

Mergers and Acquisitions

A. Kinds of M&A

A merger is the combination of two firms by mutual agreement of the boards of both firms. These are typically “friendly”, which means that the management of both firms are supportive of the transaction.

An acquisition occurs when one firm purchases the stock of another, either with cash or stock (more below). Acquisitions can be friendly or hostile, where hostile indicates that the management of the firm to be acquired (the target) is against the deal.

Sometimes the management of a firm will buyout the shareholders, often to defend against a possible hostile takeover. This is called a ‘going private transaction’, or sometimes a ‘management buyout’ (MBO). The money is raised often by borrowing, and thus these deals are sometimes called ‘leveraged buyouts’, or LBOs. LBOs were common in the 1980s as a result of the development of the junk bond market. LBOs went away during the 1990s, but today many private equity companies have been buying out companies and taking them private again.

B. Types of M&A

There are three primary types of M&As. In a horizontal deal, the target and acquiring firms are in the same industry. Antitrust laws are designed to prevent monopolization of an industry, and sometimes are used to block horizontal M&As.

A vertical M&A occurs when firms at different stages of production combine.

A conglomerate M&A occurs when firms that are unrelated combine. These were common in the 1960s but proved to be unsuccessful.

C. Reasons for M&A

Synergies occur when the present value of the cash flows from the combined firms is greater than the sum of the present values of the two firms separately:

$$PV(A+B) > PV(A) + PV(B)$$

How is this possible? Many possible reasons. There may be gains on the operating side:

1. Economies of scale in production or distribution of the product. That means that it is cheaper to produce the product at a larger scale of production, hence the merged firm can

make more money than the two firms could separately. This may be possible if there are a lot of fixed costs of production that can be spread across a larger amount of production in a big firm.

2. Economies of scope. That means that a firm producing two products can do so cheaper than if the two products were produced in separate firms. For example, in financial services it may be more efficient to produce commercial lending services and securities underwriting services in the same firm because then the bank can spread the costs of collecting information about a borrower across two products.

3. Firms may want to merge vertically to avoid a hold out problem by suppliers. Imagine that you are running GM and purchasing a crucial part that goes into every car that you make from a single supplier. This supplier may be tempted to try to jack prices up very high, knowing that you (GM) are dependent on them. The simplest way to overcome this problem is for GM to buy the supplier. (This problem would not occur if there were many suppliers and hence plenty of competition.)

4. In the case of hostile takeovers, inefficient managers may get the boot. That is good for shareholders because costs will decline under new, presumably better, management.

5. Market power may increase with a merger, despite efforts of the U.S. Justice Department. In this case, a larger firm, even without cost declines, may be able to add to profits by raising prices. Clearly this would be good for shareholders but bad for customers!

6. Taxes can also sometimes be reduced when firms in different businesses combine. The reason is that the tax code does not treat profits and losses symmetrically. Profits are taxed immediately, but losses do not lead to tax rebates; rather, a firm that loses money can only use those losses against future profits. Thus, the tax rebate stemming from losses does not earn any interest. So, a firm that has lost a lot of money in the past has a valuable tax shield that can be used right away to offset taxes if that firm is acquired by a profitable firm.

7. Government bailouts are more common when large firms get into trouble. For example, Chrysler in the early 1980s, airlines after 9/11 (but not pizza places that got smashed by the falling WTC). Thus, there may be incentives for firms to become large in order to gain political muscle and get better treatment from the government. This is particularly problematic in the context of the financial services industry.

And, there may be gains on the financial side:

1. Remember from capital structure theory that selling securities to raise capital is expensive, especially trying to sell equity (underpricing, announcement effects of seasoned equity offerings, fees to investment bankers). That is what motivated the

‘pecking order’ of finance. (The pecking order says firms should pay for investment with internal funds if available, then use debt, and finally use equity as a last resort.) If a cash rich firm buys a firm with tremendous investment opportunities, then the new investment can be financed without needing to issue new securities. This occurs all the time when, for example, large pharmaceutical companies buy small, idea-rich biotech firms.

2. With better diversification and reduced risk after M&A, firms may be able to increase borrowing without increasing the chance of financial distress. Thus, an increase in debt capacity after a merger can reduce taxes and hence increase value.

There are also bad reasons to merge

1. Managers of corporations may want to “build an empire” by buying up lots of firms. The temptation to do this is both implicit (managers of large firms get to be in control of more resources) and explicit (managers of large firms get paid a lot more than managers of small firms).

2. Diversification (again). Although diversification may increase debt capacity and thus reduce taxes, most of the evidence to date suggests that diversified firms are *less valuable* than stand alone firms. Diversification may make it hard for a firm to stick to what it knows and manage the firm effectively.

D. Merger Valuation (how much does it cost to buy another firm?)

Let’s start with a simple example. Firm B is the bidder (buyer) and T is the target. Firm B has a market value of \$75 million and T has a market value of \$9 million. We will assume at first that B is going to pay \$12 million in cash. After the acquisition, there will be “synergies” of \$4 million due to lower costs stemming from economies of scale and scope (say). [Reality check: how do you know what these synergies will be? Very hard to know in practice, but analysts attempt to estimate things like how many employees can be cut, or how much customers might value the opportunity to buy the services of the two firms as a package, etc.]

So:

$$\text{Synergy} = \text{PV}(B+T) - \text{PV}(B) - \text{PV}(T) = \$4 \text{ million}$$

Which means:

$$\text{PV}(B+T) = \$75 + \$9 + \$4 = \$88 \text{ million}$$

The cost of acquiring T (the premium) is just the difference between the amount paid and the value of T as a stand alone firm:

$$\text{Premium} = \$12 - \$9 = \$3 \text{ million}$$

In general, the NPV of the merger from the standpoint of the bidder is just the difference between the synergy and the premium:

$$\text{NPV} = \text{Synergy} - \text{Premium}$$

What if the firm pays in stock rather than cash?

Suppose we have the following situation:

	<u>B</u>	<u>T</u>
Share price	75	15
Number of Shares	1 million	600,000
Market Value	\$75 million	\$9 million

Suppose now instead of paying \$12 million in cash, the bidder uses its own stock. That is, they offer the shareholders of T 160,000 shares of B in return for their 600,000 shares of T. This seems logical, because $160,000 * \$75 \text{ per share} = \12 million . But now let's see what happens. There are now 1,160,000 shares in the combined company, because an additional 160,000 shares must be issued. The old shareholders of B own 1,000,000 of these, and the old shareholders of T own the other 160,000 shares.

Thus, we can ask: what is the share price for the new firm?

$$\text{PV}(B+T) = 75 + 9 + 4 = \$88 \text{ million}$$

$$\text{Stock Price} = \$88 / 1.16 = \$75.86 \text{ per share}$$

In fact, the share price of B will rise to \$75.86 per share even before the merger happens as long as the market believes the deal will get done for sure.

What happens to the price of the target? One share of T gives the owner the right to 0.267 shares of B ($160,000 / 600,000$). So:

$$\text{Stock Price of T} = 0.267 * \$75.86 = \$20.21 \text{ (up from 15!)}$$

So, the true cost of the merger:

$$\text{Premium} = \$75.86 * 160,000 - \$9 \text{ million} = \$3.14 \text{ million}$$

We can look at the division of the gains too. The old shareholders of B own 86.2% of the new company (1 million share / 1.16 million), and the old shareholders of T own 13.8%.

So:

$$\text{Target S/H gain} = 88 * 0.138 - 9 = \$3.14$$

$$\text{Bidder S/H gain} = 88 * 0.862 - 75 = \$0.86$$

Note that the NPV of the merger is the same thing as the bidder's gain:

$$\text{NPV} = \text{Synergy} - \text{Premium} = \$4 - \$3.14 = \$0.86$$

Another way to understand how the stock price of B is affected by the merger announcement is to take the original market value of B (\$75) plus the NPV of the merger and divide by current shares outstanding:

$$\text{Stock Price of B} = (\$75 + \$0.86) / 1 \text{ million shares} = \$75.86 \text{ per share}$$

In general, if the target S/H gets fraction x of the combined firm, then the cost of the merger is the following:

$$\text{Premium} = x \text{PV}(\text{B}+\text{T}) - \text{PV}(\text{T})$$

Notice that when a company pays with *CASH*, the cost of the merger does not depend on the eventual success. That is, the cost just equals the difference between the cash paid and the value of the target as a stand alone firm. In the case of paying with *STOCK*, the costs depend on the eventual success of the merger. If the merger is a big success, then the value of the combined firm is very high and the effective cost of the merger is high. Vice versa if the merger is less successful. The reason is that gains from the merger are shared between the target and bidder shareholders when stock is used.

Question: Compute the premium, NPV, and stock prices of B and T after the merger above is announced if B offers to pay the shareholders 200,000 shares rather than 160,000.

This example is a little bit unrealistic because we did not take account of how rumors about mergers might affect the stock price.

Assume that the bid is still for \$12 million in cash, but now assume that the stock price had already risen from 13 to 15 due to past rumors of a takeover. This means that the value of T as a stand-alone firm is:

$$\text{PV}(\text{T}) = 13 * 600,000 = \$7.8 \text{ million}$$

So, the cost (premium) to the bidder equals:

$$\text{Premium} = \$12 \text{ million} - \$7.8 \text{ million} = \$4.2 \text{ million}$$

Thus, the bidder is paying too much! They are actually losing \$0.2 million on the deal.

In the case of paying with stock:

$$\text{Premium} = xPV(B+T) - PV(T) = 86.8 \times 0.138 - \$7.8 \text{ million} = \$4.18 \text{ million}$$

Paying in stock now costs less than cash because the merger is worth less:

$$PV(B+T) = PV(B) + PB(T) + \text{Synergy} = 75 + 7.8 + 4 = \$86.8 \text{ million}$$

E. Empirical Evidence

Are mergers good or bad? Of course, the answer is that some are good and some are bad. However, it would be interesting to know whether, on average, mergers create or destroy value. Empirical studies of mergers have found that, on average, the shareholders of target firms are made much better off. During the 10 day period prior to announcement, for example, share prices of target firms tends to go up (what does this say about market efficiency?). On the day of the announcement, the price tends to go up even more. For example, tender offers are associated with an increase in the price of around 25% (that's because the tender offer is always above the price of the stock when the offer is made).

But here is the bad news : the shareholders of acquiring firms do not appear to be made better off. Most studies find little change in the wealth of bidder shareholders around mergers. Thus, it seems like all of the gains from mergers go to the target shareholders! Or, that means that on average the NPV of mergers is 0 for the bidder, and positive for the target.

One more fact: when mergers are paid for with cash, stock price of both target and acquirer usually rise. However, in the more common case where acquirers pay using stock, the target price rises (as usual), but the price of the acquirer falls. The reason may be because acquirer managers are more likely to bid using stock (rather than cash) if they believe the company's stock is overvalued (just like in an SEO)!