
<td>36</td>
<td>Beta-, size-, book-to-market-adjusted; calendar time portfolio</td>
<td>0</td>
</tr>
<tr>
<td>Moeller, Schlingemann and Stulz (2005); 1998–2001; only large loss acquirers (see Table 4.2 above)</td>
<td>24 months (BHAR) Monthly AR</td>
<td>Industry and size matched</td>
<td>−39</td>
</tr>
<tr>
<td>Sudarsanam and Huang (2007); 1993–2004; 736</td>
<td>36 (mean) 36 (median) BHAR Monthly AR</td>
<td>Beta-, size-, market-to-book- and momentum-adjusted</td>
<td>−0.8c</td>
</tr>
</tbody>
</table>

*Publication details of the cited studies are given in Appendix 4.2. BHAR is buy-and-hold return; AR is abnormal return. (See above and Appendix 4.1 for definitions.)

*Event window starts with the bid completion month, except that Dodd and Ruback, and Maggenheim and Mueller start earlier with the announcement date and 3 months prior to announcement month respectively.

*A rough estimate (without compounding) of the 2 year AR is −0.8 × 24 = −19%.

*Rough estimate of 2 year AR is 16%.

*Statistically significant at least at the 10% level. Other returns in this column are either insignificant or the studies do not report the significance level.
the results for tender offers and mergers separately. A range of benchmarks is employed in these studies. Overall, in tender offers acquirer shareholders earn returns from an insignificant \(-6\%\) to a significant \(43\%\) (Panel A). Two of the studies report significant positive returns, but the other five show that acquirers break even. In Panel B we find that all of the studies report negative returns for acquirers in mergers, ranging from \(-26\%\) to \(-1\%\). Five studies report significant negative returns and three report insignificant negative returns. These results suggest that tender offers create more value than mergers for their shareholders. Sudarsanam and Huang report a large median loss of \(12\%\); that is, 50% of the sample experienced buy-and-hold abnormal losses of more than \(12\%\) (Panel C).

The above review results in the following broad conclusions of post-acquisition performance:

- In the short term, target firms’ shareholders make substantial gains, and these gains are much larger in tender offers than in mergers.
- Bidder firms’ shareholders make insignificant or small significant gains, and these are marginally larger in tender offers than in mergers\(^{10}\).
- Since acquirers are substantially larger than targets, the above results translate to small positive overall gains when the two shareholders’ groups are taken together. Tender offers create more value than mergers.
- In the long run, acquirers in mergers suffer wealth losses, significant in many studies, but in tender offers they earn insignificantly positive returns in many studies\(^{11}\).

The result that acquisitions create overall value but almost all of the gains go to target shareholders suggests that acquirers lose out in bargaining with the targets. This reflects the way acquisition deals are structured and negotiated. We discuss this aspect further in Part 3. This distribution of gains is also consistent with a highly competitive market for corporate control (see Chapter 3 for a description of this market).

**UK studies: short-run performance**

Table 4.4 provides a summary of the studies that have examined the shareholder value impact of acquisitions in the short term using methodologies broadly similar to those employed in US studies. In the UK the distinction between tender offers and mergers is unimportant, since almost all of the offers are made to the shareholders, even in friendly mergers (see Chapter 18 on takeover regulations in different countries). The UK results for the short term are similar to those in the US, with substantial gains to target shareholders and zero, small positive or small negative gains to acquirer shareholders.

**UK studies: long-run performance**

Table 4.5 provides the long-run results. The long-term returns are also not dissimilar to the US results, at least for the mergers. The results are model sensitive but there is broad agreement across the models. In three of the four models in Sudarsanam and Mahate the abnormal returns are significantly negative. They also find that only a minority (35–45%) of acquirers earn positive returns. For all the six models, Gregory reports significant negative returns. Baker and Limmack find significantly negative returns for all the eight models. Michael Firth’s is the only study to report break-even, but that is based on a single model, the market model. More recent studies by Cosh et al. and Antoniou et al. also report significant wealth losses to acquirers. Overall, the UK acquirers achieve value losses rather than value gains with their acquisition strategy.
Results of empirical studies of merger impact on stock returns

### Table 4.4 Announcement period abnormal returns to shareholders in UK acquisitions

<table>
<thead>
<tr>
<th>Study; sample period; sample size</th>
<th>Event window (around announcement)</th>
<th>Benchmark return model</th>
<th>Target abnormal return* (%)</th>
<th>Bidder abnormal return (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firth (1980); 1969–75; 486</td>
<td>1 month</td>
<td>Market</td>
<td>28</td>
<td>−6*</td>
</tr>
<tr>
<td>Franks and Harris (1989); 1955–85; 1445</td>
<td>1 month</td>
<td>Market, market-adjusted and CAPM</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>Limmack (1991); 1977–86; 462</td>
<td>Bid period (about 3 months)</td>
<td>Market</td>
<td>31</td>
<td>0</td>
</tr>
<tr>
<td>Sudarsanam, Holl and Salami (1996); 1980–90; 429</td>
<td>−20 to +40 days</td>
<td>Market</td>
<td>29</td>
<td>−4*</td>
</tr>
<tr>
<td>Higson and Elliott (1998); 1975–90; 830</td>
<td>Bid period (about 3 months)</td>
<td>Size</td>
<td>38</td>
<td>0</td>
</tr>
<tr>
<td>Baker and Limmack (2002); 1977–90; 595</td>
<td>1 month</td>
<td>Eight methods</td>
<td>0</td>
<td>−1 to −2</td>
</tr>
<tr>
<td>Sudarsanam and Mahate (2003); 1983–95; 519 public targets</td>
<td>−1 to +40 days</td>
<td>Size, market-adjusted, book to market, means-adjusted</td>
<td>−1 to −2</td>
<td>−1*</td>
</tr>
<tr>
<td>Goergen and Renneboog (2004); 1993–2000; 70 targets, 66 bidders</td>
<td>6 months</td>
<td>CAPM</td>
<td>29</td>
<td>−2</td>
</tr>
<tr>
<td>Cosh, Guest and Hughes (2006); 1985–96; 363 public targets</td>
<td>3 days</td>
<td>Market-adjusted</td>
<td>17</td>
<td>2*</td>
</tr>
<tr>
<td>Antoniou, Petmezas and Zhao (2007); 1987–2004; 1401 public and private targets</td>
<td>5 days</td>
<td>Market-adjusted</td>
<td>29</td>
<td>1*</td>
</tr>
</tbody>
</table>

*Publication details of the cited studies are given in Appendix 4.2. Goergen and Renneboog sample also includes some failed bids.

### Table 4.5 Post-acquisition abnormal returns to shareholders in the UK

<table>
<thead>
<tr>
<th>Study; sample period; sample size</th>
<th>Event window (months)</th>
<th>Benchmark return model</th>
<th>Bidder abnormal return (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firth (1980); 1969–75; 434</td>
<td>36</td>
<td>Market</td>
<td>0</td>
</tr>
<tr>
<td>Franks and Harris (1989); 1955–85; 1048</td>
<td>24</td>
<td>Market, market adjusted and size</td>
<td>−13 to 5</td>
</tr>
<tr>
<td>Limmack (1991); 1977–86; 448</td>
<td>24</td>
<td>Market, three methods</td>
<td>−5 to −15</td>
</tr>
<tr>
<td>Kennedy and Limmack (1996); 1980–89; 247</td>
<td>23</td>
<td>Size</td>
<td>−5</td>
</tr>
<tr>
<td>Gregory (1997); 1984–92; 452</td>
<td>24</td>
<td>Market, size, CAPM, three factor</td>
<td>−12 to −18</td>
</tr>
<tr>
<td>Higson and Elliott (1998); 1975–90; 722</td>
<td>36</td>
<td>Size</td>
<td>1</td>
</tr>
<tr>
<td>Baker and Limmack (2002); 1977–90; 595</td>
<td>60</td>
<td>Eight models including three factor, size, book to market</td>
<td>−26 to −31</td>
</tr>
<tr>
<td>Sudarsanam and Mahate (2003); 1983–95; 519</td>
<td>700 days (about 34 months)</td>
<td>Size, market adjusted, book to market, means adjusted</td>
<td>−9 to −22</td>
</tr>
<tr>
<td>Cosh, Guest and Hughes (2006); 1985–96; 363</td>
<td>36 months</td>
<td>Industry and profit matched control firms</td>
<td>−16</td>
</tr>
<tr>
<td>Antoniou, Petmezas and Zhao (2007); 1987–2004; 1061</td>
<td>36 months</td>
<td>Size and book to market portfolios (calendar time abnormal returns)</td>
<td>−0.43* (per month)</td>
</tr>
</tbody>
</table>

*Publication details of the cited studies are given in Appendix 4.2.

*Except for Firth and Higson and Elliott, the studies report abnormal returns from several of their models as significant. Kennedy and Limmack do not report level of significance. Returns rounded to the nearest integer.

*A rough estimate (ignoring compounding) of the 3-year return is $−0.43 \times 36 = −15.5\%$, comparable to the estimates from the other listed studies.
Studies from continental Europe

Information about the stock market performance of firms involved in mergers and acquisitions in other European countries is very scarce, at least in the English language media. As noted in Chapter 2, substantial takeover activity began in continental Europe from the mid-1980s. Empirical research into the shareholder wealth consequences of events such as mergers and acquisitions is not well established. Further, given the smaller number of companies listed on stock exchanges, acquisitions involving such listed companies are far fewer than those of private and unlisted companies. This perhaps explains the lack of interest in the shareholder wealth effects that require share prices for calculation. Thus there is paucity of research evidence – compared with the US and the UK – about the shareholder wealth performance of continental European mergers and acquisitions.

Table 4.6 reports the short-term abnormal returns in four countries: Sweden, Belgium, the Netherlands and France. The patterns of shareholder wealth gains in these countries are similar to those in the US and the UK. Target shareholders gain substantially, whereas acquirer shareholders just about break even. The pan-continental European study of Goergen and Renneboog (GR), based on the most recent acquisitions, yields a similar conclusion. Target shareholders are considerably better off in tender offers than in mergers where the distinction between the two types is allowed for in the test design. For acquirers the offer mode

<table>
<thead>
<tr>
<th>Study; sample period; sample size</th>
<th>Country</th>
<th>Event window (around announcement)</th>
<th>Benchmark return model</th>
<th>Target abnormal return (%)</th>
<th>Bidder abnormal return (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bergström, Högfeldt and Högholm (1993); 1980–92; 94 targets, 149 bidders (tender offers)</td>
<td>Sweden</td>
<td>11 days</td>
<td>Market</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>Doukas and Holmen (2000); 1980–95; 93 tender offers</td>
<td>Sweden</td>
<td>11 days</td>
<td>Market</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Van Hulle, Vermaelen and de Wouters (1991); 63 tender offers</td>
<td>Belgium</td>
<td>6 weeks</td>
<td>Market</td>
<td>38</td>
<td>1</td>
</tr>
<tr>
<td>Van Hulle, Vermaelen and de Wouters (1991); 76 acquirers and 48 acquired</td>
<td>Belgium</td>
<td>3 months</td>
<td>Market</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Eckbo and Langohr (1989), 1966–82; 90 targets and 52 acquirers in public tender offers</td>
<td>France</td>
<td>16 weeks</td>
<td>Market</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Goergen and Renneboog (2004); 1993–2000; 68 targets and 76 bidders</td>
<td>Several countries</td>
<td>6 months</td>
<td>CAPM</td>
<td>15*</td>
<td>1</td>
</tr>
<tr>
<td>Campa and Hernando (2004); 1998–2000; 262 targets</td>
<td>EU</td>
<td>5 days</td>
<td>CAPM</td>
<td>9*</td>
<td>1*</td>
</tr>
<tr>
<td>Holmen and Knopf (2004); 1985–95; 121 targets</td>
<td>Sweden</td>
<td>11 days</td>
<td>Market</td>
<td>16*</td>
<td>0</td>
</tr>
<tr>
<td>Martynova and Renneboog (2006); 2106 bidders and 760 targets</td>
<td>Europe</td>
<td>11 days</td>
<td>Market</td>
<td>16*</td>
<td>1*</td>
</tr>
<tr>
<td>Faccio, McConnell and Stolin (2006); 1996–2001; 735 acquirers of listed and 3694 acquirers of unlisted targets</td>
<td>Europe</td>
<td>5 days</td>
<td>Market-adjusted</td>
<td>1*</td>
<td></td>
</tr>
<tr>
<td>Kräussl and Topper (2007); 1980–2003; 269</td>
<td>Netherlands</td>
<td>3 days</td>
<td>Market model</td>
<td>1*</td>
<td></td>
</tr>
</tbody>
</table>

*aPublication details of the cited studies are given in Appendix 4.2. Goergen and Renneboog sample also includes some failed bids. CARs can be calculated only for listed targets and bidders.

*bCalculated from the separate subsample returns in their Table 3.

*Significant at 10% or lower level. Other returns either insignificant or significance level not reported.
Assessing the operating performance of acquirers

A few researchers have examined the operating, rather than stock market returns-based, performance. Share price changes, i.e. stock returns, are based on expected benefits of the merger, the expectation being formed on the basis of the information available to the stock market investors. Share prices may often be swayed by other factors than the company’s expected performance, e.g. market swings, fads, euphoria. Although the influence of these factors is controlled by careful research design that adjusts for a variety of benchmarks, there is nevertheless the possibility that share price movements may not reflect the underlying performance of the company.

Moreover, stock price changes do not provide a direct measure of the impact of the acquisition or merger on costs, revenues, profits and cash flows. After all, acquisition strategy is generally articulated in terms of the improvement in these variables as a result of the firm’s enhancing its competitive advantage through that strategy. It is therefore appropriate to evaluate acquisitions on the basis of the changes in these variables, i.e. on the basis of operating performance improvement. Hence the focus on performance evaluation, using accounting data. Before the advent of the CAPM, notions of stock market efficiency and shareholder wealth enhancement as a central goal of corporate decisions in finance theory by the 1970s, evaluation of M & A was generally carried out using accounting data in company financial reports.

Evaluating acquisitions on the basis of operating performance provides additional insight into the impact of the acquisition. The accounting-based performance approach also allows the researcher to study private and unlisted target and acquirer companies for which stock price data are unavailable. However, we must bear in mind the limitations of relying on operating performance measures alone:

- Operating performance measures are subject to measurement problems, e.g. the use of different accounting rules to account for an acquisition (see Chapter 15).
- Operating performance measures are vulnerable to manipulative and discretionary choice of accounting rules, e.g. valuation of acquired assets, restructuring charges, goodwill estimates.
- Disentangling the impact of acquisition from that of other corporate decisions is difficult.
- The appropriate level at which performance is measured, e.g. at the operating income level or the earnings per share level, is ambiguous.
- The benchmark for performance measurement is ambiguous, as in the case of the abnormal returns approach.
- The relation between operating performance improvement and shareholder returns may be weak.
The appropriate time lag in measuring performance improvement is not clear. Unlike stock prices, which are deemed to reflect the future quickly, operating performance may not be reflected in financial reports for several years.

Accounting numbers are backward-looking and measure historical performance.

Given evidence of persistence of profitability, post-merger performance needs to allow for this so that performance improvement due to the merger alone can be assessed.

Some of these problems are common to both operating performance and stock return performance. Accrual accounting allows firms the discretion to allocate revenues and costs such as depreciation to different accounting years, and provides scope for 'creative accounting' to project good performance in a given year. This vulnerability of profit measures to accounting rule manipulation renders them more suspect than measures based on cash flow accounting, which minimizes the effect of discretionary cost and revenue allocations. This subject is dealt with in Chapter 15. Despite the above weaknesses, operating performance assessment provides useful indicators of the value of acquisitions.

### Operating performance assessment of US acquisitions

Table 4.7 presents the operating performance of US acquirers of domestic targets. A number of interesting patterns emerge. Ravenscraft and Scherer (1988) found, when measuring performance with accounting profitability, that mergers led to decline from the merging firms' pre-merger performance. This decline, however, crucially depends on how accounting rules have been applied. Where purchase accounting is applied, the performance is worse than

<table>
<thead>
<tr>
<th>Study; sample period and sample size</th>
<th>Performance measure</th>
<th>Performance measure adjusted for effect of</th>
<th>Post-merger performance change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ravenscraft and Scherer (1988); 2955 lines of business; 1974–77; mergers and tender offers during 1950–77</td>
<td>Operating income before interest, tax and extraordinary item/total assets</td>
<td>Market share, merger of equals, non-acquisition growth, accounting rules</td>
<td>Significant decline but depends on accounting method</td>
</tr>
<tr>
<td>Ravenscraft and Scherer (1987); 1974–77; 153 lines of business; tender offers</td>
<td>1. As above 2. Cash flow = Operating income + depreciation</td>
<td>As above</td>
<td>1. Significant 3% decline over years 2. No decline</td>
</tr>
<tr>
<td>Herman and Lowenstein (1988); 1975–83; hostile tender offers</td>
<td>Return on equity of targets</td>
<td>Pre-acquisition performance</td>
<td>No significant improvement</td>
</tr>
<tr>
<td>Healy, Palepu and Ruback (1992); 1979–84, 50 largest mergers</td>
<td>Pre-tax operating cash flow to market value of assets</td>
<td>Industry median performance; also controls for accounting method</td>
<td>Significant 3% improvement</td>
</tr>
<tr>
<td>Linn and Switzer (2001); 1967–87; 413</td>
<td>Pre-tax operating cash flow to market value of assets</td>
<td>Same industry firms</td>
<td>Significant 2% improvement over 5 years</td>
</tr>
<tr>
<td>Ghosh (2001); 1981–95; 315 acquiring and target firms</td>
<td>As above</td>
<td>Pre-bid performance and size</td>
<td>No evidence of significant improvement</td>
</tr>
<tr>
<td>Bouwman, Fuller and Nain (2009); 1979–2002; 2944</td>
<td>EBITDA/average total assets</td>
<td>Control firms of similar pre-merger performance, size and industry</td>
<td>Significant decline*</td>
</tr>
</tbody>
</table>

Publication details of the cited studies are given in Appendix 4.2.

*For tender offers it is 0.3% (not significant) and mergers −1.4% (significant at 1%). For both −1.2% (significant at 1%).
Assessing the operating performance of acquirers when pooling accounting is employed (see Chapter 15 for a discussion of these and other accounting rules for M & A). However, when performance is measured by cash flow, post-merger performance is unchanged in Ravenscraft and Scherer (1987), as well as in Ghosh. But Healy et al. reported significant operating performance improvement. This improvement is also positively and significantly related to stock returns.

Although Healy et al. report that pre-merger operating performance of the merging firms, relative to their industry medians, persists after the merger, they do not incorporate the pre-merger performance itself as a benchmark. Such incorporation is necessary if the pre-merger relative performance is due to permanent factors, e.g. sustained competitive advantage, and not due to temporary factors, e.g. windfall profits from temporary demand surge. Ghosh benchmarks post-acquisition operating performance against that of similarly performing, and also similarly sized, firms. With this adjusted benchmark, he finds that acquisition does not lead to any improvement in operating performance.

These conflicting results highlight the need for choosing the benchmark correctly based on the right counter-factual assumptions about what would happen in the absence of the acquisition. These assumptions in turn need to be based on an understanding of industry as well as individual firm competitive dynamics. Further, we observe that accrual accounting-based performance measures are less reliable than cash flow measures. The latter avoid many of the distortions caused by the discretionary accounting rule choices that companies can make (see Chapter 15 for discussion of the differences between the two). Cash flow measures are also conceptually better related to valuation, since the value of a company is the present value of its future cash flows, as the evidence of a positive and significant relation between operating cash flow changes and abnormal returns in Healy et al.’s study suggests (see Chapter 14 on valuing target firms). On the basis of cash flow measures of performance, we can conclude only that US acquirers, on average, perform at least as well as their industry counterparts or similar-sized firms.

**How does acquisition impact on other performance indicators?**

So far we have assessed operating performance by accrual-based profitability or cash flow measures. These are themselves derived from the company’s performance in key activities that may give it competitive advantage. For example, productivity gains from an acquisition may enable the acquirer to attain cost leadership. Improved R & D may enable the acquirer to deliver new products or new processes, gain market share, or create new and profitable markets. These in turn may generate higher profits, cash flows and shareholder returns. What is the impact of acquisitions on such key activities of the acquirer and the acquired firms?

**Acquisitions and innovation**

Given the critical importance of innovation to successful corporate strategy as well as firm survival, acquisitions may provide a quick route to such innovation developed by the acquired firm and satisfy the acquirer’s ‘need for speed’ (see Chapter 3 on the resource-based view of acquisitions). In this sense acquisition is a substitute for internal innovation by the acquirer. But such acquisition poses at least two challenges. The acquired innovative capabilities need to be effectively integrated and managed by the acquirer if they are to contribute to value creation. Innovation acquisition may supplant and erode the acquirer’s own innovative capabilities, with portentous consequences for its future. Hitt et al. reported some evidence that both R & D intensity (a measure of input into innovation) and patent intensity (a
measure of innovation output) decline after acquisition. Firms making acquisitions also introduce fewer new products into the marketplace.

On the other hand, if the acquisition provides the right technological inputs, and the acquirer manages the integration process creatively, innovation output may increase as a result. Ahuja and Katila found that the ability of the acquirer to leverage technological acquisitions to increase patent output in the global chemicals industry depended on a number of characteristics of the acquirer and the acquired companies, e.g. the relatedness of the two companies’ knowledge bases or their relative size. Ahuja and Katila also highlight a number of impediments to increased innovation following acquisition. Only acquirers with certain prerequisites benefit in terms of acquisition-led innovation. Thus the acquirer’s learning and absorptive capacity determine the success of acquisitions as a conduit for new innovation. Similarity of knowledge between the acquirer and target helps post-acquisition innovation, but beyond a certain level dissimilarity, rather than similarity, stimulates innovation. Thus the breadth and width of the acquirer’s pre-acquisition knowledge influence the ability of the acquirer to leverage the target firm’s innovative capabilities. The acquirer’s intellectual capital and its types, i.e. whether individual, social or organizational, may shape the nature of subsequent innovation, i.e. whether exploitative or exploratory (see Chapter 3 on the strategy perspective).

**Acquisitions, productivity gains and employment**

Acquirers generally argue that their acquisition decision rests on expected value gains through synergies, cost efficiencies, etc. Efficiency gains may arise from lowering the level of employment in the acquired firm. In the process of achieving these gains the acquirer, especially a hostile acquirer, may breach implicit contracts that the target firm had entered into with its customers, suppliers and workers prior to the acquisition. An implicit contract is an unwritten understanding between parties to a relationship that recognizes their mutual rights, obligations and expectations. In the case of workers, implicit contracts may concern expectations of future compensation or rewards in return for their commitment and loyalty to the employer. Implicit contracts are built on trust and awareness of mutual dependence rather than legally enforceable rights. Shleifer and Summers argued that gains to shareholders in hostile takeovers result from breach of implicit contracts with the target firm’s workers.

In their extensive study of manufacturing plant productivity following ownership change during 1972–81 in the US, Lichtenberg and Siegel find that, compared with plants that do not undergo ownership change:

- acquired plants exhibit lower initial levels of productivity and deterioration in relative performance in the years prior to acquisition;
- acquired plants improve their relative performance and eliminate the productivity gap over seven years; and
- productivity improvement in acquired plants contrasts with, and offsets, much of the productivity decline in the US economy in general observed during the sample period.

Lichtenberg and Siegel conclude that shareholder value gains appear to be social gains, not merely private gains to shareholders, and there is no evidence that ownership change is accompanied by the abrogation of implicit contracts with workers or suppliers.

While there is reduction in employment and wages following ownership change, this decline is three times as great in auxiliary establishments employing top managers, administrators and many R & D personnel, as in production establishments. There is, however, little difference
between acquired and non-acquired control firms. Within production establishments, production workers suffer more unemployment than non-production workers.

In 62 successful and unsuccessful hostile takeovers between 1984 and 1986 analyzed by Bhagat et al., the post-takeover layoffs were relatively small in number and could explain only 10–20% of the takeover premium on average. Headquarters staff are the group most at risk of a layoff. Further, cuts in investments proposed by target firms are important in only nine of the sample cases. Schoar finds that, when firms diversify, productivity in their existing plants falls, but it increases in the newly acquired plants.

Operating performance assessment of UK acquisitions

Table 4.8 presents the post-merger operating performance of UK acquirers of other UK companies, based, as in the case of the US studies reviewed above, on both accounting accrual profitability and cash flow profitability. Manson et al. took an innovative approach to measuring post-acquisition performance by adjusting the industry average performance benchmark for the potential erosion of profitability of the merging firms, if the merger had not taken place. This erosion is due to competitive pressures when the rival firms play catch-up with their more profitable rivals. The decline is called regression to the mean. They found that after the merger the adjusted performance improves significantly. Overall, however, there is no consistent evidence of post-acquisition performance improvement, especially from recent, large sample studies.

Table 4.8 Post-acquisition operating performance of UK acquirers

<table>
<thead>
<tr>
<th>Study; sample period and sample size&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Performance measure</th>
<th>Performance measure adjusted for effect of</th>
<th>Post-merger performance change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeks (1977); 1964–71; 164</td>
<td>Average net income/net assets over 3/5 years</td>
<td>Performance of same industry firms; average 5-year pre-merger performance</td>
<td>Significant decline over 3 and 5 years</td>
</tr>
<tr>
<td>Kumar (1984); 1967–74; 241</td>
<td>As above</td>
<td>As above</td>
<td>Decline over 3 years significant but not over 5 years</td>
</tr>
<tr>
<td>Cosh, Hughes and Singh (1980); 1967–70; 225</td>
<td>As above</td>
<td>Non-merged firms</td>
<td>Significant improvement over both 3 and 5 years</td>
</tr>
<tr>
<td>Manson, Stark and Thomas (1994); 1985–87; 38</td>
<td>Operating cash flow to total market value of firm</td>
<td>Industry but allows for profitability erosion due to competition</td>
<td>Improved performance; related to bid period stock returns</td>
</tr>
<tr>
<td>Dickerson, Gilson and Tsakalotos (1997); 1948–77; 2914</td>
<td>Return on assets</td>
<td>Size, firm, time specific</td>
<td>Significant performance decline</td>
</tr>
<tr>
<td>Gugler, Mueller, Yurtoglu and Zulehner (2003); 181</td>
<td>Return on assets</td>
<td>Predicted ROA</td>
<td>Insignificant improvement</td>
</tr>
<tr>
<td>Powell and Stark (2005); 1985–93; 191</td>
<td>Operating cash flow after working capital deflated by alternative size proxies&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Industry, size and 1-year pre-acquisition performance</td>
<td>Insignificant improvement; unrelated to bid period CARs</td>
</tr>
<tr>
<td>Cosh, Guest and Hughes (2006); 1985–96; 363</td>
<td>As above&lt;sup&gt;c&lt;/sup&gt;</td>
<td>Industry, size and 3-year pre-acquisition performance</td>
<td>Insignificant improvement</td>
</tr>
</tbody>
</table>

<sup>a</sup>Publication details of the cited studies are in Appendix 4.2.

<sup>b</sup>Both these studies report significant improvement in an accrual-based performance measure that does not adjust for working capital. Powell and Stark also report such improvement to be sensitive to the size proxy.
Acquisitions and employment decline

Conyon et al. investigated the impact of mergers on employment in merging firms during 1967–96. There is significant rationalization in the use of labour as the merging firms increase post-merger efficiency, but they also found output decline. The latter may have resulted from substantial post-merger divestiture of some of the businesses of the merging firms. These results are supportive of the view that merger activity, particularly related and hostile merger activity, promotes efficiency, since employment decline is larger than output decline. The profit measures, subject to managers’ discretionary accounting choices, are more noisy than the output and employment data used by Conyon et al. This may explain why enhanced efficiency is not reflected in improved operating performance reported in Table 4.8.

Operating performance of acquirers in continental Europe

Studies assessing performance changes after mergers in countries other than the US and the UK seem even scarcer than those assessing stock return performance. Table 4.9 summarizes the results of studies of mergers that took place in several continental European countries. The sample size in these is generally small, but the conclusions as regards the post-merger operating

<table>
<thead>
<tr>
<th>Study; sample period and sample size</th>
<th>Performance measure</th>
<th>Performance measure adjusted for effect of</th>
<th>Post-merger performance change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable, Palfrey and Runge (1980)</td>
<td>Return on assets</td>
<td>1. Matched non-merging firms</td>
<td>Merging firms do not outperform benchmarks</td>
</tr>
<tr>
<td>Germany; 1962–74; about 50 mostly large horizontal mergers</td>
<td>Return on equity</td>
<td>2. Industry average</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Return on sales (3–5 years) pre- and post-merger mean</td>
<td>3. Merging firm performance projected at industry average</td>
<td></td>
</tr>
<tr>
<td>Jenny and Weber (1980)</td>
<td>As above but average of 4 years before and after merger</td>
<td>As above</td>
<td>Merging firms underperform benchmarks but insignificantly</td>
</tr>
<tr>
<td>France; 1962–72; 40 horizontal mergers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer (1980)</td>
<td>As above but average of 3 years</td>
<td>As above</td>
<td>Merging firms underperform benchmarks</td>
</tr>
<tr>
<td>Netherlands; 1962–73; 36 horizontal and conglomerate mergers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ryden and Edberg (1980)</td>
<td>As above</td>
<td>As above</td>
<td>Merging firms underperform benchmarks marginally</td>
</tr>
<tr>
<td>Sweden; 1962–78; 40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kumps and Witterwulgh (1980)</td>
<td>Return on assets</td>
<td>As above</td>
<td>No significant outperformance</td>
</tr>
<tr>
<td>Belgium; 1962–74; 21</td>
<td>Return on equity (average of 5 years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gugler, Mueller, Yurtoglu and Zulehner (2003); Several countries</td>
<td>Return on assets</td>
<td>Predicted ROA</td>
<td>Insignificant improvement over 5 years</td>
</tr>
<tr>
<td>Martynova and Renneboog (2007); 1997–2001; 155; Several countries</td>
<td>Working capital adjusted EBITDA/book value of assets</td>
<td>Industry, size and pre-acquisition performance</td>
<td>No significant improvement</td>
</tr>
</tbody>
</table>

Source: See Appendix 4.2 for the source of these papers.
performance of merging companies are uniform. In Germany, France, the Netherlands and Sweden these mergers did not significantly improve profitability relative to a number of benchmarks. This poor performance is also reflected in pan-European samples. It appears that poor or lacklustre post-merger operating performance is a multinational phenomenon.

Overview of the operating performance studies

In reaching any conclusion we need to bear in mind the differences among the above studies in terms of national environment, competitive market structure, accounting rules, sampling period, sample size, definition of performance measure, pre- and post-merger assessment period, and statistical methodology. Nevertheless, they suggest that accounting rules may distort performance measurement and lead to negative assessment of mergers; performance measures based on cash flow provide an indication of improved performance, at least in some studies.

Before we pronounce ourselves entirely satisfied with this assessment, we therefore need more evidence based on large samples from different countries from more recent time periods. Further, we also need to consider non-operating cash flows from disposal of non-core businesses, since, at least in the 1980s and 1990s, the strategic logic of acquisitions often encompassed selective divestitures to achieve a more coherent focus to the combined business of the acquirer and the acquired firms. An exclusive focus on operating cash flow gains is likely to underestimate the beneficial impact of acquisitions. Where we find significant operating performance improvement we lack evidence that this improvement is sufficient to meet the cost of capital incurred in financing the acquisitions. Thus significant operating performance improvement does not mean that the shareholders of acquirers are better off, the test we set up at the beginning of this chapter.

Post-merger performance of alternative corporate strategies

As was discussed in Chapter 3, acquisitions are undertaken to achieve certain strategic objectives, and different acquirers follow different corporate or business strategies. Success of an acquisition should therefore be judged in accordance with these strategies. The different acquisition types defined by the underlying strategy are broadly:

- related acquisitions, including horizontal mergers of businesses selling the same goods and services in the same markets and vertical mergers;
- unrelated or conglomerate acquisitions; and
- serial acquisitions reflecting buy-and-build strategies.

In general, vertical mergers are far less frequent than horizontal mergers. Horizontal mergers are motivated by the desire to achieve scale efficiencies or scope economies and sales revenue enhancement. Revenue growth is thus an important source of value creation, and can come from market share gains or from higher prices. Mueller documented evidence that merging firms in the US often failed to maintain market shares, and also lost them to rivals that had grown organically. Efficiency gains leading to higher returns on equity are also difficult to achieve. Alberts and Varaiya showed that for US mergers during 1976–84 improvements in returns on equity and earnings growth rates implied by the acquisition premia paid by the acquirers were far beyond those achieved by over 90% of US companies. Given the competitive pressures on US companies, such a performance would be almost impossible to attain, and may explain some of the acquisition performance failures discussed above.
Many acquisitions fail to maintain the revenue growth rates at the average industry level of the acquirer and the target. A study by consultants McKinsey of mergers worth $100m or more in the US during 1990–97 found revenue growth to be fairly elusive. Most target firms achieved slower growth rates than their industry peers in the first year, but over three years only 12% of the acquired companies managed to accelerate growth. Acquisition integration-related problems such as unsettled customers and distracted staff contributed to the slowdown in revenue growth. This view is consistent with the analysis in Chapter 22 of organizational problems that cause post-acquisition integration failure. Leading M & A practitioners also consider cost savings a less daunting challenge than revenue growth.

Empirical evidence on the performance of the different types of acquisition is presented in the following chapters that deal with them. Chapter 5 discusses the value creation rationale of horizontal mergers. Chapter 6 develops the vertical integration model, and assesses acquisition performance based on that model.

**Post-acquisition performance of diversifying acquisitions**

Both related and unrelated acquisitions have many distinct and some overlapping sources of value creation. Which type generates more value is an empirical issue, and the comparative performance of unrelated and related acquisitions is still unresolved. For example, Seth found that both related and unrelated acquisitions generated synergies and shareholder value gains. Neither group outperformed the other. Economists researching the accounting-based performance of conglomerates have concluded that unrelated acquisitions underperform in terms of profitability selected benchmarks. Finance researchers have reported a ‘conglomerate discount’, suggesting that the stock market values an unrelated bundle of businesses less than the sum of the values of component businesses on their own. However, more recent studies have provided support for the value creation properties of conglomerates. We defer a detailed discussion of the empirical evidence to Chapter 7 after presentation of the rationale for diversifying acquisitions.

**Mergers, managers and corporate governance**

In the light of the foregoing evidence that mergers, on average, are not value creating, the way corporates are governed has become an important issue. The managerial perspective positing a conflict of interest between managers and shareholders suggests that acquisitions may be undertaken to promote managerial rather than shareholder interests. This is consistent with shareholder value losses from acquisitions. Several researchers have investigated the relation between corporate governance of acquirer and target firms and the performance outcomes. This investigation covers a wide range of issues:

- the structure of the board of directors and its independence;
- managerial compensation contracts, and whether they align conflicting interests; and
- behavioural biases of top management, and how directors respond to these.

Acquisitions affect the managers of the acquirer and the acquired companies differently. For the acquirer managers they offer new opportunities to enhance their company’s competitive advantage, operational efficiency and financial performance, thereby increasing shareholder value. They also allow managers scope for maximizing their own utility by increasing
remuneration and job security. For the acquired company managers a takeover causes uncertainty and stress because of the expected changes. They now have to adapt to the new bosses and their culture. For many, a takeover may mean loss of power, status and freedom to innovate, or redundancy. Change of control clauses in executive contracts allow target managers to ‘cash out’ their stocks and options and receive golden parachute payments. The size of such payments may influence target managers’ incentives to agree to deals that may not benefit target shareholders (see Chapters 21 and 22 for further discussion).

Whether or not all of these dire consequences will be visited upon acquired firm managers depends upon the motivation and the strategic logic of the acquisition. For example, a merger based on expected revenue enhancement may not lead to redundancies, whereas one driven by rationalization in a mature industry is likely to. Similarly, a disciplinary takeover with its presumption of inefficient target management will, almost by definition, result in high turnover of that management.

Empirical evidence on these issues is far from conclusive. We return to a detailed discussion of these issues and the empirical evidence in Chapter 12.

Post-merger performance and M & A deal characteristics

Empirical research has thrown interesting light on the role played by many of the transactional characteristics of acquisition deals. This role emphasizes the need to look beyond purely economic or strategic arguments for value creation in mergers and acquisitions and understand how deals are made and what impact deal characteristics have on post-acquisition performance. Some of these characteristics are as follows:

- Mood of the bid – is the takeover bid friendly or hostile?
- Mode of acquisition – tender offer or merger?
- Is the target firm small or large relative to the acquirer?
- Is the target firm a public, stock market-listed company or a private company?
- Is the acquirer regarded by the stock market very highly at the time of the bid? Glamour acquirers are highly valued and value acquirers are lowly valued.
- Is the acquisition financed with cash or the acquirer’s equity stock, or a mixture of several payment currencies?

There is fairly uniform evidence that cash-financed acquisitions outperform stock acquisitions in terms of shareholder returns. Ghosh reports significant operating cash flow improvement for cash acquisitions but a decline for stock acquisitions. Similarly, tender offers made directly to the shareholders of the target firm do better than mergers agreed in a friendly way with the target management (see Tables 4.1 and 4.2 above). Relatively small targets are in some studies conducive to better post-acquisition value creation. Glamour acquirers seem to be bad news for acquirer shareholders. On the other hand, low-value acquirers turn out superior shareholder value performance. There is some evidence that hostile acquisitions are not necessarily bad news for shareholders, although hostile acquirers are often portrayed as grubby and greedy.

We discuss the evidence for the impact of these characteristics in Part 3. For now, it is important for the reader to keep in mind that deal structuring is not just atmospherics, full of sound and fury signifying nothing, as might be suggested by stories of takeover battles in newspapers. Deal characteristics do have a substantial impact on the success of acquisitions, and therefore need to be understood and carefully structured (see Chapters 13, 16 and 20).
In this chapter we have reviewed the empirical evidence on the benefits of mergers and acquisitions for different stakeholders.

Our main focus is to find the answer to the question whether shareholders of the acquirers and acquired companies are better off as a result of these transactions.

We review the studies from the US, the UK and some continental European countries that investigate both the short-term and long-term effects on shareholder value.

Since the effectiveness of acquisition strategies is expected to be reflected in revenue growth, cost saving and profitability enhancement, we also review the studies from these countries concerned with the post-merger profitability of mergers. We review evidence based on both accrual accounting profitability and cash flow profitability. We also review more direct evidence on productivity improvement and innovation growth in the post-merger period.

Overall, mergers create shareholder value in the short term, but almost all of this value increase is enjoyed by target-firm shareholders. Acquirer shareholders experience significant wealth losses in the long term, and more so in mergers than in tender offers, where such a distinction exists.

Profitability-based assessment shows that mergers either perform just as well as relevant benchmarks or experience significant profit decline. When profitability is reworked with cash flow rather than accrual accounting profit measures, merging firms record significant improvement or just break even. This points to some distorting influence of accounting policies and rules.

Both shareholder value assessment and profitability assessment depend on benchmarks, assessment intervals, the sampling period and the nature of the transaction. Certain transactions, such as cash-financed ones, perform better than others.

Performance also depends on the underlying corporate strategy, i.e. whether the acquisition is into same, related or unrelated businesses, with the latter underperforming in many studies.

R & D intensity, patent output and the introduction of new products decline following acquisitions.

Mergers generate productivity gains, and this is not necessarily due to large job losses. These gains are also larger in horizontal and hostile mergers.

Top managers of target companies are more likely to lose their jobs after hostile than friendly acquisitions.

Overall, this review points to a substantial failure of many mergers and acquisitions. However, there is also a large number of these transactions that lead to increased productivity, innovation, profitability and shareholder value. Acquisition success varies with the underlying business strategy for value creation.

Deal characteristics affect the shareholder wealth gains and operating performance improvement after merger. The challenge for managers is to craft a winning business and acquisition strategy. Structuring the deal correctly is another challenge.

In the following chapters we aim to highlight these challenges to value creation that arise at different stages of the M & A process. The risks associated with each of these stages, the sources of these risks and how these risks may be managed or mitigated are the subject of the remainder of the book.
Review questions

4.1 What are the different ways of measuring the success of M & A?

4.2 What is the rationale for shareholder maximization as a success criterion?

4.3 What are the issues in setting up an appropriate benchmark for assessing shareholder value performance of mergers?

4.4 What are the different benchmarks available for making such assessment?

4.5 What is benchmark return and what is abnormal return?

4.6 How is the CAPM used to assess merger performance? What are its limitations?

4.7 What is the link between abnormal returns and abnormal operating performance? How is the latter assessed?

4.8 What is short-run performance? What is long-run performance? Which is the appropriate measure of merger performance? Why?

4.9 What is the shareholder value performance of US and UK acquisitions in the short and long run?

4.10 What is the operating performance of US and UK acquirers?

4.11 What is the shareholder value and operating performance of continental European acquirers?

4.12 Comment on the differences in acquisition performance in the US, Europe and the UK.

Further reading


Notes and references

1. See Appendix 4.1 for a brief review of the empirical work leading up to these conclusions. Fama and French argue that these factors capture some components of systematic risk.

2. In practice, however, researchers choose, as controls, firms that have not undertaken acquisitions in the relevant observation period. Thus comparison is made between merging and non-merging firms rather than between firms that follow similar competitive strategies.

3. Such stickiness is regarded as an indication of an inefficient stock market. However, Mitchell and Stafford attribute it to problems of statistical methodology, and when these are resolved the long-term stock returns are reduced to zero. See M. Mitchell and E. Stafford, ‘Managerial decisions and long-term stock price performance’, Journal of Business, 73(3), 2000, 287–329.

4. Fama and French published a series of articles in developing and testing the three-factor model. See Appendix 4.1 for references to these.
13. M. A. Hitt, R. E. Hoskisson, R. D. Ireland and J. S. Harrison, ‘Effects of acquisitions on D inputs and outputs’, Academy of Management Journal, 31, 1988, 693–706. The authors’ sample consists of 157 targets acquired by 35 pharmaceutical firms in the US during 1988–97. Their measure of innovation is the number of products in Phase 1 trials. They measure depth by the average number of approved patents per patent subclass, and breadth by the number of approved patent subclasses the firms held.

14. See M. Carhart, ‘On persistence of mutual fund performance’, Journal of Finance, 52(1), 1997, 57–82. Momentum may persist owing to the stickiness we mentioned earlier, or investors’ irrational trading strategies of buying or selling based on past stock high or low prices respectively. See Appendix 4.1 for further discussion.

15. In a recent paper, Haim Levy defends the CAPM against attacks by behavioural economists and psychologists proposing the prospect theory that it theoretical foundations, i.e. the expected utility maximization and mean-variance rules, are not valid, and that the model lacks empirical support. See H. Levy, ‘Behavioral economics and asset pricing’, SSRN id 1361699 dated February 2009, downloaded from www.ssrn.com.

16. See J. C. Prabhu, R. K. Chandy and M. E. Ellis, ‘The impact of acquisitions on innovation: Poison pill, placebo or tonic?’, Journal of Marketing, 69, 2005, 114–130. The authors’ sample consists of 157 targets acquired by 35 pharmaceutical firms in the US during 1988–97. Their measure of innovation is the number of products in Phase 1 trials. They measure depth by the average number of approved patents per patent subclass, and breadth by the number of approved patent subclasses the firms held.

Appendix 4.1 Abnormal returns methodology to study the impact of mergers on shareholder value*

Event study methodology

The event study methodology introduced by Fama et al. (1969) has become the standard method of measuring security price changes in response to an event or announcement. It is a major research tool for examining market efficiency as well as for testing theories of corporate finance such as the impact of dividend policy, capital structure and corporate control changes. Event studies help address the fundamental question of how the flow of information to the market about an event affects stock returns, and are a powerful tool for assessing the impact of corporate changes on the value of the firms. Event studies are used for two purposes: to test the null hypothesis that the market efficiently incorporates new information, and to examine the wealth impact of an event. They involve determining whether there is an abnormal stock return following an unanticipated event. The methodology is popular, because it obviates the need to analyze accounting-based measures and instead focuses on stock price changes that are supposed to incorporate all relevant information. Post-event abnormal performance studies provide evidence on market efficiency. Systematically non-zero returns that persist after an event are inconsistent with the hypothesis that prices adjust quickly to fully reflect new information.

*I wish to thank Dr Vineet Agarwal of Cranfield School of Management for his expert knowledge and help in preparing this appendix.
Chapter 4 / Are acquisitions successful?

Short- versus long-horizon studies

The short-horizon event studies assume that the response of prices to an event is quick – almost instantaneous – reflecting the stock market’s informational efficiency. Hence researchers use a short event window of a few days around the event, e.g. a takeover bid announcement. A growing body of literature argues that stock prices adjust slowly to information, and therefore examines returns over longer horizons (typically 3–5 years) to get a full view of market inefficiency. The choice of an inappropriate model in short-horizon event studies vitiates conclusions less than in long-horizon studies, since daily expected returns are close to zero. When an event is a ‘big impact’ event, and the stock returns are large and concentrated in a few days, the bad model problem is negligible. For example, in mergers and tender offers the average stock return for target firms during a three-day event window is 15% where the normal average daily stock return is only about 0.04%. Use of daily stock returns not only captures the big impact, it also has the further advantage that the bad model problems are less severe. This allows cleaner tests of market efficiency than monthly returns.

In studies that analyze long-run stock returns following major corporate events, there is considerable variation in the way abnormal returns are calculated and in statistical tests employed to detect abnormal returns.

Benchmark models and abnormal returns

A security’s price performance can be considered abnormal only with reference to some benchmark, and therefore it is necessary to specify a return-generating model before abnormal returns can be measured. Normal returns can be generated in several different ways:

- **Capital asset pricing model:** The expected return for security $i$ in time $t$ is given by
  \[ R_{it} - R_{ft} = \alpha_i + \beta_i(R_{mt} - R_{ft}) \]
  The parameters $\alpha_i$ and $\beta_i$ are estimated by regressing the excess security returns on the excess market return for the estimation period.

- **Mean-adjusted model:** the ex ante expected return on a security is constant across time, but can differ across securities. The expected return for security $i$ in time $t$ is given by
  \[ E(R_{it}) = K_i \]
  The model is consistent with CAPM under assumptions of constant systematic risk and a stationary optimal investment opportunity set for investors.

- **Market-adjusted model:** the ex ante expected return on a security is constant across securities and can differ across time. The expected return for security $i$ in time $t$ is given by
  \[ E(R_{it}) = E(R_{mt}) \]
  where $R_i$ is the return on security $i$, $R_M$ is the return on the market index, and $t$ is the time period. The model is consistent with CAPM under the assumption $\beta = 1$ for all securities.

- **Market model:** the expected return for security $i$ in time $t$ is given by
  \[ R_{it} = \alpha_i + \beta_i R_{mt} \]
  The parameters $\alpha_i$ and $\beta_i$ are estimated by regressing the security returns on the market return for the estimation period.

- **Fama and French three-factor model (FFTF):** the expected return $R_i$ for security $i$ in time $t$ is given by
  \[ R_{it} - R_{ft} = \alpha_i + \beta_i(R_{mt} - R_{ft}) + \gamma_i HML_t + \delta_i SMB_t \]
where \( R_f \) is the risk-free rate, \( R_m \) is the value-weighted return on the market index, HML is the return on the mimicking portfolio for the book-to-market factor, SMB is the return on the mimicking portfolio for the size factor, and \( t \) is the time subscript. HML is the difference in returns between high-market-to-book and low-market-to-book portfolios. SMB is the difference in returns between large-firm and small-firm portfolios.

- **Carhart four-factor model:**
  \[
  R_i - R_f = \alpha_i + \beta_i (R_m - R_f) + \gamma_i \text{HML} + \delta_i \text{SMB} + \epsilon_i \text{M}
  \]
  where \( M \) is the momentum factor measured, for example, as the difference between the highest returns and lowest returns portfolios in the year preceding the event. The assumption is that historic stock returns tend to persist for a while i.e. stocks experiencing high (low) returns in the recent past will continue to experience high (low) returns. This factor captures the component of stock pricing due to momentum.

  Both the FFTF and Carhart four-factor models are generally used to measure long term performance and estimated using monthly returns. \( \alpha_i \) is a monthly excess return. It is also described as calendar time abnormal return. For an example of a study reporting such a return see Bouwman, Fuller and Nain (2009) listed in Table 4.3.

- **Reference portfolio:** this approach sorts the population of stocks on one or more predefined characteristics (e.g. size, book to market ratio, industry), and the expected return on the security \( i \) during time \( t \) is the realized return during time \( t \) on the reference portfolio to which the security belongs.

- **Matching with control firms on specific firm characteristics:** this approach matches each sample security to another non-event security on one or more predefined characteristics such as size, book-to-market, industry. The expected return on the sample security \( i \) during time \( t \) is the same as the realized return on the control security during time \( t \).

### Calculating abnormal returns

The abnormal return is the difference between the realized return and the expected return on the sample security:

\[
\text{AR}_i = R_i - E(R_i)
\]

where \( \text{AR}_i \) is the abnormal return, \( R_i \) is the realized return and, \( E(R_i) \) is the expected return on security \( i \) for period \( t \).

There are two methods of computing abnormal returns:

- **Cumulative abnormal returns (CAR):** these are computed as the sum of daily (or monthly) abnormal returns over the horizon of the study. CAR for security \( i \) during period \( T \) is given by
  \[
  \text{CAR}_{iT} = \sum_{t=1}^{T} \text{AR}_i
  \]

- **Buy-and-hold abnormal returns (BHAR):** this is computed as the return on buy-and-hold investment in the sample firm less the expected return on buy-and-hold investment in a control firm or reference portfolio. BHAR for security \( i \) during period \( T \) is given by
  \[
  \text{BHAR}_{iT} = \prod_{t=1}^{T} (1 + R_i) - \prod_{t=1}^{T} (1 + E(R_i))
  \]
Controversies over abnormal returns measures

Barber and Lyon (1997) argue that BHARs are theoretically superior to CARs because BHARs accurately capture the wealth effects of a long-term investor. Fama (1998), on the other hand, argues that CARs are theoretically superior because formal tests of abnormal returns should use the same returns metric as the model to estimate expected returns uses. Asset-pricing models are silent about the time interval, but they usually assume normally distributed returns, and normality is a better approximation for short-horizon returns such as monthly returns. Tests of asset-pricing models generally use monthly returns.

Mitchell and Stafford (2000) point out that BHARs can give false impressions of the speed of price adjustments, because they can grow with time even when there is no abnormal performance after the initial period. Kothari and Warner (1997) found that in their simulation results both CAR and BHAR produce misspecified test statistics, and Lyon et al. (1999) found that test statistics based on CARs were no less reliable than those based on BHARs. Fama (1998) also argued that CARs were better than BHARs on statistical grounds. Lyon et al. (1999) developed elaborate techniques to correct some of the inference problems of BHARs, but their elaborate methods did not produce more reliable inferences than simple methods used for CARs. Brav (1997) emphasized that not all BHAR models correct fully for cross-correlations of returns, and a full solution was typically not available. For average abnormal returns (AARs) there is a full solution to the problem of cross-correlations.

Using control firms alleviates these biases and gives well-specified test statistics in random samples. However, controlling for size and book-to-market ratio is not sufficient to yield well-specified test statistics when samples are non-random.

Event clustering and calendar time portfolio returns (CTPR)

To alleviate the problem of time clustering of events and the cross-correlation of their returns the calendar time portfolio return methodology constructs portfolios of event securities, e.g. takeover target stocks and benchmark control portfolios and estimates the abnormal returns over time. This procedure controls for event clustering and the correlation of event returns. For an example of a study employing this approach see Mitchell and Stafford (2000) listed in Table 4.3.

References and bibliography


Appendix 4.2


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**Appendix 4.2 Studies cited in Tables 4.1 to 4.9**


Appendix 4.2


