

2. Increase Expected Growth

A firm with low current cash flows can still have high value if it is able to grow quickly. For profitable firms, the growth will be defined in terms of earnings but for money-losing firms, you have to consider the nexus of revenue growth and higher margins.

I. Profitable Firms

Higher growth either arises from increases in reinvestment or a higher return on capital. It does not always translate into higher value, though, since higher growth can be offset by changes elsewhere in the valuation. Thus, higher reinvestment rates usually result in higher expected growth but at the expense of lower cash flows, since reinvestment reduces the free cash flows. Higher returns on capital also cause expected growth to increase, but value can still go down if the new investments are in riskier businesses and there is a more than proportionate increase in the cost of capital.

The trade off from increasing the reinvestment rate is listed in Table 31.3. The positive effect of reinvesting more, higher growth, has to be compared to the negative effect of reinvesting more, the drop in free cash flows:

Table 31.3: Trade off on Reinvestment Rate

<i>Negative Effects</i>	<i>Positive Effects</i>
Reduces free cash flow to firm: $FCFF$ $= EBIT (1 - \text{tax rate}) (1 - \text{Reinvestment Rate})$	Increases Expected Growth: Expected Growth $= \text{Reinvestment Rate} * \text{Return on Capital}$

We could work through the entire valuation and determine whether the present value of the additional cash flows created by higher growth is greater than the present value of the actual reinvestments made, in cash flow terms. There is, however, a far simpler test to determine the effect on value. Note that the net present value of a project measures the value added by the project to overall firm value and that the net present value is positive only if the internal rate of return on the project exceeds the cost of capital. If we make the assumption that the accounting return on capital on a project is a reasonable estimate for the internal rate of return, then increasing the reinvestment rate will increase value if and

only if the return on capital is greater than the cost of capital. If the return on capital is less than the cost of capital, the positive effects of growth will be less than the negative effects of making the reinvestment.

Note that the return on capital that we are talking about is the marginal return on capital, i.e., the return on capital earned on the actual reinvestment, rather than the average return on capital. Given that firms tend to accept their most attractive investment first and their less attractive investments later, the average returns on capital will tend to be greater than the marginal returns on capital. Thus, a firm with a return on capital of 18% and a cost of capital of 12% may really be earning only 11% on its marginal projects. In addition, the marginal return on capital will be much lower if the increase in the reinvestment rate is substantial. Thus, we have to be cautious about assuming large increases in the reinvestment rate while keeping the current return on capital constant.

A firm that is able to increase its return on capital, while keeping the cost of capital fixed, will increase its value. The increase in growth will increase value, and there are generally no offsetting effects. If, however, the increase in return on capital comes from the firm entering new businesses that are far riskier than its existing business, there might be an increase in the cost of capital that offsets the increase in growth. The general rule for value creation remains simple, however. As long as the projects, no matter how risky they are, have a marginal return on capital that exceeds their cost of capital, they will create value.

Using the comparison between return on capital and cost of capital, a firm that earns a return on capital that is less than its cost of capital can get an increase in value by accepting higher return investments, but it would get an even greater increase in value by not investing at all and returning the cash to the owners of the business. Liquidation or partial liquidation might be the most value enhancing strategy for firms trapped in businesses where it is impossible to earn the cost of capital.

Illustration 31.5: Reinvestment Rates, Return on Capital and Value

In 1998, Boeing earned a return on capital of 6.59% and had a reinvestment rate of 65.98%. If you assume a cost of capital of 9.17% for the firm, you would value the equity in the firm at \$13.14 a share. In the same year, the Home Depot had a return on

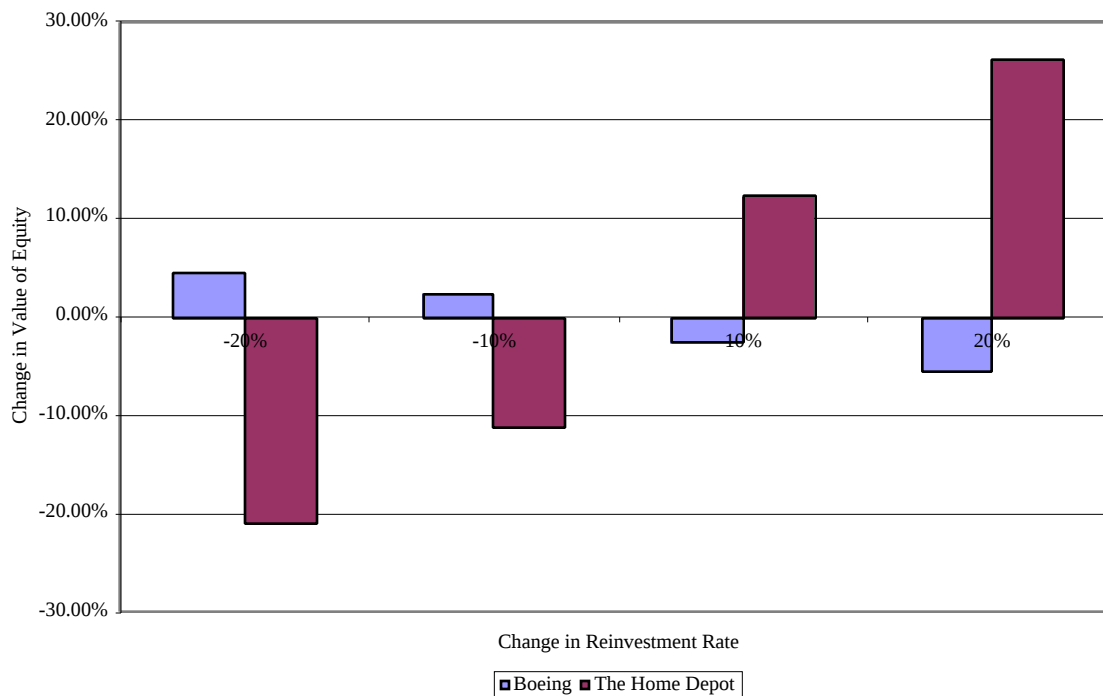
capital of 16.38%, a reinvestment rate of 88.62% and a cost of capital of 9.51%, resulting in a value per share of \$42.55.

Table 31.4: Value per Share

	<i>Boeing</i>	<i>The Home Depot</i>
Cost of Capital	9.17%	9.51%
Return on Capital	6.59%	16.38%
Reinvestment Rate	65.98%	88.62%
Expected Growth Rate	4.35%	14.51%
Value Per Share	\$13.14	\$42.55

If the Home Depot could increase its reinvestment rates, without affecting its returns on capital, the effect on value will be positive, because it is earning excess returns. For Boeing, the effect of increasing the reinvestment rate at the current return on capital will be negative, since the firm's return on capital is less than its cost of capital. In Figure 31.7, we summarize the impact on the value of equity of changing the reinvestment rate at both firms, keeping the cost of capital.

Figure 31.7: Effect of Changes in the Reinvestment Rate on the Value of Equity



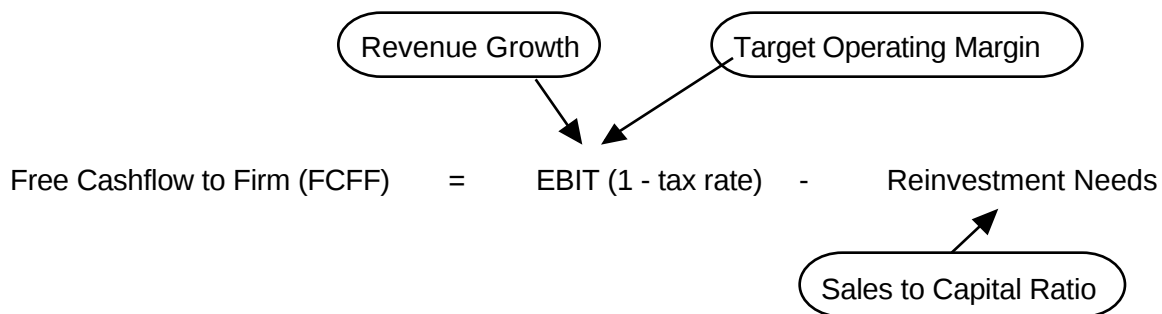
To illustrate, we reduced the reinvestment rate at Boeing from 65.98% to 45.98% and examined the percentage effect on value of equity; the change was + 4.49%. The effects of a similar change at the Home Depot was negative. The effect of changes in the reinvestment rate were dramatic at the Home Depot, because the high growth period lasts 10 years.

fundgrEB.xls: There is a dataset on the web that summarizes returns on capital and reinvestment rates by industry group for the United States.

II. Negative Earnings Firms

For the negative earnings firms in the analysis – Amazon, Ariba and Rediff.com – expected future cash flows are derived from assumptions made about three variables – the expected growth rate in revenues, the target operating margin and the sales to capital ratio. The first two variables determine the operating earnings in future years and the last variable determines reinvestment needs. Figure 31.8 summarizes the impact of each of these variables on the cash flows.

Figure 31.8: Determinants of Growth



Other things remaining equal, the expected cash flows in future years will be higher if any of the three variables – revenue growth, target margins and sales to capital ratios – increase. Increasing revenue growth and target margins will increase operating earnings, while increasing the sales to capital ratio will reduce reinvestment needs.

In reality, though, firms have to make a trade off between higher revenue growth and higher margins. When firms increase prices for their products, they improve operating margins but reduce revenue growth. Michael Porter, one of the leading thinkers in corporate strategy, suggests that when it comes to pricing strategy, there are two basic routes a firm can take⁵. It can choose to be a *volume leader*, reducing price and hoping to increase revenues sufficiently to compensate for the lower margins. For this strategy to work, the firm needs a cost advantage over its competitors to prevent pricing wars that may make all firms in the industry worse off. Alternatively, it can attempt to be a *price leader*, increasing prices and hoping that the effect on volume will be smaller than the increased margins. The extent to which revenue growth will drop depends upon how elastic the demand for the product is and how competitive the overall product market is. The net effect will determine value.

While a higher sales to capital ratio reduces reinvestment needs and increases cash flow, there are both internal and external constraints on the process. As the sales to capital ratio increases, the return on capital on the firm in future years will also increase. If the return on capital substantially exceeds the cost of capital, new competitors will

⁵ “Competitive Strategy”, Michael Porter

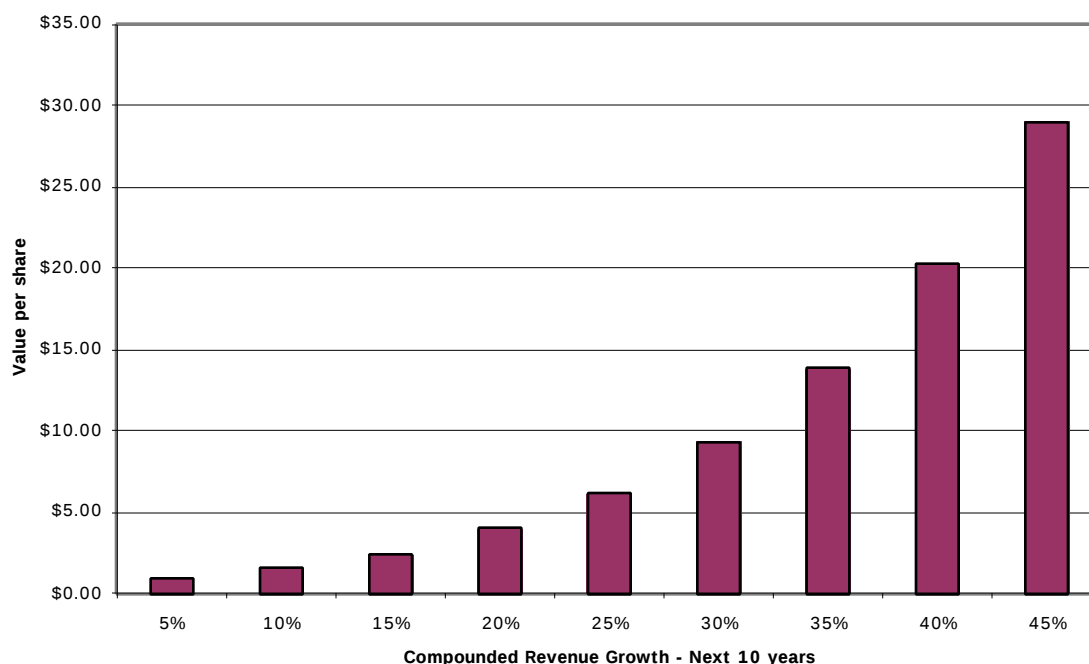
enter the market, making it more difficult to sustain the expected operating margins and revenue growth.

Illustration 31.6: Revenue Growth, Operating Margins and Sales to Capital Ratios

In Chapter 23, we valued Commerce One, a firm with an operating loss of \$529 million and only \$537 million in revenues. Using a compounded revenue growth rate of 40.24%, a target operating margin of 14.72% in ten years and a sales to capital ratio of 2.20, we estimated a value for the firm of \$4.8 billion and value per share of \$19.26. Changes in these inputs can have a dramatic effect on the value of the firm, as we noted in Chapter 23.

As you would expect, higher revenue growth translates into higher values per share. Figure 31.9 graphs the change in value per share for Commerce One as a function of the change in expected growth rate in revenues over the next decade.

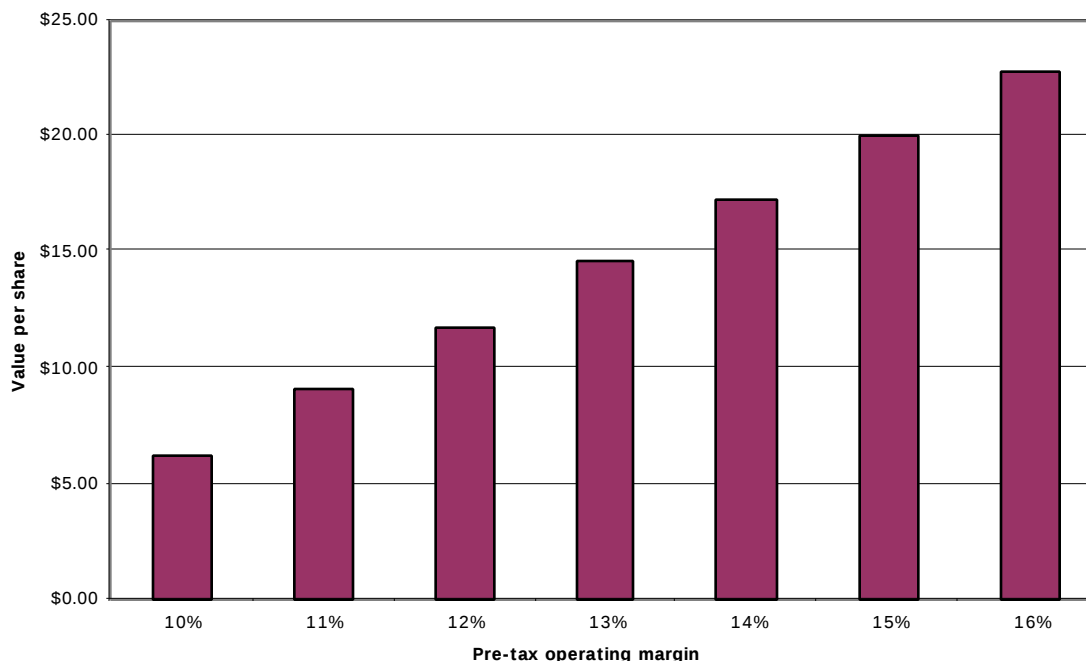
Figure 31.9: Revenue Growth and Value per share



Thus, Commerce One's value per share increases by 50% if the compounded revenue growth over the next 10 years is 45% instead of 40%. By the same token, the value per share drops by a third if the growth rate is 35%.

While higher revenue growth clearly increases value, we assumed that the target margin would remain unchanged as we change the growth rate. The target margin is just as important, if not more so, than revenue growth in determining value. In Figure 31.10, we estimate the value per share, holding revenue growth at 40.24% and changing the target margin.

Figure 31.10: Value per share and Sustainable Margins



Every 1% change in the target operating margin changes the value by approximately \$3 per share.

The trade off between revenue growth and margins is made more explicit in Table 31.5, which shows value per share as a function of both variables.

Table 31.5: Margin versus Revenue Growth: Commerce One

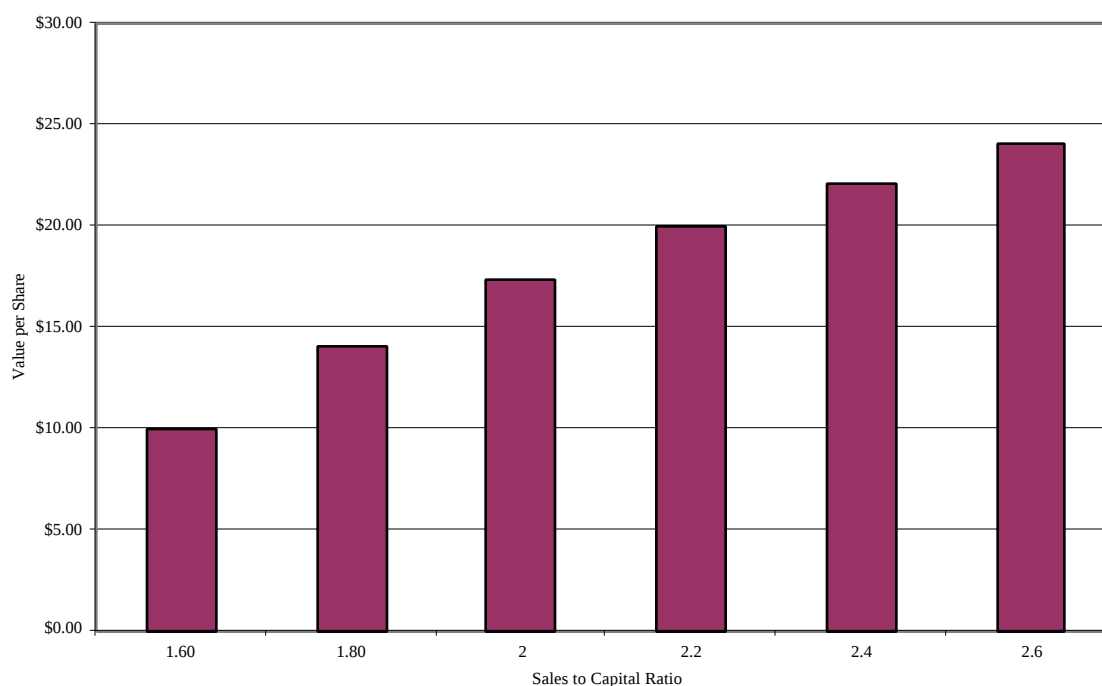
		Target Pre-tax Operating Margin in 10 years				
Compounded Revenue Growth over		8%	10%	12%	14%	16%
	10%	\$0.00	\$0.00	\$0.00	\$0.47	\$1.08
	20%	\$0.00	\$0.18	\$1.46	\$2.91	\$4.29
	30%	\$0.02	\$2.98	\$5.74	\$8.47	\$11.18

next 10 years	40%	\$3.51	\$8.94	\$14.36	\$19.77	\$25.17
	50%	\$10.31	\$20.74	\$31.16	\$41.56	\$51.97

Commerce One's value varies widely depending upon the combination of revenue growth and margins that you assume. In practical terms, this also provides the firm with a sense of the trade off between higher revenue growth and lower target margins.

Finally, a higher sales to capital ratio (which translates into a higher return on capital in 10 years) leads to a higher value per share, because it determines both how much Commerce One has to reinvest to generate its expected growth rate. Figure 31.11 presents the effects on value per share of changing the sales to capital ratio over the high growth period for Commerce One. As we change the sales to capital ratio, we also change the return on capital in stable growth – it increases as the sales to capital ratio increases.

Figure 31.11: Value per Share versus Sales to Capital



As the sales to capital ratio (and the terminal return on capital) increases, the value per share of Commerce One also increases.

3. Lengthen the Period of High Growth

Every firm, at some point in the future, will become a stable growth firm, growing at a rate equal to or less than that of the economy in which it operates. In addition, growth creates value only if the firm earns excess returns on its investments. With excess returns, the longer the high growth period lasts, other things remaining equal, the greater the value of the firm. No firm should be able to earn excess returns for any length of time in a competitive product market, since competitors will be attracted to the business by the excess returns. Thus, implicit in the assumption that there will be high growth with excess returns is the assumption that there also exist some barriers to entry that prevent competing firms from entering the market and eliminating the excess returns that prevail.

One way firms can increase value is by increasing existing barriers to entry and erecting new ones. Another way to express this idea is that companies earning excess returns have significant competitive advantages. Nurturing these advantages can increase value.

3.1: The Brand Name Advantage

As we noted earlier in the book, the inputs to the traditional discounted cash flow valuation incorporate the effects of brand name. In particular, firms with more valuable brand names are either able to charge higher prices than the competition for the same products (leading to higher margins) or sell more than the competitors at the same price (leading to higher turnover ratios). They usually have higher returns on capital and greater value than their competitors in the industry.

Creating a brand name is a difficult and expensive process that may take years to achieve, but firms can often build on existing brand names and make them valuable. Brand management and advertising can contribute in value creation. Consider the extraordinary success that Coca Cola has had in increasing its market value over the last two decades. Some attribute its success to its high return on equity or capital, yet these returns are not the cause of its success but the consequence of it. The high returns can be traced to the

company's relentless focus on making its brand name more valuable globally⁶. Conversely, the managers of a firm who take over a valuable brand name and then dissipate its value will reduce the values of the firm substantially. The near-death experience of Apple Computers in 1996 and 1997 and the travails of Quaker Oats after the Snapple acquisition suggest that managers can quickly squander the advantage that comes from valuable brand names.

3.2: Patents, Licenses and Other Legal Protection

The second competitive advantage that companies can possess is a legal one. Firms may enjoy exclusive rights to produce and market a product because they own the patent rights on the product, as is often the case in the pharmaceutical industry. Alternatively, firms may have exclusive licensing rights to service a market, as is the case with utilities in the United States.

The key to value enhancement is not just to preserve but to increase any competitive advantages that the firm possesses. If the competitive advantage comes from its existing patents, the firm has to work at developing new patents that allow it to maintain this advantage over time. While spending more money on research and development (R&D) is clearly one way, the efficiency of reinvestment also applies here. The companies that have the greatest increases in value are not necessarily those that spend the most on R&D, but those that have the most productive R&D departments not only in generating patents but also in converting patents into commercial products.

The competitive advantage from exclusive licensing or a legal monopoly is a mixed blessing and may not lead to value enhancement. When a firm is granted these rights by another entity, say the government, that entity usually preserves the right to control the prices charged and margins earned through regulation. In the United States, for instance, much of the regulation of power and phone utilities was driven by the objective of ensuring that these firms did not earn excess returns. In these circumstances, firms may actually gain in value by giving up their legal monopolies, if they get pricing freedom in

⁶ Companies like Coca Cola have taken advantage of the global perception that they represent American culture, and used it to grow strongly in other markets.

return. We could argue that this has already occurred, in great part, in the airline and long-distance telecommunications businesses and will occur in the future in other regulated businesses. In the aftermath of deregulation, the firms that retain competitive advantages will gain value at the expense of others in the business.

3.3: Switching Costs

There are some businesses where neither brand name nor a patent provides adequate protection against competition. Products have short life cycles, competition is fierce and customers develop little loyalty to companies or products. This describes the computer software business in the 1980s and it still applies to a significant portion of that business today. How, then, did Microsoft succeed so well in establishing its presence in the market? Although many would attribute its success entirely to its ownership of the operating system needed to run the software, there is another reason. Microsoft recognized earlier than most other firms that the most significant barrier to entry in the software business is the cost to the end-user of switching from one product to a competitor. In fact, Microsoft Excel, early in its life, had to overcome the obstacle that most users were working with Lotus spreadsheets and did not want to bear the switching cost. Microsoft made it easy for end-users to switch to its products (by allowing Excel to open Lotus spreadsheets, for instance), and it made it more and more expensive for them to switch to a competitor by creating the Microsoft Office Suite. Thus, a user who has Microsoft Office installed on his or her system and who wants to try to switch from Microsoft Word to WordPerfect has to overcome multiple barriers - Will the conversion work well on the hundreds of Word files that exist already? Will the user still be able to cut and paste from Microsoft Excel and Power Point into WordPerfect documents? The end result, of course, is that it becomes very difficult for competitors who do not have Microsoft's resources to compete with it in this arena.

There are a number of other businesses where the switching cost concept can be used to augment an argument for value enhancement or debunk it. For instance, there are many who argue that the high valuations of Internet companies such as Amazon.com and eToys reflect their first-mover advantage, i.e, the fact that they are pioneers in the online business. However, the switching costs in online retailing seem to be minimal, if any, and

these companies have to come up with a way of increasing switching costs if they want to earn high returns in the future.

3.4: Cost Advantages

There are several ways in which firms can establish a cost advantage over their competitors and use it as a barrier to entry.

- Σ In businesses where scale can be used to reduce costs, economies of scale can give bigger firms advantages over smaller firms. This is the advantage, for instance, that the Home Depot has used to gain market share at the expense of its smaller and often local competitors.
- Σ Owning or having exclusive rights to a distribution system can provide firms with a cost advantage over its competitors. For instance, American Airlines' ownership of the Sabre airline reservation system gave it an advantage over its competitors in attracting customers.
- Σ Having access to lower-cost labor or resources can also provide cost advantages. Thus Southwest Airlines, with its non-unionized labor force, has an advantage over its unionized competitors, as do natural resource companies with access to reserves that are less expensive to exploit.

These cost advantages will influence value in one of two ways: The firm with the cost advantage may charge the same price as its competitors but have a much higher operating margin. Or the firm may charge lower prices than its competitors and have a much higher capital turnover ratio. In fact, the net effect of increasing margins or turnover ratios (or both) will increase the return on capital and through it expected growth.

The cost advantage of economies of scale can create high capital requirements that prevent new firms from entering the business. In businesses such as aerospace and automobiles, the competition is almost entirely among existing competitors. The absence of new competitors may allow these firms to maintain above-normal returns, though the competition between existing firms will constrain the magnitude of these returns.

Illustration 31.7: Potential for Increasing the Length of the High Growth Period

We examine the potential for increasing barriers to entry and by extension the excess returns and the length of the high growth period at Cisco and Motorola. The competitive advantages are different for the two firms and the potential for building on these advantages is different as well.

- Σ Cisco's most significant differential advantage seems to be its capacity to generate much larger excess returns on its new investments than its competitors. Since most of these investments take the form of acquisitions of other firms, Cisco's excess returns rest on whether it can continue to maintain its success in this area. The primary challenge, however, is that as Cisco continues to grow, it will need to do even more acquisitions each year to maintain the growth rate it had the previous year. It is possible that there might be both external and internal constraints on this process. The number of firms that are potential takeover targets is limited and the firm may not have the resources to replicate its current success if the number of acquisitions doubles or triples.
- Σ Motorola's research capabilities and the patents that emerge from the research represent its most significant competitive advantage. However, it is not viewed as the technological leader in either of the two businesses that it operates in. Firms like Nokia are viewed as more innovative when it comes to mobile communications (cellular phones) and Intel is considered the leading innovator among large semiconductor manufacturers.

We begin by valuing each of these firms using their current returns on capital and estimated reinvestment rates as inputs for the high growth period. Table 31.6 summarizes the inputs used in the base case valuations and the value per share estimated with these assumptions.

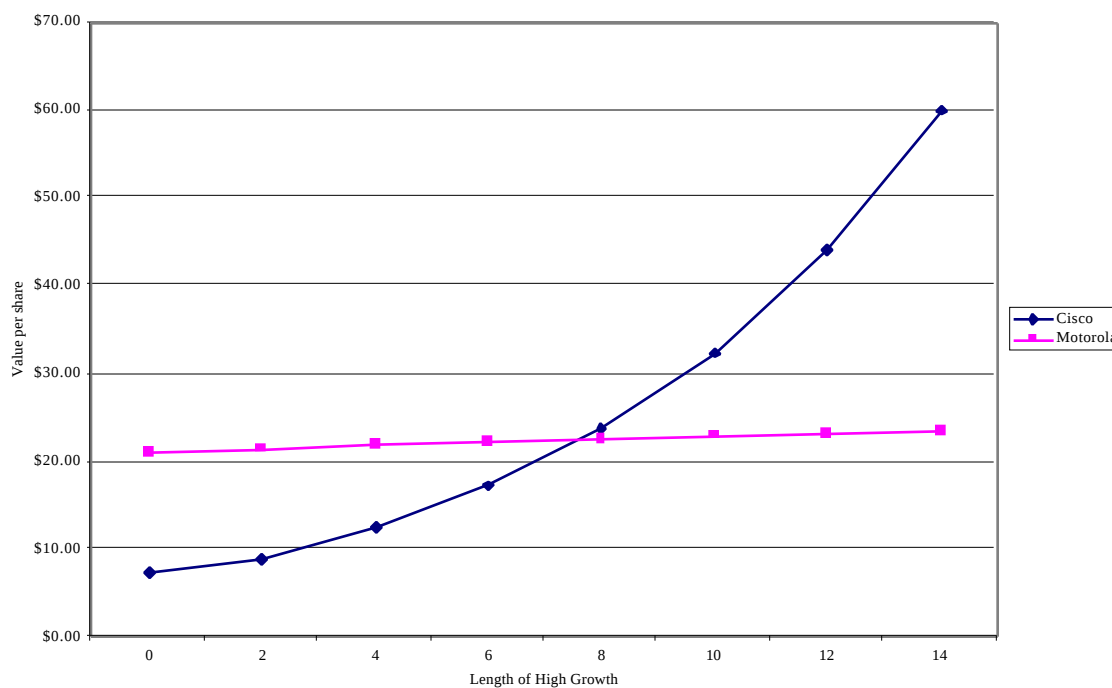
Table 31.6: Inputs for valuing Cisco and Motorola

	Cisco		Motorola	
	High Growth	Stable Growth	High Growth	Stable Growth
Beta	1.43	1.00	1.21	1.00

Cost of Equity	11.72%	10.00%	10.85%	10.00%
After-tax Cost of Debt	4.03%	4.03%	4.23%	4.23%
Debt Ratio	0.18%	10.00%	6.86%	6.86%
Cost of Capital	11.71%	9.40%	10.39%	9.58%
Return on Capital	34.07%	16.52%	12.12%	12.12%
Reinvestment Rate	106.8%	30.27%	52.99%	41.07%
Expected Growth Rate	36.39%	5.00%	6.45%	5.00%
Value per share	\$44.13		\$20.99	

In the base case, we assume 12 years of high growth for Cisco – six years of high growth and six years of transition – and 5 years of high growth for Motorola. We then consider how much the value per share changes as we change the growth period in Figure 31.12.

Figure 31.12: Value per Share and Length of High Growth



The effect of changing the length of the growth period is very different for the two firms. For Cisco, the value per share changes significantly as the length of the growth period change, increasing as it gets longer. For Motorola, the effect is muted and the value per share is relatively insensitive to changes in the length of the growth period. The reason lies in the excess returns that we are assuming for the two firms over the length of the growth period. For Cisco, the excess returns are very large and thus the impact on value is also large. For Motorola, we assume that the excess returns are relatively small and the effect on value is also much lower.

Lead Times from Competitive Advantages

A key question that we often face when looking at the effects of a competitive advantage on value is how long a competitive advantage lasts. This is a difficult question to answer because there are a number of firm specific factors but there are few interesting studies in corporate strategy that try to address the issue. Levin, Klevorick, Nelson and Winter (1987) estimate, for instance, that it takes between 3-5 years to duplicate a patented product or process and 1-3 years to duplicate an unpatented product or process. In the same study, they find that patenting is often much less effective at preventing imitation than moving quickly down the learning curve (producing more advanced versions of the product at lower cost) and establishing efficient sales and service networks. For example, Intel was able to maintain its competitive advantages even as its computer chips were being cloned by AMD by using the lead time it had to move quickly to the next generation chips.

4. Reduce the cost of financing

The cost of capital for a firm is a composite cost of debt and equity financing. The cash flows generated over time are discounted to the present at the cost of capital. Holding the cash flows constant, reducing the cost of capital will increase the value of the firm. In this section, we will explore the ways in which a firm may reduce its cost of capital, or more generally, increase its firm value by changing both financing mix and type.

4.1. Change Operating Risk

The operating risk of a firm is a direct function of the kinds of products or services it provides and the degree to which these products or services are discretionary to the customer. The more discretionary they are, the greater the operating risk faced by the firm. Both the cost of equity and cost of debt of a firm are affected by the operating risk of the business or businesses in which it operates. In the case of equity, only that portion of the operating risk that is not diversifiable will affect value.

Firms can reduce their operating risk by making their products and services less discretionary to their customers. Advertising clearly plays a role, but finding new uses for a product or service is another.

4.2: Reduce Operating Leverage

The operating leverage of a firm measures the proportion of its costs that are fixed. Other things remaining equal, the greater the proportion of the costs of a firm that are fixed, the more volatile its earnings and the higher its cost of capital. Reducing the proportion of the costs that are fixed will make firms much less risky and reduce their cost of capital. Firms can reduce their fixed costs by using outside contractors for some services; if business does not measure up, the firm is not stuck with the costs of providing this service. They can also tie expenses to revenues; for instance, tying wages paid to revenues made will reduce the proportion of costs that are fixed.

This basic idea of tying expenses to revenues is often described as making the cost structure more flexible. A more flexible cost structure influences three inputs in a valuation. It leads to a lower unlevered beta (due to the lower operating leverage), reduces the cost of debt (because of the reduction in default risk) and increases the optimal debt ratio. All three reduce the cost of capital and increase firm value.

4.3: Change the Financing Mix

A third way to reduce the cost of capital is to change the mix of debt and equity used to finance the firm. As we argued in the chapters on capital structure, debt is always cheaper than equity, partly because lenders bear less risk and partly because of the tax advantage associated with debt. This benefit has to be weighed off against the additional

risk of bankruptcy created by the borrowing; this higher risk increases both the beta for equity and the cost of borrowing. The net effect will determine whether the cost of capital will increase or decrease as the firm takes on more debt.

Note, however, that firm value will increase as the cost of capital decreases, if and only if the operating cash flows are unaffected by the higher debt ratio. If, as the debt ratio increases, the riskiness of the firm increases, and this, in turn, affects the firm's operations and cash flows; the firm value may decrease even as cost of capital declines. If this is the case, the objective function when designing the financing mix for a firm has to be restated in terms of firm value maximization rather than cost of capital minimization.



wacc.xls: There is a dataset on the web that summarizes debt ratios and costs of capital by industry group for the United States.

Illustration 31.8: The Effect of Financing Mix on Value

To analyze the effect of changing the financing mix on value, you would need to estimate the costs of equity and debt at each debt ratio. In Table 31.7, the costs of equity and debt are estimated for Motorola for debt ratios from 0% to 90%.

Table 31.7: Cost of Capital and Firm Value: Motorola

<i>Debt Ratio</i>	<i>Beta</i>	<i>Cost of Equity</i>	<i>Bond Rating</i>	<i>Interest rate on debt</i>	<i>Tax Rate</i>	<i>Cost of Debt (after-tax)</i>	<i>WACC</i>
0%	1.16	10.63%	AAA	6.20%	35.00%	4.03%	10.63%
10%	1.24	10.96%	A-	7.25%	35.00%	4.71%	10.33%
20%	1.34	11.38%	B-	10.25%	35.00%	6.66%	10.43%
30%	1.48	11.91%	CC	12.00%	35.00%	7.80%	10.68%
40%	1.72	12.90%	C	13.50%	26.34%	9.94%	11.72%
50%	2.07	14.28%	C	13.50%	21.07%	10.66%	12.47%
60%	2.63	16.54%	D	16.00%	14.82%	13.63%	14.79%
70%	3.51	20.05%	D	16.00%	12.70%	13.97%	15.79%
80%	5.27	27.07%	D	16.00%	11.11%	14.22%	16.79%
90%	10.54	48.14%	D	16.00%	9.88%	14.42%	17.79%

Note that the cost of equity is estimated based upon the levered beta. As the debt ratio increases, the beta increases as well.⁷ The cost of debt is estimated based upon a synthetic rating that is determined by the interest coverage ratio at each debt ratio. As the debt ratio increases, the interest expense increases leading to a drop in the ratings and higher costs of debt. As Motorola moves from a 0% debt ratio to a 10% debt ratio, the cost of capital decreases (and firm value increases). At a 10% debt ratio, Motorola's cost of capital is 10.33%, which is lower than the current cost of capital of 10.39%. Beyond 10%, though, the trade off operates against debt, the cost of capital increases as the debt ratio increases.

4.4: Change Financing Type

A fundamental principle in corporate finance is that the financing of a firm should be designed to ensure, as far as possible, that the cash flows on debt match as closely as possible the cash flows on the asset. By matching cash flows on debt to cash flows on the asset, a firm reduces its risk of default and increases its capacity to carry debt, which, in turn, reduces its cost of capital and increases value.

Firms that mismatch cash flows on debt and cash flows on assets (by using short-term debt to finance long-term assets, debt in one currency to finance assets in a different currency or floating-rate debt to finance assets whose cash flows tend to be adversely impacted by higher inflation) will have higher default risk, higher costs of capital and lower firm value. Firms can use derivatives and swaps to reduce these mismatches and, in the process, increase firm value. Alternatively, they can replace their existing debt with debt that is more closely matched to their assets. Finally, they can use innovative securities that allow them to pattern cash flows on debt to cash flows on investments. The use of catastrophe bonds by insurance companies and commodity bonds by natural resource firms are good examples.

What about Miller-Modigliani?

⁷ Levered Beta = Unlevered Beta (1 + (1- tax rate) (Debt/ Equity))

One of corporate finance's best known and most enduring propositions – the Miller-Modigliani theorem – argues that the value of a firm is independent of its capital structure. In other words, changing your financing mix should have no effect on your firm value. How would we reconcile our arguments in this section with the Miller Modigliani theorem? Note that the original version of the theorem was derived for a world with no taxes and default. With these assumptions, debt creates no tax advantages and no bankruptcy costs and does not affect value. In a world with taxes and default risk, you are much more likely to have to make trade offs and debt can increase value, decrease value or leave it unaffected depending upon how the trade offs operate.

The Value Enhancement Chain

We can categorize the range of actions firms can take to increase value in several ways. One is in terms of whether they affect cash flows from assets in place, growth, the cost of capital or the length of the growth period. There are two other levels at which we can distinguish between actions that create value.

- a. *Does an action create a value trade off or is it a pure value creator?* Very few actions increase value without any qualifications. Among these are the divestitures of assets when the divestiture value exceeds the continuing value and the elimination of deadweight costs that contribute nothing to the firm's earnings or future growth. Most actions have both positive and negative effects on value and it is the net effect that determines whether these actions are value enhancing. In some cases, the tradeoff is largely internal and the odds are much better for value creation. An example is a firm changing its mix of debt and equity to reduce the cost of capital. In other cases, however, the net effect on value will be a function of how competitors react to a firm's actions. As an example, changing pricing strategy to increase margins may not work as a value enhancement measure, if competitors react and change prices as well.
- b. *How quickly do actions pay off?* Some actions generate an immediate increase in value. Among these are divestitures and cost cutting. Many actions, however, are designed to create value in the long term. Thus, building up a

respected brand name clearly creates value in the long term but is unlikely to affect value today.

Table 31.8 summarizes a value enhancement chain, where actions that create value are categorized both on how quickly they create value and on how much control the firm has over the value creation. Under the first column, titled “Quick Fixes”, we have listed actions in which the firm has considerable control over the outcome and the benefit in terms of value creation is immediate. Under the second column, titled “Odds on”, we have included actions that are likely to create value in the near or medium term and where the firm still continues to exercise significant control over the outcome. The third column, titled “Long Term”, includes actions designed to create value in the long term. This is where the major strategic initiatives of the firm show up.

Illustration 31.9: A Value Enhancement Plan

In Illustration 31.7, we valued Motorola at \$22.05 using its current return on capital of 12.18% and debt ratio of 6.86% in the valuation. Figure 31.13 summarizes this valuation. Note, though, that the current return on capital is well below what the firm has earned historically and lags the industry average (of 22.36%) by almost 10%. If Motorola could increase its return on capital to 17.22% on its new investments (leaving its existing investments earning 12.18%) and increase its debt ratio to its optimal of 10%, its value per share would increase to \$23.86. The restructured valuation is summarized in Figure 31.14.



valenh.xls: This spreadsheet allows you to estimate the approximate effect of changing the way a firm is run on its value.